K360 DEF MFL GMFL SMFL LFM XYZ LGT

2014

Pipeline Inspection Report

T.D. Williamson
Pipeline Performance™

Company Name

Hiland Crude, LLC

Project Name

Bethel to Catwalk

Pipe Size

8"

Inspection Date(s)

May 16, 2014

Report Date(s)

June 16, 2014
(R1) Jul 2, 2014

TDW Regional Office

TDW Services, Inc.

Executive Summary - GMFL Inspection

RUN INFORMATION

Hiland Crude, LLC
David Wint

Bethel to Catwalk
8" Crude

	Launcher	Receiver
Location:	Bethel	Catwalk
Date/Time:	5/16/2014 1:12:02 PM	5/16/2014 9:19:12 PM
Stationing:		
GPS - LAT:	48.284297318	48.270715023
GPS - LONG:	-103.816186725	-103.453067315

Duration of run - Hours: 8.12
Average Velocity: 3.65 ft/sec
Tool Tracking By: Cherokee
Pipeline Length: 106,773.00 ft
Maximum Velocity: 4.69 ft/sec
On-site Representative: Florian Pamer
Data Analyst: Ben Stehling
Contact: David Wint

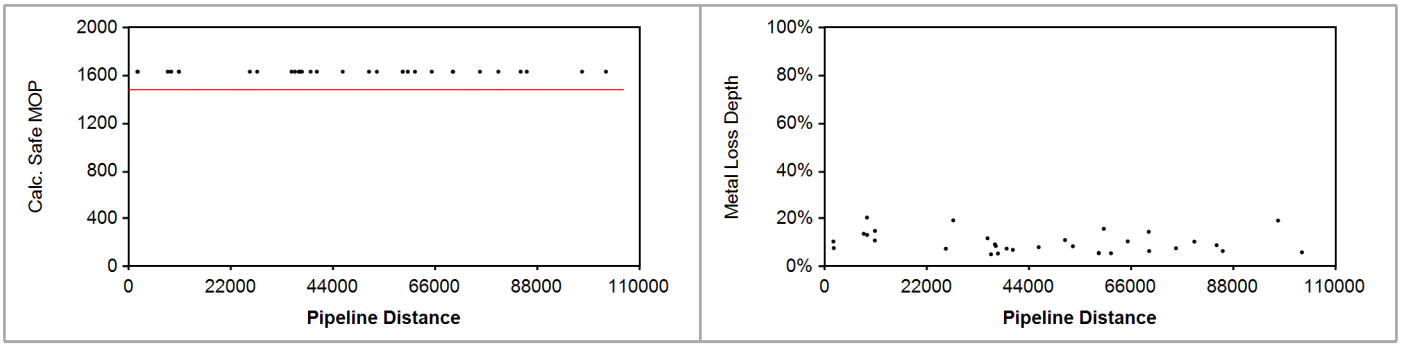
INSPECTION FINDINGS

Current Established Maximum
Criteria Used: ASME B31G: Modified
Operating Pressure of Pipeline: 1,480.00 psi
Defect Interaction Rule: 1 inch between pits

Welds Detected: 2,474 **Valves Detected:** 5 **Fittings Detected:** 2 **Markers Detected:** 19 **Gains Detected:** 1
Casings Detected: 0 **Tees Detected:** 5 **Flanges Detected:** 12 **Repairs Detected:** 0 **Deformations Detected:** 3

P'<P*: 0 **M/L pits:** 32 **M/L grouping:** 32

Internal groups: 9 **External groups:** 23



** 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 32 metal loss groups (9 Internal/23 External) were detected on the inspection survey, of which the deepest is reported at 21%. Using an established maximum operating pressure of 1,480 psi, 0 of the metal loss features appear to be pressure reducing.

Inspection data was obtained for the full length (106,773 feet / 20.22 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.

Executive Summary - Deformation

RUN INFORMATION

Hiland Crude, LLC — *Bethel to Catwalk*

David Wint — *8" Crude*

	Launcher	Receiver
Location:	Bethel	Catwalk
Date/Time:	5/15/2014 1:09:01 PM	5/15/2014 8:53:27 PM
Stationing:		
GPS - LAT:	48.284297318	48.270715023
GPS - LONG:	-103.816186725	-103.453067315

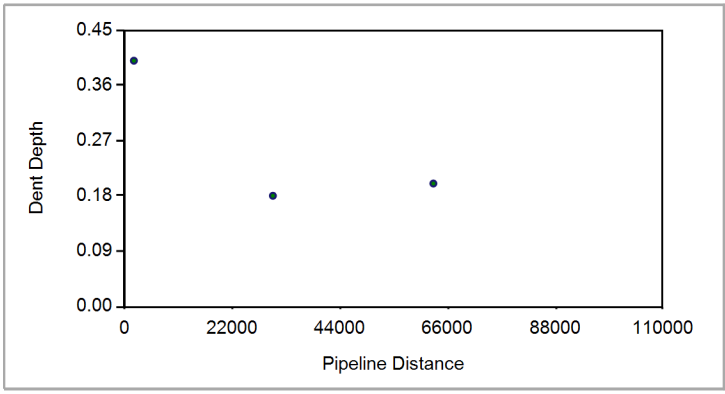
Duration of run - Hours: 7.74
Pipeline Length: 106,417.00 ft
On-site Representative: Florian Pamer

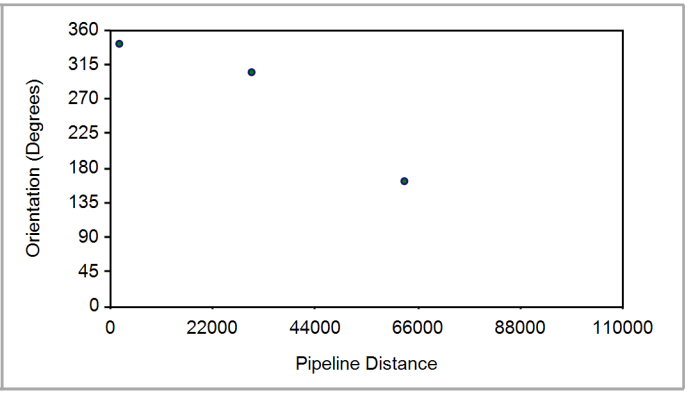
Average Velocity: 3.82 ft/sec
Maximum Velocity: 4.81 ft/sec
Data Analyst: Ben Stehling

Tool Tracking By: Cherokee

INSPECTION FINDINGS

Deformations Detected: 3 **Ovalities Detected:** 0 **Expansions Detected:** 0 **Heavy Weld Detected:** 0 **Valves Detected:** 5





INSPECTION DETAILS

Inspection data was obtained for the full length (106,417 feet / 20.15 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 0.4 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.

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
40000003	9,107.7	20.5%	0.95	0.53	EXT	72	2:15	1632.2	100.0	**U/S:** AGM 010 -- Han #8777	2699.77
										D/S: AGM 020 -- Han #8208	1162.02
40000008	27,712.3	19.4%	0.58	0.53	EXT	32	1:00	1632.2	100.0	**U/S:** AGM 050 -- Survey Point	261.25
										D/S: AGM 060 -- Han #8592	5245.29
40000030	97,781.5	19.3%	0.83	0.54	EXT	7	12:00	1632.2	100.0	**U/S:** AGM 160 -- Han #8656	770.39
										D/S: AGM 170 -- Han #8777	3691.74
40000021	60,196.8	15.8%	0.64	0.48	EXT	357	11:45	1632.2	100.0	**U/S:** AGM 090 -- Han #8776	6400.49
										D/S: AGM 100 -- Han #8666	1433.21
40000006	10,837.0	14.9%	0.68	0.54	EXT	80	2:30	1632.2	100.0	**U/S:** AGM 020 -- Han #8208	567.28
										D/S: AGM 030 -- Han #8776	4760.95
40000024	69,887.0	14.5%	0.70	0.62	EXT	152	5:00	1632.2	100.0	**U/S:** AGM 100 -- Han #8666	8257.03
										D/S: AGM 110 -- Han #8776	440.72
40000002	8,416.8	13.7%	0.56	0.33	EXT	90	3:00	1632.2	100.0	**U/S:** AGM 010 -- Han #8777	2008.87
										D/S: AGM 020 -- Han #8208	1852.92
40000004	9,145.3	13.3%	0.80	0.68	EXT	13	12:15	1632.2	100.0	**U/S:** AGM 010 -- Han #8777	2737.36
										D/S: AGM 020 -- Han #8208	1124.43
40000009	35,118.4	11.8%	0.77	0.58	INT	223	7:15	1632.2	100.0	**U/S:** AGM 060 -- Han #8592	2160.73
										D/S: AGM 070 -- Han #8776	2103.84
40000017	51,825.5	11.1%	0.60	0.45	INT	105	3:30	1632.2	100.0	**U/S:** AGM 080 -- Han #8607	6680.39
										D/S: AGM 090 -- Han #8776	1970.73
40000005	10,799.6	10.9%	0.75	0.49	INT	134	4:15	1632.2	100.0	**U/S:** AGM 020 -- Han #8208	529.89
										D/S: AGM 030 -- Han #8776	4798.34
40000023	65,358.2	10.5%	0.45	0.33	EXT	267	8:45	1632.2	100.0	**U/S:** AGM 100 -- Han #8666	3728.23
										D/S: AGM 110 -- Han #8776	4969.52
40000000	1,859.6	10.5%	0.45	0.46	INT	278	9:15	1632.2	100.0	**U/S:** Pipe Entering Ground, Bethel -- Survey Point	1809.45
										D/S: AGM 010 -- Han #8777	4548.30
40000027	79,729.0	10.4%	0.83	0.50	EXT	113	3:45	1632.2	100.0	**U/S:** AGM 120 -- Han #8592	6220.99
										D/S: AGM 130 -- Han #8777	983.71
40000011	36,707.6	9.3%	0.34	0.34	EXT	135	4:30	1632.2	100.0	**U/S:** AGM 060 -- Han #8592	3749.94
										D/S: AGM 070 -- Han #8776	514.62
40000028	84,531.0	9.0%	1.05	0.61	EXT	97	3:00	1632.2	100.0	**U/S:** AGM 130 -- Han #8777	3818.31
										D/S: AGM 140 -- Han #8208	1498.35

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
40000012	36,899.9	8.6%	0.62	0.51	INT	229	7:30	1632.2	100.0	**U/S:** AGM 060 -- Han #8592	3942.26
										D/S: AGM 070 -- Han #8776	322.30
40000018	53,524.2	8.5%	1.85	1.37	EXT	74	2:15	1632.2	100.0	**U/S:** AGM 080 -- Han #8607	8379.01
										D/S: AGM 090 -- Han #8776	272.12
40000016	46,146.4	8.1%	0.64	0.57	INT	328	10:45	1632.2	100.0	**U/S:** AGM 080 -- Han #8607	1001.23
										D/S: AGM 090 -- Han #8776	7649.90
40000001	1,940.5	7.7%	0.69	0.80	EXT	336	11:00	1632.2	100.0	**U/S:** Pipe Entering Ground, Bethel -- Survey Point	1890.31
										D/S: AGM 010 -- Han #8777	4467.44
40000026	75,760.5	7.7%	0.43	0.51	EXT	224	7:15	1632.2	100.0	**U/S:** AGM 120 -- Han #8592	2252.46
										D/S: AGM 130 -- Han #8777	4952.24
40000014	39,225.6	7.5%	0.59	0.63	EXT	184	6:00	1632.2	100.0	**U/S:** AGM 070 -- Han #8776	2003.39
										D/S: AGM 080 -- Han #8607	5919.58
40000007	26,120.7	7.5%	0.39	0.40	INT	255	8:30	1632.2	100.0	**U/S:** AGM 040 -- Han #8666	3122.66
										D/S: AGM 050 -- Survey Point	1330.41
40000015	40,573.6	7.0%	0.36	0.34	EXT	14	12:15	1632.2	100.0	**U/S:** AGM 070 -- Han #8776	3351.44
										D/S: AGM 080 -- Han #8607	4571.53
40000029	85,856.1	6.5%	0.88	0.66	EXT	290	9:30	1632.2	100.0	**U/S:** AGM 130 -- Han #8777	5143.43
										D/S: AGM 140 -- Han #8208	173.23
40000025	69,977.6	6.5%	0.67	0.57	EXT	333	11:00	1632.2	100.0	**U/S:** AGM 100 -- Han #8666	8347.63
										D/S: AGM 110 -- Han #8776	350.12
40000031	102,934.6	6.0%	0.47	0.57	EXT	280	9:15	1632.2	100.0	**U/S:** AGM 170 -- Han #8777	1461.36
										D/S: Pipe Exiting Ground, Catwalk -- Survey Point	3829.63
40000020	59,108.0	5.7%	0.53	0.54	INT	163	5:15	1632.2	100.0	**U/S:** AGM 090 -- Han #8776	5311.73
										D/S: AGM 100 -- Han #8666	2521.97
40000022	61,741.2	5.6%	0.60	0.49	EXT	31	1:00	1632.2	100.0	**U/S:** AGM 100 -- Han #8666	111.19
										D/S: AGM 110 -- Han #8776	8586.55
40000019	59,107.9	5.6%	0.40	0.37	INT	133	4:15	1632.2	100.0	**U/S:** AGM 090 -- Han #8776	5311.66
										D/S: AGM 100 -- Han #8666	2522.04
40000013	37,363.7	5.5%	1.46	1.27	EXT	235	7:45	1632.2	100.0	**U/S:** AGM 070 -- Han #8776	141.53
										D/S: AGM 080 -- Han #8607	7781.44

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
40000010	35,864.1	5.2%	0.40	0.52	EXT	294	9:45	1632.2	100.0	**U/S:** AGM 060 -- Han #8592	2906.45
										D/S: AGM 070 -- Han #8776	1358.12

This report shows a maximum of 100 metal loss groups.

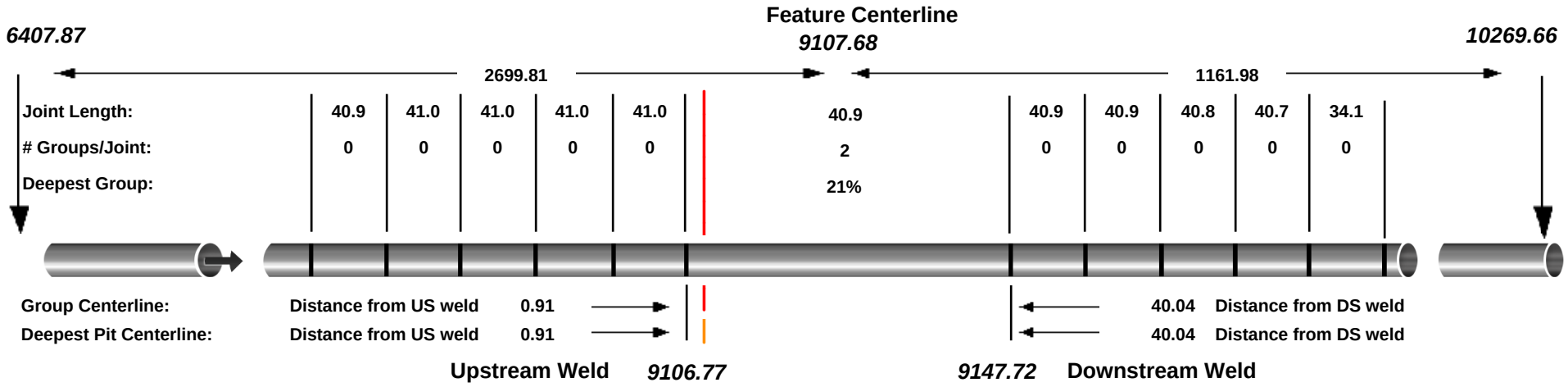
Type	Number
Metal Loss	32

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 010 -- Han #8777

DOWNSTREAM REFERENCE
AGM 020 -- Han #8208



Feature Information

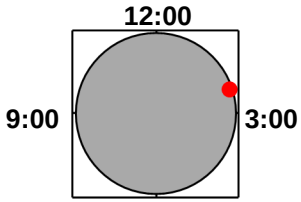
ID:	**40000003**	Distance from Launcher:	***9107.68***	***Feature Description***	
Time:	**7408.80**	Orientation on Pipe Wall:	**2:15**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.28460500**	Longitude:	**-103.78188546**	Altitude:	**2341.395**

Upstream Locations		Downstream Locations	
6306.09	Bend right - 45 deg., 1.5D	3275.13	Bend left - 30 deg., 3D
7227.91	Bend left - 35 deg., 3D	3551.07	Bend right - 32 deg., 1.5D
8282.42	Bend left - 45 deg., 3D	7963.26	Bend left - 90 deg., 6D
8480.52	Bend left - 45 deg., 3D	8643.46	Bend right - 90 deg., 6D
8989.05	Bend right - 90 deg., 6D	9318.35	Bend left - 90 deg., 6D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **21%**
Length: **0.948**
Width: **0.529**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

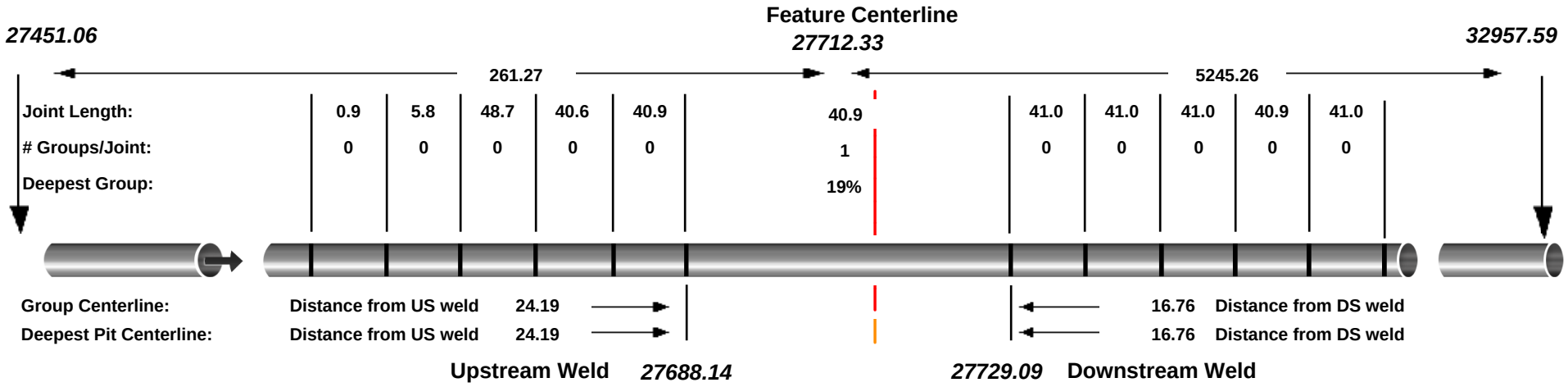
1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

Generated: 7/2/2014

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 050 -- Survey Point

DOWNSTREAM REFERENCE
AGM 060 -- Han #8592



Feature Information

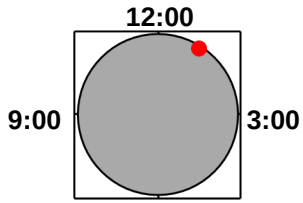
ID:	**40000008**	Distance from Launcher:	***27712.33***	***Feature Description***	
Time:	**12441.08**	Orientation on Pipe Wall:	**1:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.30187797**	Longitude:	**-103.73263787**	Altitude:	**2260.222**

Upstream Locations		Downstream Locations	
160.99	Bend right - 30 deg., 1.5D	988.84	Bend left - 36 deg., 3D
458.79	Bend right - 33 deg., 3D	996.28	Bend left - 25 deg., 3D
3535.62	Bend right - 90 deg., 6D	4696.96	Bend left - 45 deg., 3D
9286.30	Bend left - 90 deg., 6D	4707.54	Bend left - 18 deg., 3D
9961.19	Bend right - 90 deg., 6D	4975.30	Bend right - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

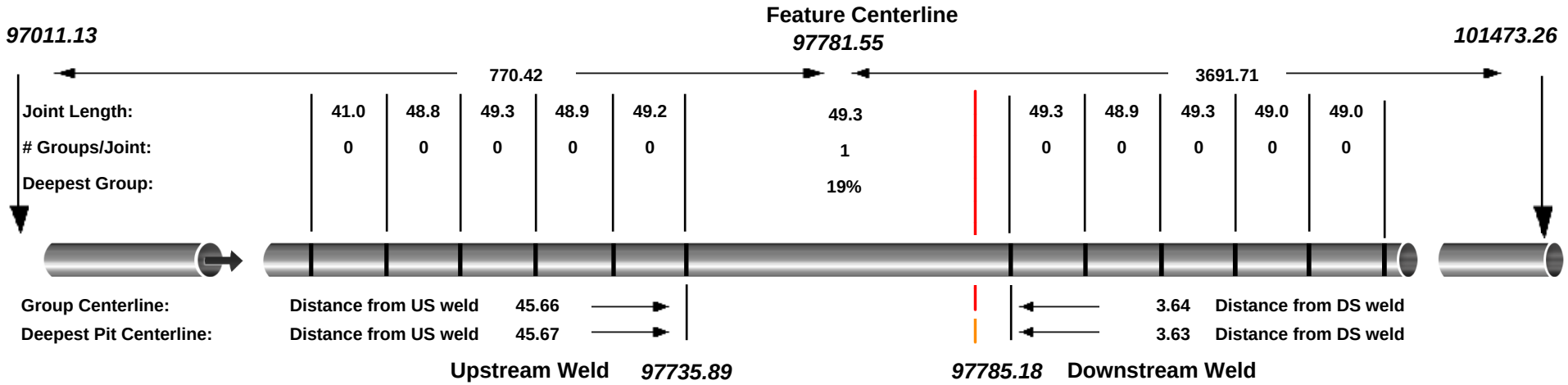
GROUP

Depth: **19%**
Length: **0.578**
Width: **0.533**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

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

GROUP - Dig Site Information Report

UPSTREAM REFERENCE	DOWNSTREAM REFERENCE
AGM 160 -- Han #8656	AGM 170 -- Han #8777



Feature Information

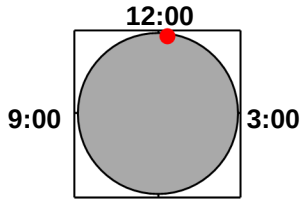
ID:	**40000030**	Distance from Launcher:	***97781.55***	***Feature Description***	
Time:	**30675.67**	Orientation on Pipe Wall:	**12:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.27081330**	Longitude:	**-103.49006326**	Altitude:	**2218.743**

Upstream Locations		Downstream Locations	
1513.70	Bend left - 24 deg., 3D	8974.67	Bend up - 45 deg., 3D
7744.60	Bend right - 15 deg., 115D	8988.00	Bend down - 45 deg., 3D
9601.68	Bend up - 18 deg., 1.5D	8989.88	Flange
9613.21	Bend left - 18 deg., 3D	8990.95	Valve
10666.82	Bend left - 45 deg., 3D	8992.05	Flange

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **19%**
Length: **0.830**
Width: **0.538**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

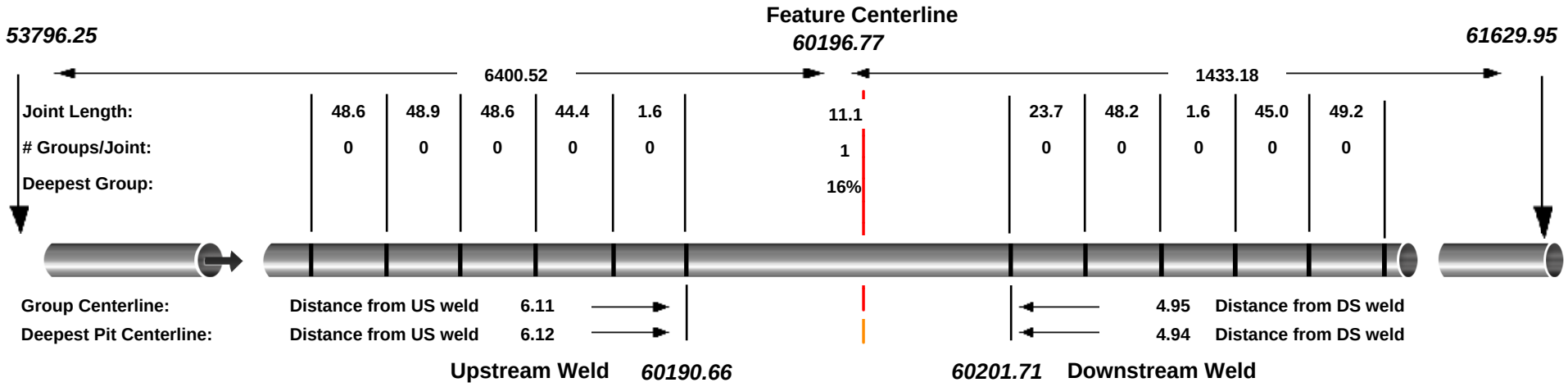
1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 090 -- Han #8776

DOWNSTREAM REFERENCE
AGM 100 -- Han #8666



Feature Information

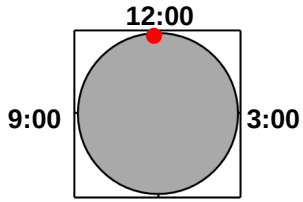
ID:	**40000021**	Distance from Launcher:	***60196.77***	***Feature Description***	
Time:	**21356.09**	Orientation on Pipe Wall:	**11:45**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.29921887**	Longitude:	**-103.60395091**	Altitude:	**1905.379**

Upstream Locations		Downstream Locations	
7.65	Bend right - 45 deg., 3D	76.84	Bend right - 45 deg., 3D
5088.10	Bend right - 35 deg., 3D	1365.47	Bend left - 36 deg., 3D
5719.18	Bend left - 45 deg., 3D	1449.53	Bend left - 25 deg., 3D
5725.78	Bend left - 24 deg., 1.5D	3300.78	Bend left - 45 deg., 3D
7755.81	Bend right - 25 deg., 3D	3852.71	Bend left - 14 deg., 100D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **16%**
Length: **0.644**
Width: **0.478**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

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

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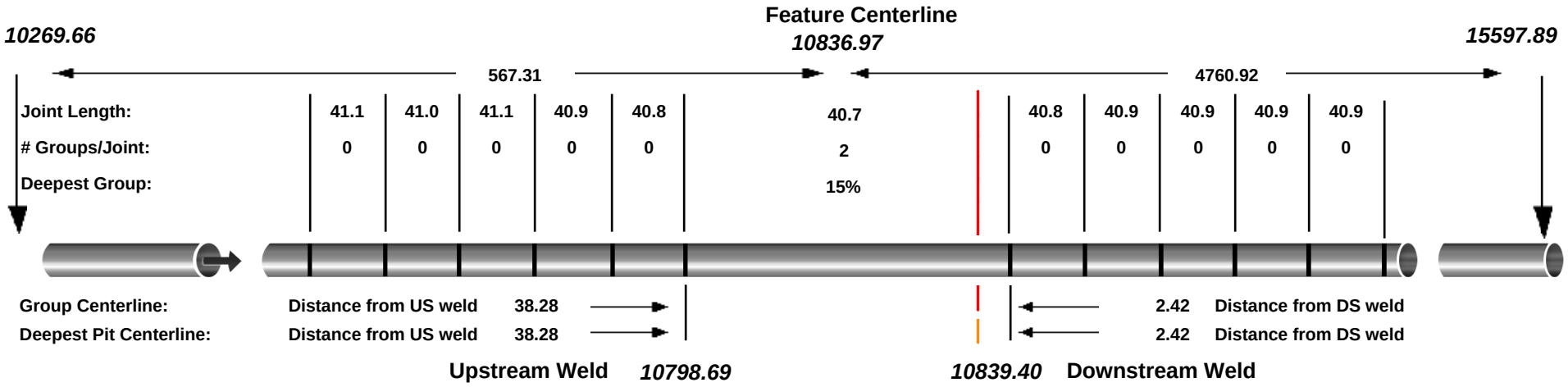
GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 020 -- Han #8208

DOWNSTREAM REFERENCE
AGM 030 -- Han #8776



Feature Information

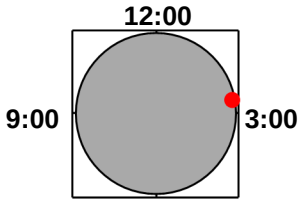
ID:	**40000006**	Distance from Launcher:	***10836.97***	***Feature Description***	
Time:	**7890.59**	Orientation on Pipe Wall:	**2:30**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.28461153**	Longitude:	**-103.77475851**	Altitude:	**2317.601**

Upstream Locations		Downstream Locations	
8035.38	Bend right - 45 deg., 1.5D	1545.84	Bend left - 30 deg., 3D
8957.20	Bend left - 35 deg., 3D	1821.78	Bend right - 32 deg., 1.5D
10011.71	Bend left - 45 deg., 3D	6233.97	Bend left - 90 deg., 6D
10209.81	Bend left - 45 deg., 3D	6914.17	Bend right - 90 deg., 6D
10718.34	Bend right - 90 deg., 6D	7589.06	Bend left - 90 deg., 6D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **15%**
Length: **0.683**
Width: **0.541**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

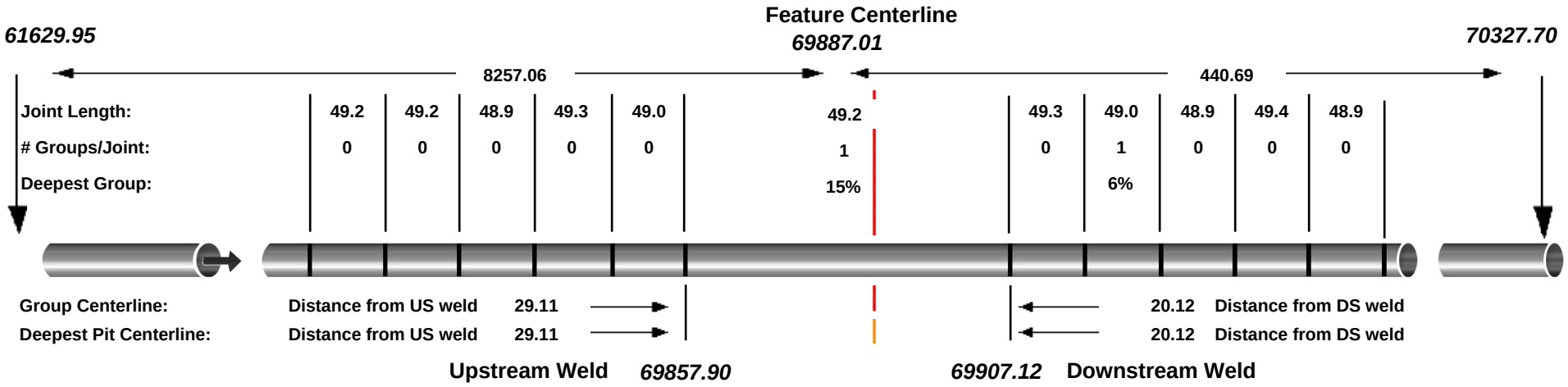
1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 100 -- Han #8666

DOWNSTREAM REFERENCE
AGM 110 -- Han #8776



Feature Information

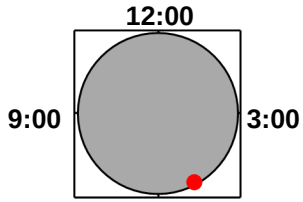
ID:	**40000024**	Distance from Launcher:	***69887.01***	***Feature Description***	
Time:	**23901.56**	Orientation on Pipe Wall:	**5:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.30100170**	Longitude:	**-103.57659343**	Altitude:	**1886.713**

Upstream Locations		Downstream Locations	
2052.18	Bend right - 36 deg., 1.5D	5152.75	Bend left - 45 deg., 1.5D
2870.07	Bend left - 10 deg., 91D	7054.12	Bend right - 45 deg., 3D
3636.28	Bend right - 45 deg., 3D	8944.85	Bend right - 45 deg., 3D
4690.96	Bend left - 36 deg., 3D	9987.71	Bend right - 24 deg., 3D
5837.53	Bend left - 14 deg., 100D	16212.21	Fitting on top of pipe

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **15%**
Length: **0.702**
Width: **0.623**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

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

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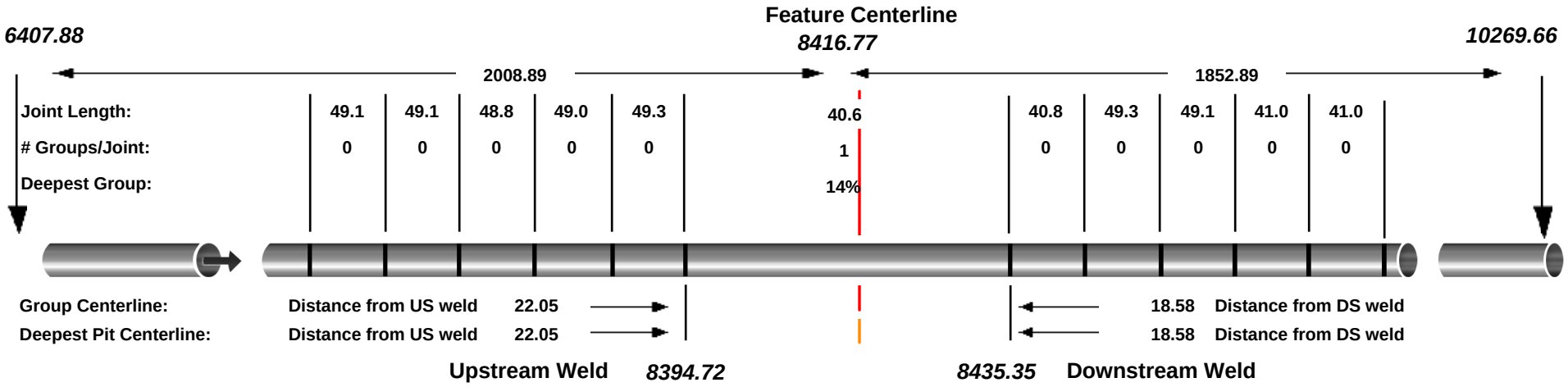
TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 010 -- Han #8777

DOWNSTREAM REFERENCE
AGM 020 -- Han #8208



Feature Information

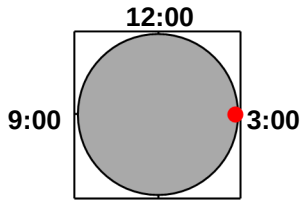
ID:	**40000002**	Distance from Launcher:	***8416.77***	***Feature Description***	
Time:	**7215.92**	Orientation on Pipe Wall:	**3:00**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.28461039**	Longitude:	**-103.78473375**	Altitude:	**2352.038**

Upstream Locations		Downstream Locations	
5615.18	Bend right - 45 deg., 1.5D	3966.04	Bend left - 30 deg., 3D
6537.00	Bend left - 35 deg., 3D	4241.98	Bend right - 32 deg., 1.5D
7591.51	Bend left - 45 deg., 3D	8654.17	Bend left - 90 deg., 6D
7789.61	Bend left - 45 deg., 3D	9334.37	Bend right - 90 deg., 6D
8298.14	Bend right - 90 deg., 6D	10009.26	Bend left - 90 deg., 6D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **14%**
Length: **0.561**
Width: **0.333**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

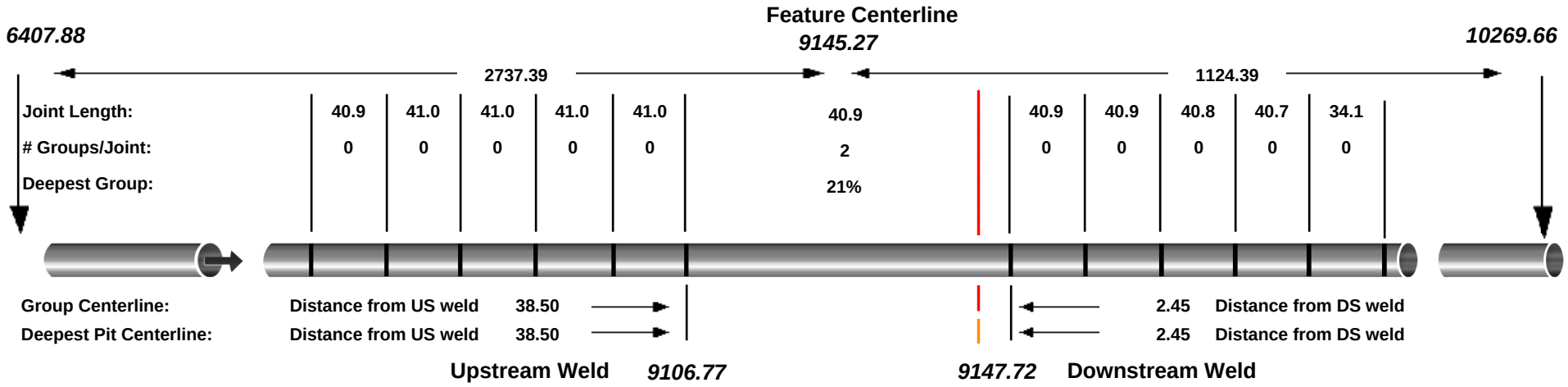
1. Measurements on this sheet are in ft / in
2. All numbers in italics are Distance from Launch

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 010 -- Han #8777

DOWNSTREAM REFERENCE
AGM 020 -- Han #8208



Feature Information

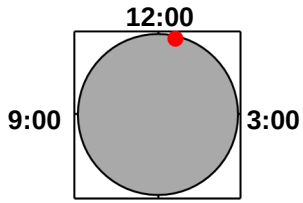
ID:	**40000004**	Distance from Launcher:	***9145.27***	***Feature Description***	
Time:	**7419.49**	Orientation on Pipe Wall:	**12:15**	**Metal Loss - EXTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.28460660**	Longitude:	**-103.78173072**	Altitude:	**2339.521**

Upstream Locations		Downstream Locations	
6343.68	Bend right - 45 deg., 1.5D	3237.54	Bend left - 30 deg., 3D
7265.50	Bend left - 35 deg., 3D	3513.48	Bend right - 32 deg., 1.5D
8320.01	Bend left - 45 deg., 3D	7925.67	Bend left - 90 deg., 6D
8518.11	Bend left - 45 deg., 3D	8605.87	Bend right - 90 deg., 6D
9026.64	Bend right - 90 deg., 6D	9280.76	Bend left - 90 deg., 6D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **13%**
Length: **0.803**
Width: **0.678**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

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2. All numbers in italics are Distance from Launch

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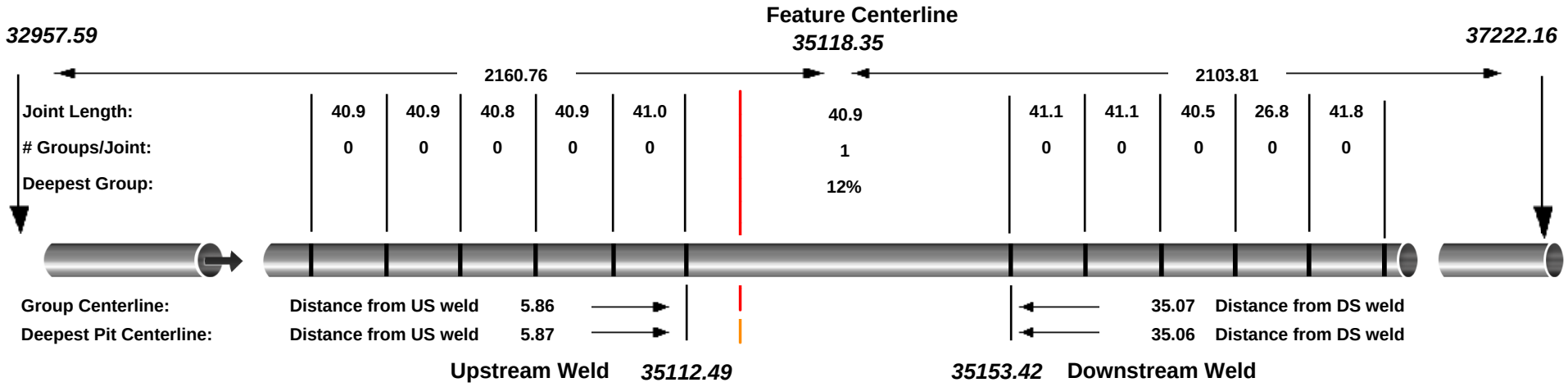
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 060 -- Han #8592

DOWNSTREAM REFERENCE
AGM 070 -- Han #8776



Feature Information

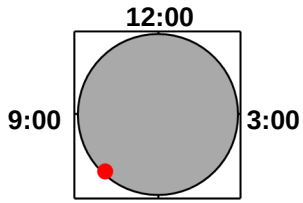
ID:	**40000009**	Distance from Launcher:	***35118.35***	***Feature Description***	
Time:	**14581.00**	Orientation on Pipe Wall:	**7:15**	**Metal Loss - INTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.29942744**	Longitude:	**-103.70499608**	Altitude:	**2178.673**

Upstream Locations		Downstream Locations	
1802.73	Bend left - 36 deg., 3D	12238.44	Bend left - 14 deg., 99D
2154.96	Bend right - 45 deg., 3D	13514.02	Bend right - 30 deg., 3D
2410.59	Bend right - 20 deg., 3D	15736.18	Bend right - 16 deg., 120D
2430.72	Bend right - 45 deg., 3D	16390.21	Bend left - 12 deg., 116D
2698.48	Bend left - 18 deg., 3D	17322.61	Bend right - 25 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **12%**
Length: **0.775**
Width: **0.580**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

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

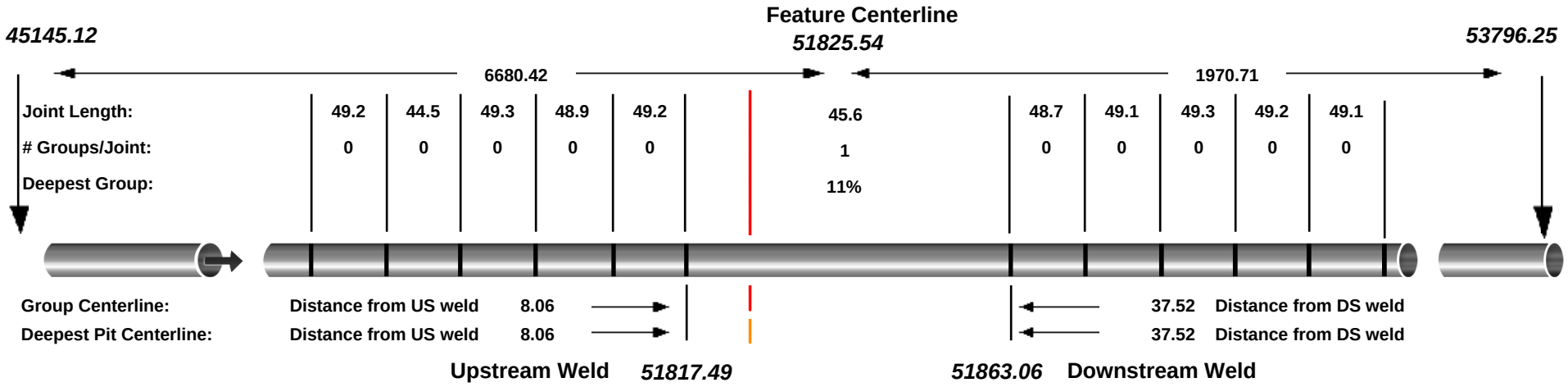
Generated: 7/2/2014

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

GROUP - Dig Site Information Report

UPSTREAM REFERENCE
AGM 080 -- Han #8607

DOWNSTREAM REFERENCE
AGM 090 -- Han #8776



Feature Information

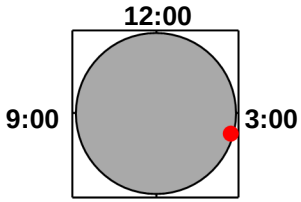
ID:	**40000017**	Distance from Launcher:	***51825.54***	***Feature Description***	
Time:	**19149.96**	Orientation on Pipe Wall:	**3:30**	**Metal Loss - INTERNAL**	
				Wall Thickness:	**0.188**
Latitude:	**48.30093037**	Longitude:	**-103.63705065**	Altitude:	**1956.420**

Upstream Locations		Downstream Locations	
316.98	Bend left - 12 deg., 116D	615.42	Bend right - 25 deg., 3D
971.01	Bend right - 16 deg., 120D	2645.45	Bend left - 24 deg., 1.5D
3193.17	Bend right - 30 deg., 3D	2652.05	Bend left - 45 deg., 3D
4468.75	Bend left - 14 deg., 99D	3283.13	Bend right - 35 deg., 3D
18509.92	Bend left - 36 deg., 3D	8363.58	Bend right - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

GROUP

Depth: **11%**
Length: **0.602**
Width: **0.453**
ERF: **0.907**
Safe Operating Pressure: **1632 psi**

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

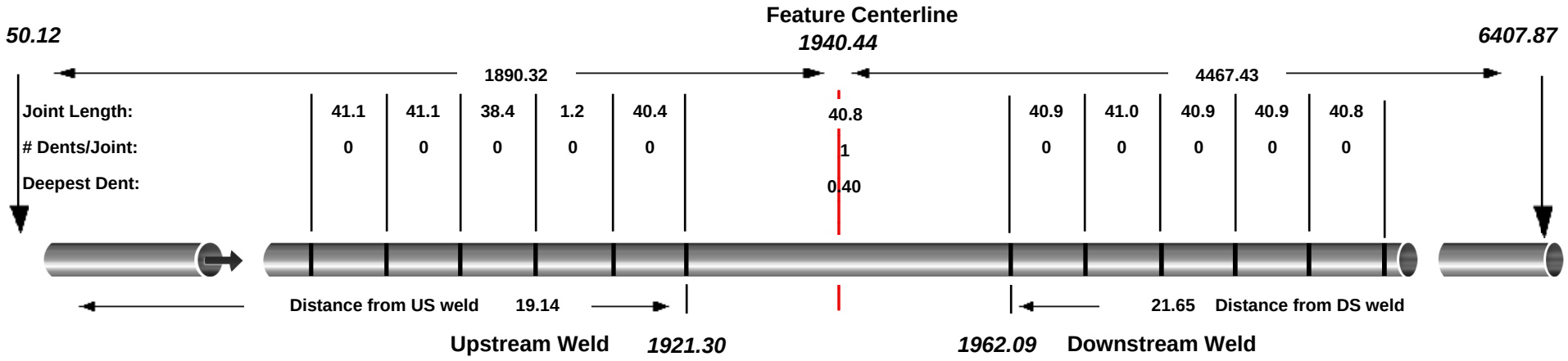
Generated: 7/2/2014

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

DENT - Dig Site Information Report

UPSTREAM REFERENCE
Pipe Entering Ground, Bethel -- Survey Point

DOWNSTREAM REFERENCE
AGM 010 -- Han #8777



Feature Information

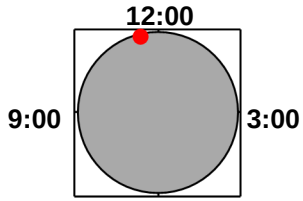
ID:	**14000000**	Distance from Launcher:	***1940.44***	***Feature Description***	
Time:	**5435.03**	Orientation on Pipe Wall:	**11:30**	**DENT**	
				Wall Thickness:	**0.188**
Latitude:	**48.28303327**	Longitude:	**-103.81054287**	Altitude:	**2284.114**
Additional Information:	**With possible associated metal loss, repaired**				

Upstream Locations		Downstream Locations	
60.67	Bend left - 35 deg., 3D	861.15	Bend right - 45 deg., 1.5D
1115.18	Bend left - 45 deg., 3D	10442.37	Bend left - 30 deg., 3D
1313.28	Bend left - 45 deg., 3D	10718.31	Bend right - 32 deg., 1.5D
1821.81	Bend right - 90 deg., 6D	15130.50	Bend left - 90 deg., 6D
1882.70	Bend up - 45 deg., 3D	15810.70	Bend right - 90 deg., 6D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

DENT
Depth: **0.40**
Length: **2.356**

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

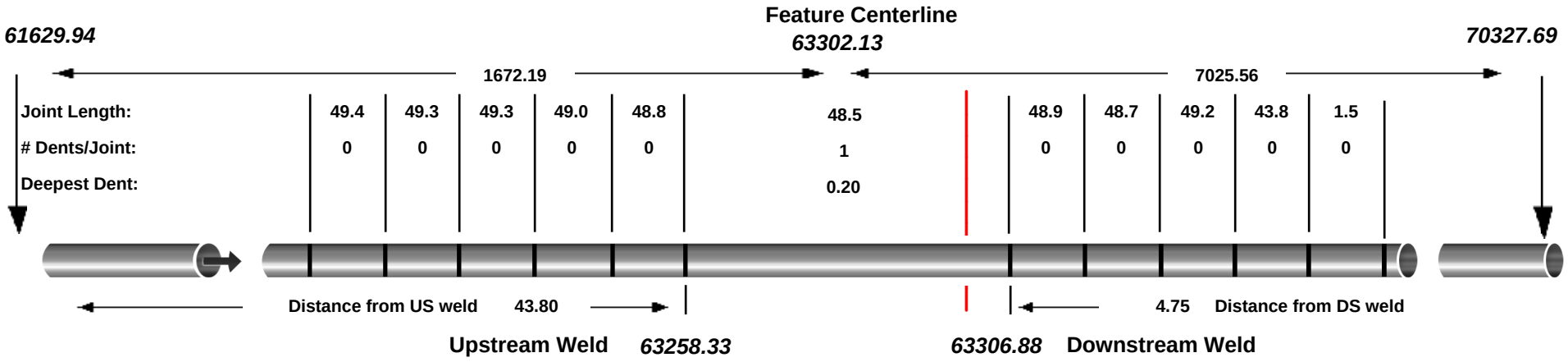
Generated: 7/2/2014

TDW Services, Inc.
Hiland Crude, LLC
Bethel to Catwalk

DENT - Dig Site Information Report

UPSTREAM REFERENCE
AGM 100 -- Han #8666

DOWNSTREAM REFERENCE
AGM 110 -- Han #8776



Feature Information

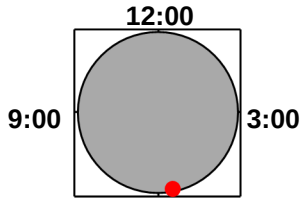
ID:	**14000002**	Distance from Launcher:	***63302.13***	***Feature Description***	
Time:	**22195.00**	Orientation on Pipe Wall:	**5:30**	**DENT**	
				Wall Thickness:	**0.188**
Latitude:	**48.29306690**	Longitude:	**-103.59761700**	Altitude:	**1888.177**

Upstream Locations		Downstream Locations	
1655.83	Bend left - 25 deg., 3D	195.42	Bend left - 45 deg., 3D
1739.89	Bend left - 36 deg., 3D	747.35	Bend left - 14 deg., 100D
3028.52	Bend right - 45 deg., 3D	1893.92	Bend left - 36 deg., 3D
3113.01	Bend right - 45 deg., 3D	2948.60	Bend right - 45 deg., 3D
8193.46	Bend right - 35 deg., 3D	3714.81	Bend left - 10 deg., 91D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

DENT
Depth: **0.20**
Length: **2.710**

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

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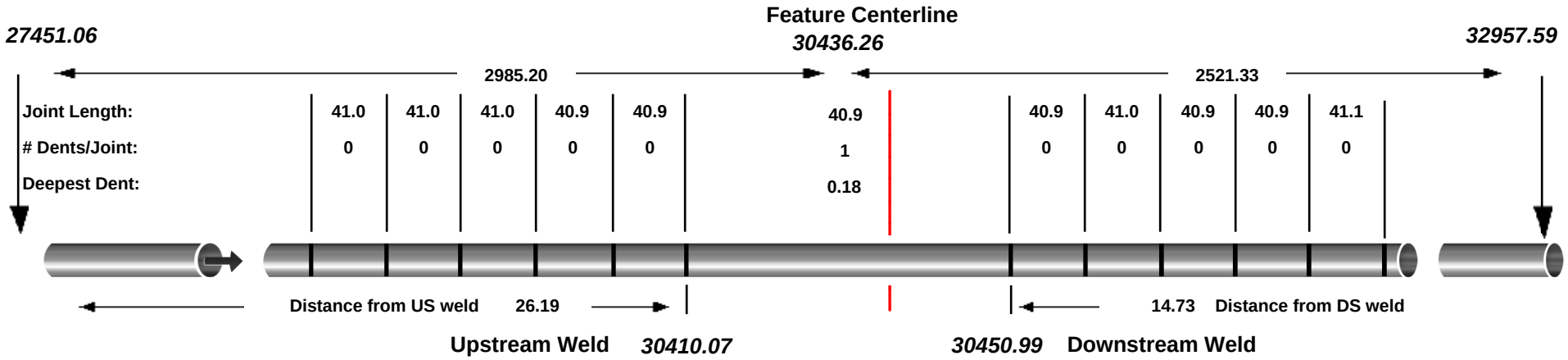
Hiland Crude, LLC
Bethel to Catwalk

DENT - Dig Site Information Report

UPSTREAM REFERENCE
AGM 050 -- Survey Point

DOWNSTREAM REFERENCE
AGM 060 -- Han #8592



Feature Information

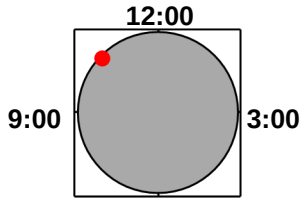
ID:	**14000001**	Distance from Launcher:	***30436.26***	***Feature Description***	
Time:	**13244.09**	Orientation on Pipe Wall:	**10:15**	**DENT**	
				Wall Thickness:	**0.188**
Latitude:	**48.29953421**	Longitude:	**-103.72337047**	Altitude:	**2219.885**

Upstream Locations		Downstream Locations	
1727.65	Bend left - 25 deg., 3D	1973.03	Bend left - 45 deg., 3D
1735.09	Bend left - 36 deg., 3D	1983.61	Bend left - 18 deg., 3D
2884.92	Bend right - 30 deg., 1.5D	2251.37	Bend right - 45 deg., 3D
3182.72	Bend right - 33 deg., 3D	2271.50	Bend right - 20 deg., 3D
6259.55	Bend right - 90 deg., 6D	2527.13	Bend right - 45 deg., 3D

(relative distance from Feature Centerline)

Feature Orientation

as looking downstream



12:00 is top of pipe

DENT
Depth: **0.18**
Length: **2.827**

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

Generated: 7/2/2014

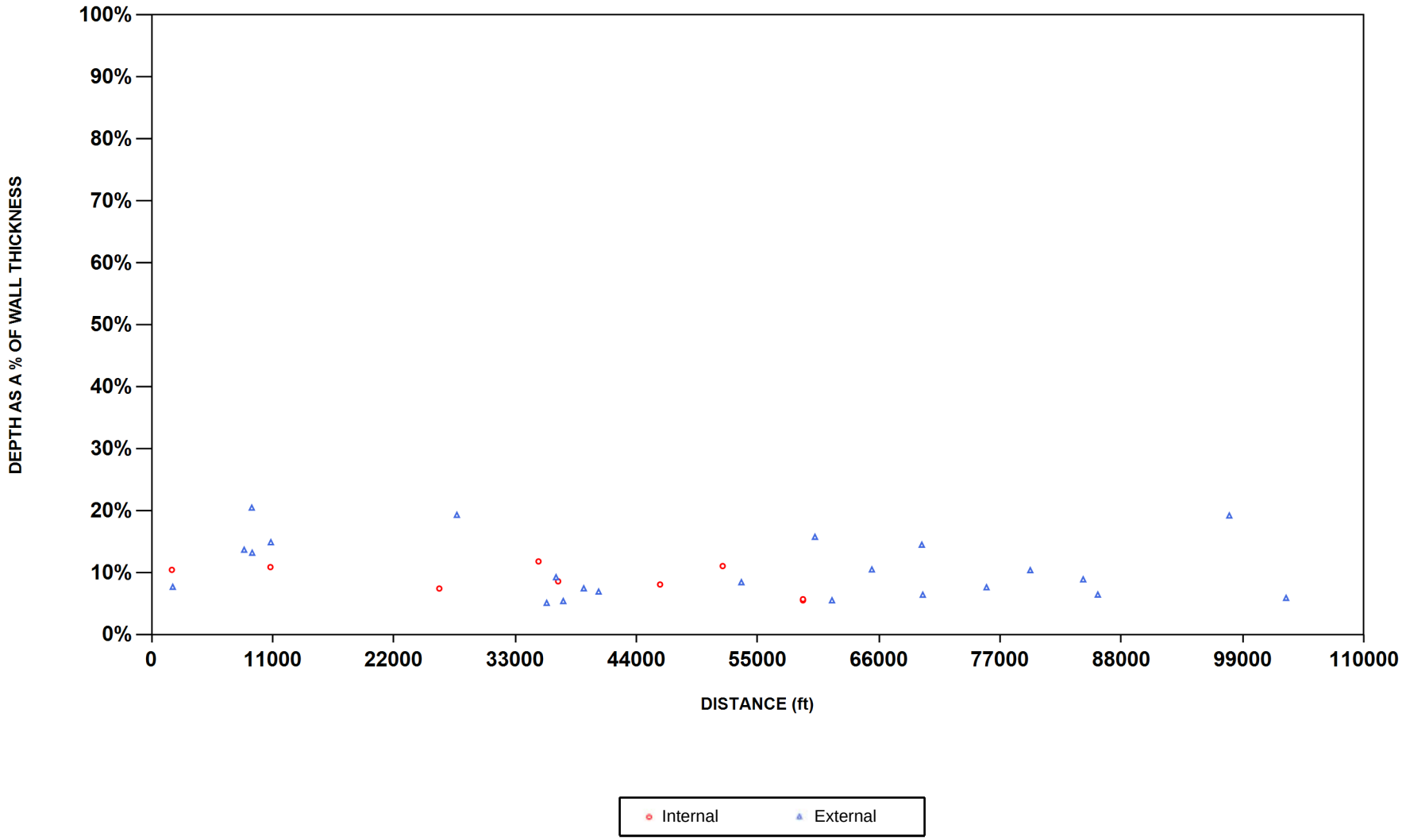
Charts

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

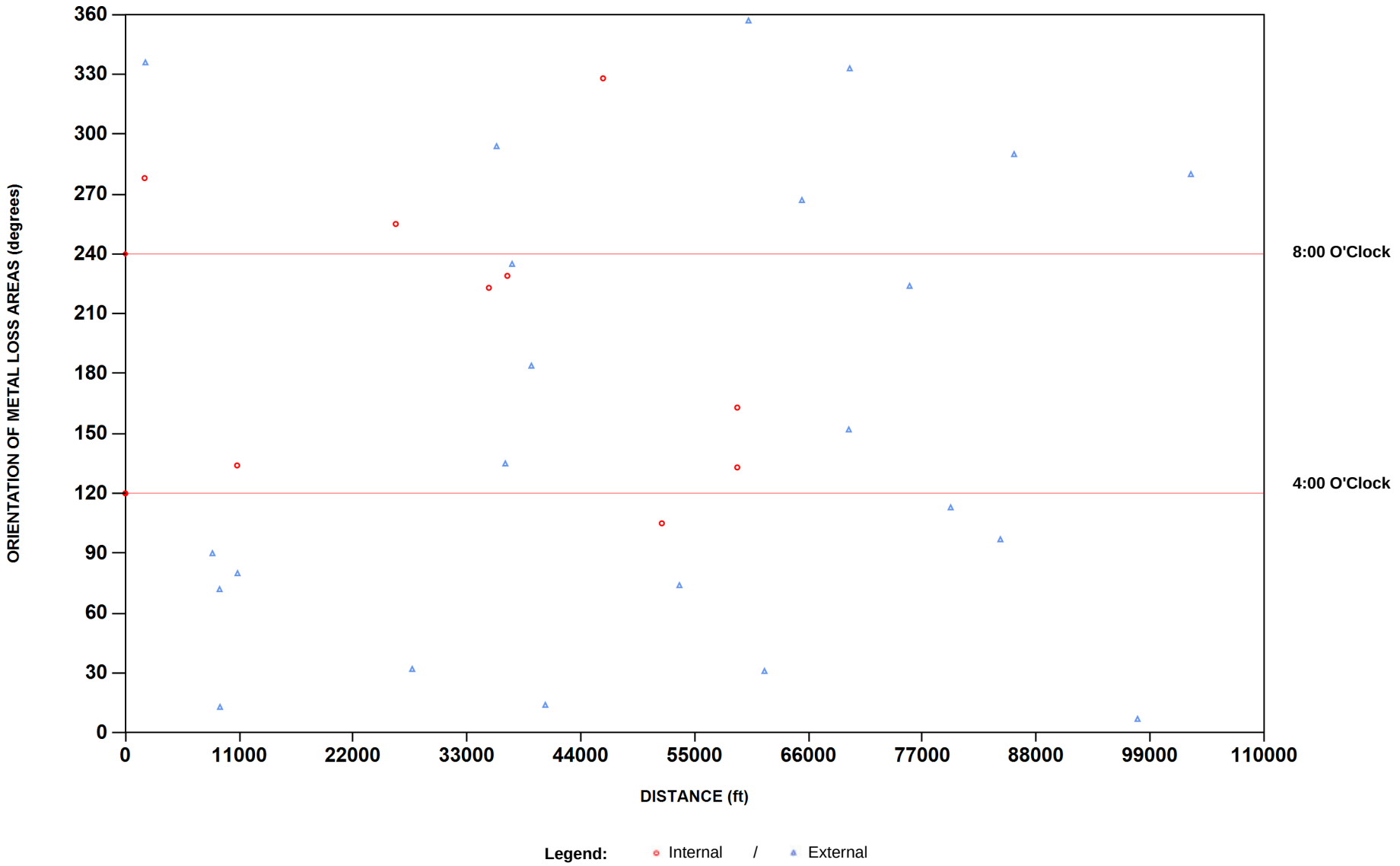
The following charts are utilized in this report:

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.

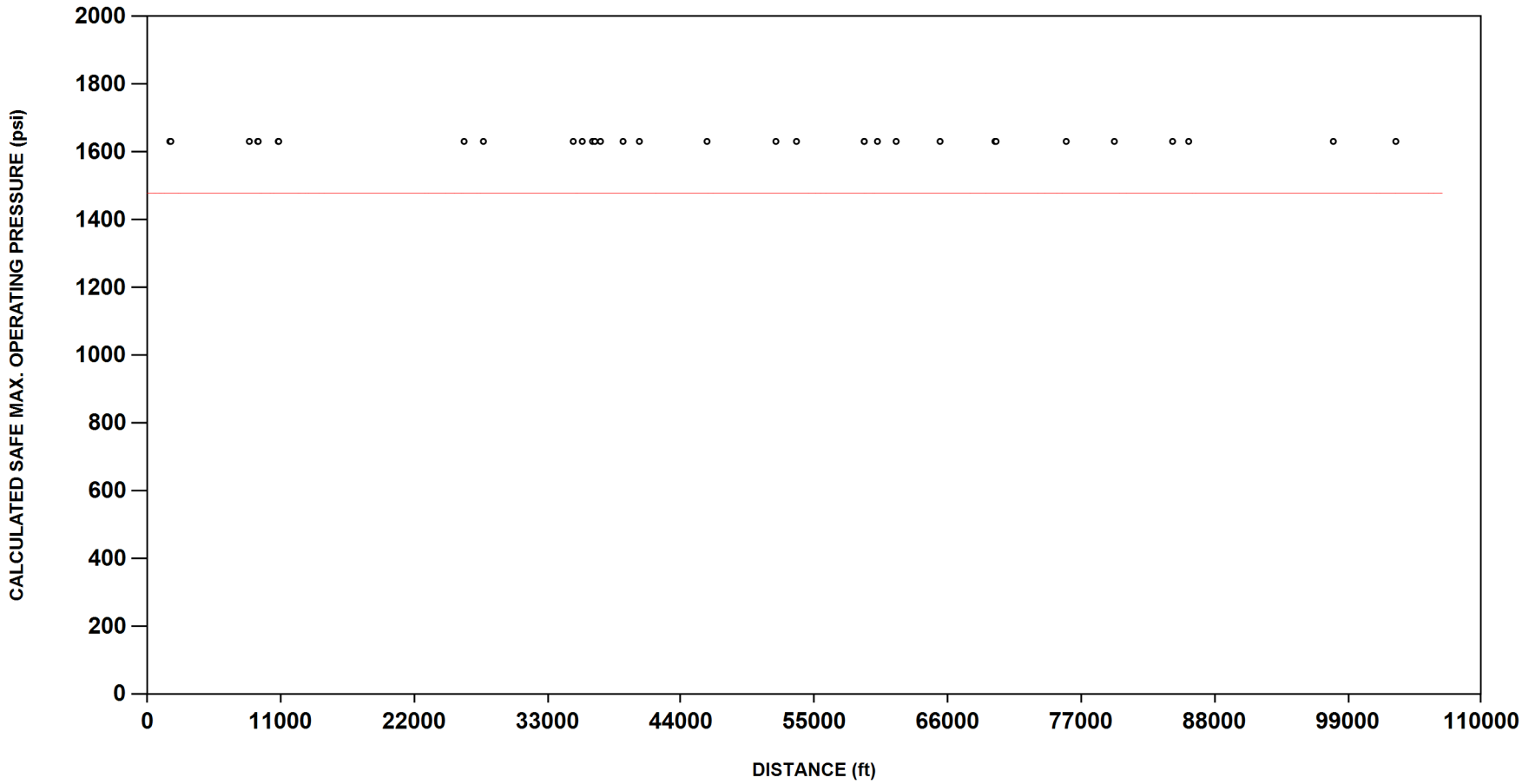
Metal Loss Depth Graph



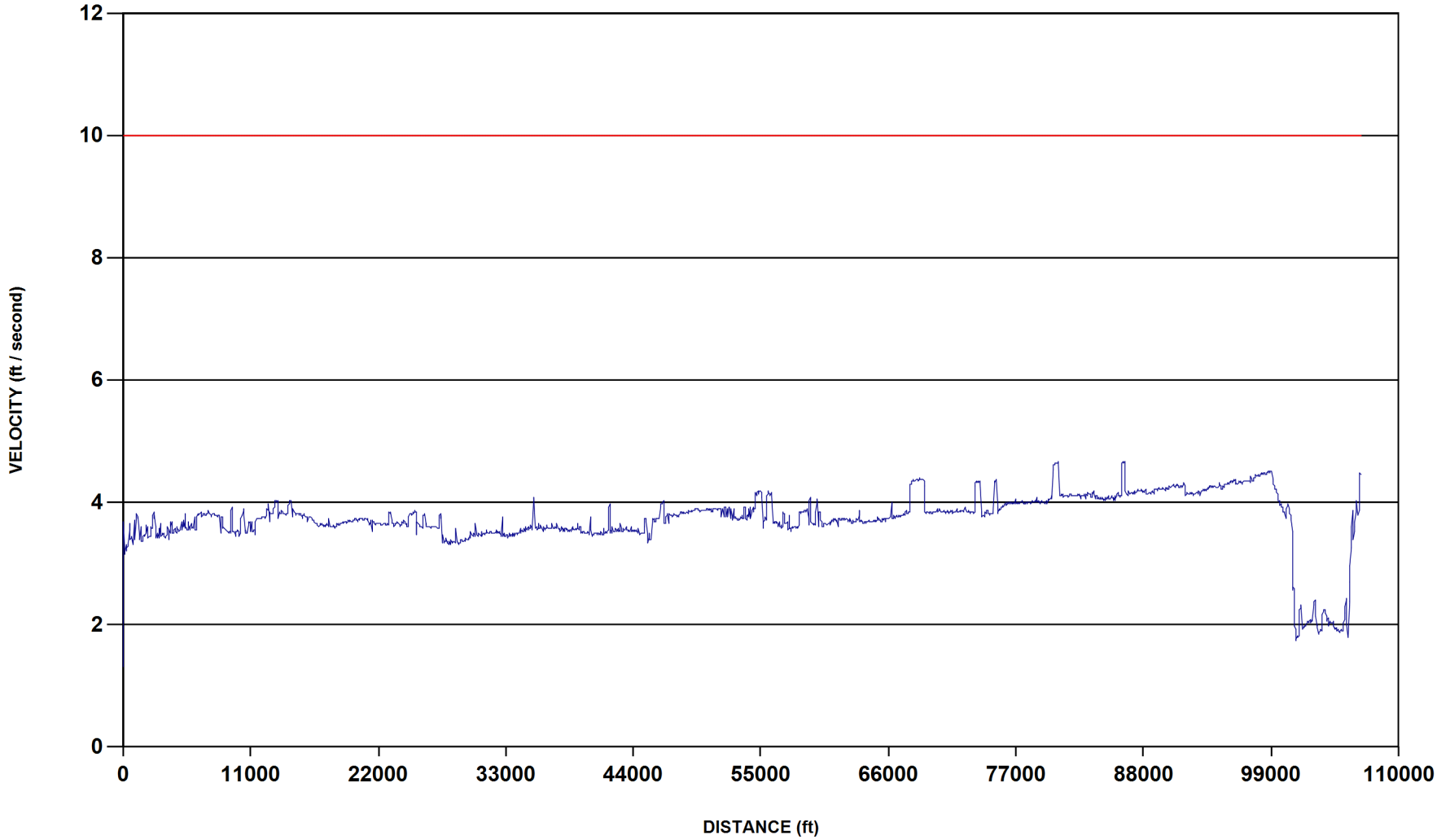
Metal Loss Orientation Graph



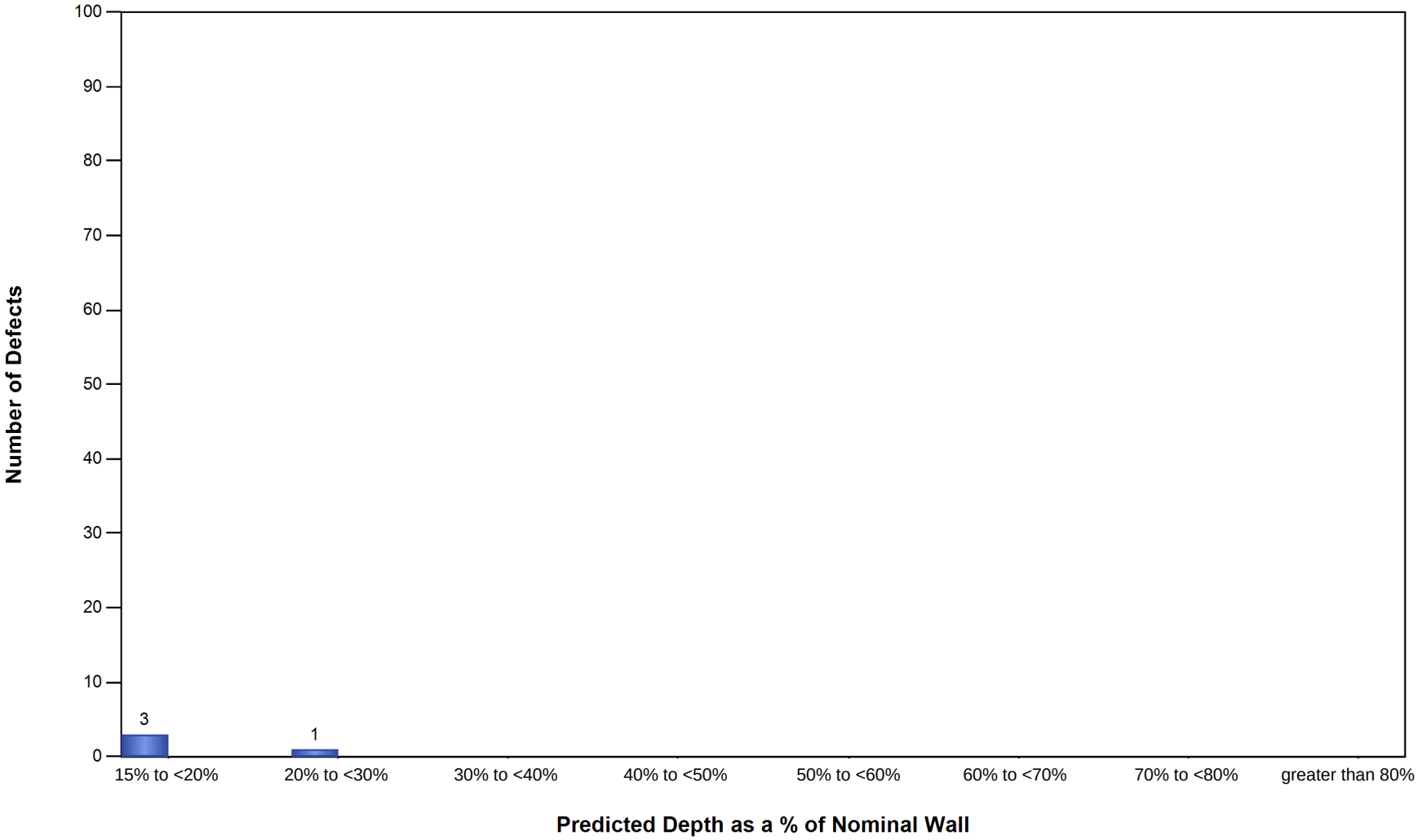
Metal Loss - Calculated Safe Max. Operating Pressure Graph



Velocity Graph - MFL



Defect Depth Histogram

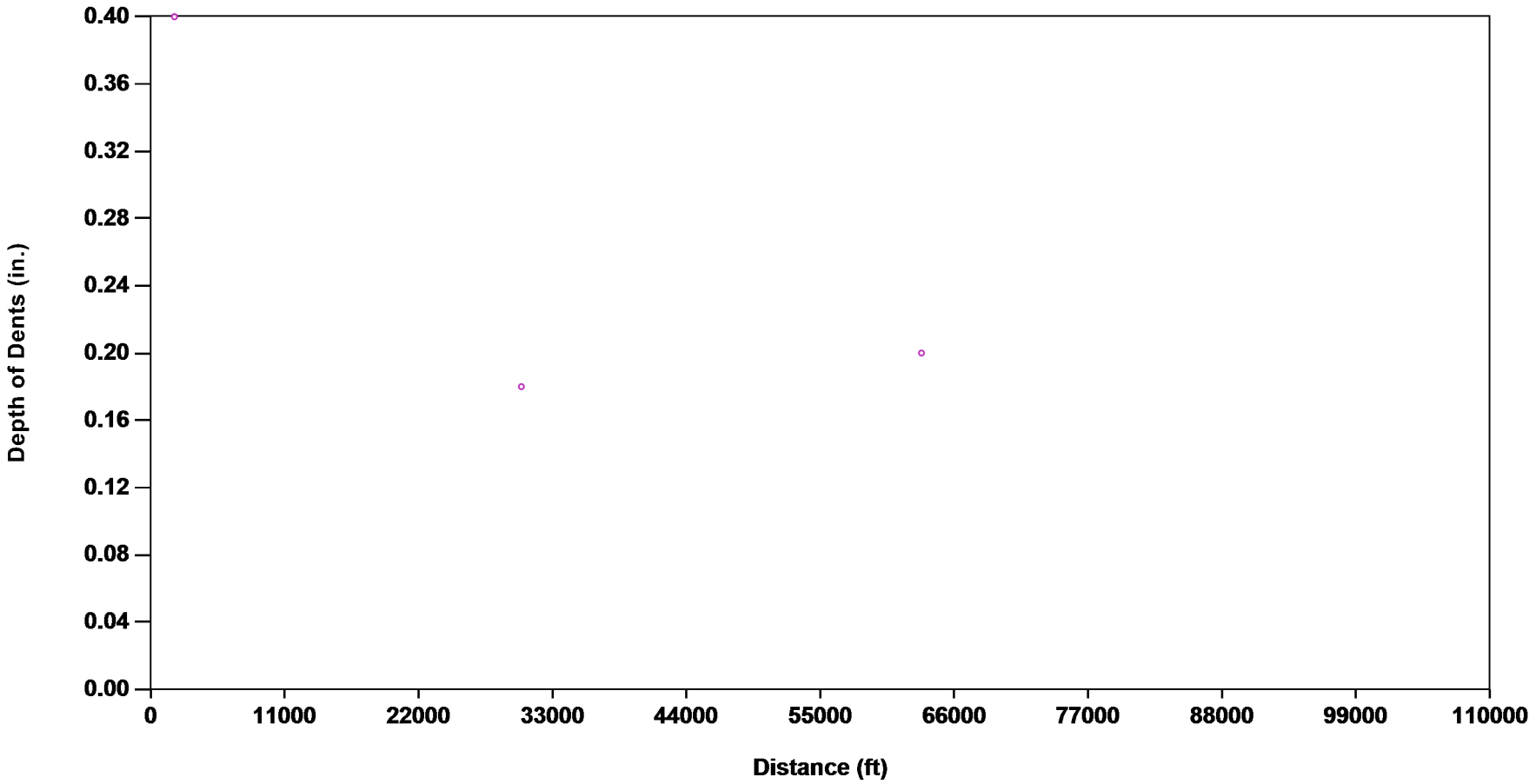


Total Defects: **32**

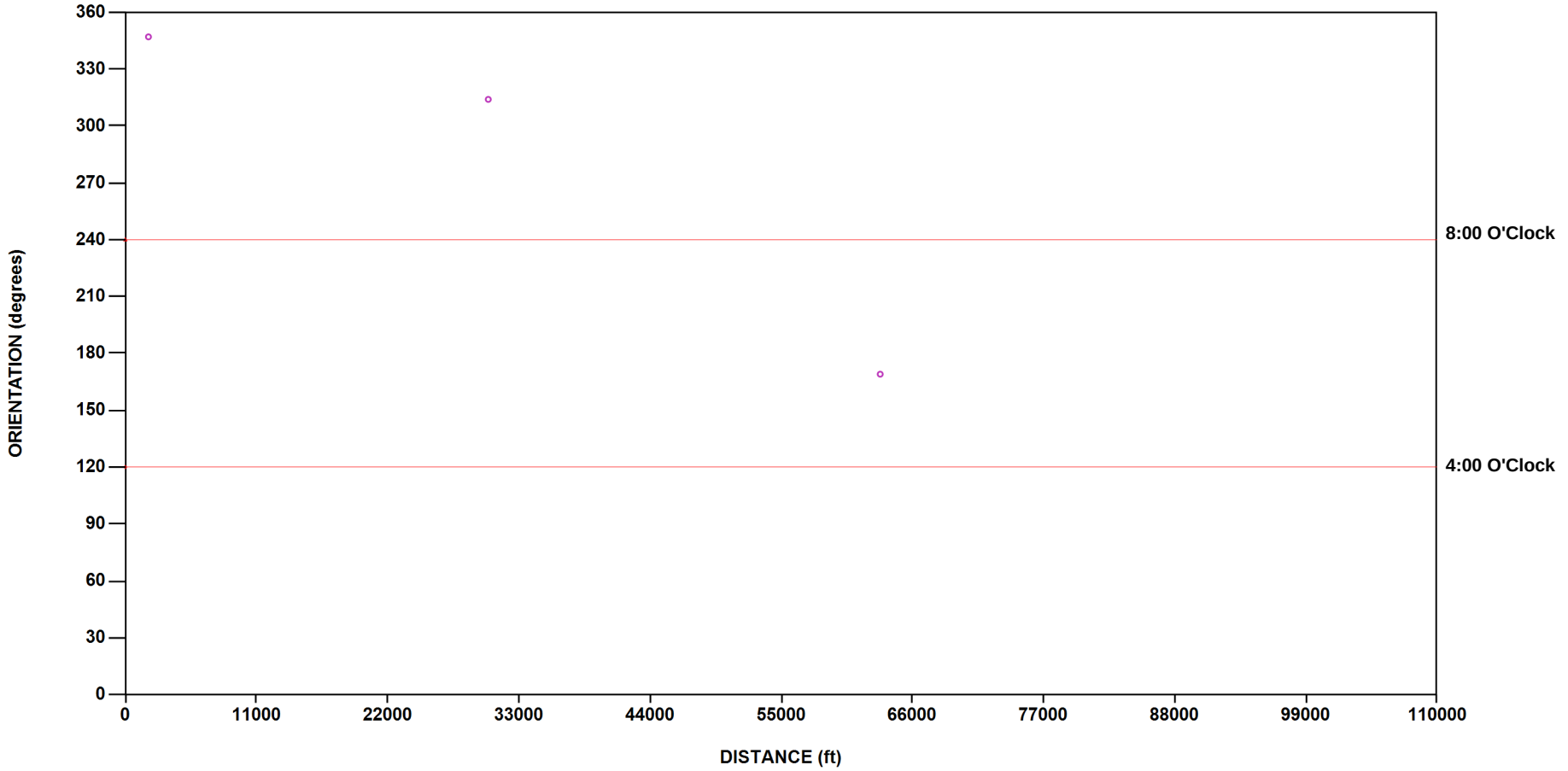
Non-Pressure-Reducing Groups

Pressure-Reducing Groups (where P' < P)

Dent Depth Graph



Dent Orientation Graph



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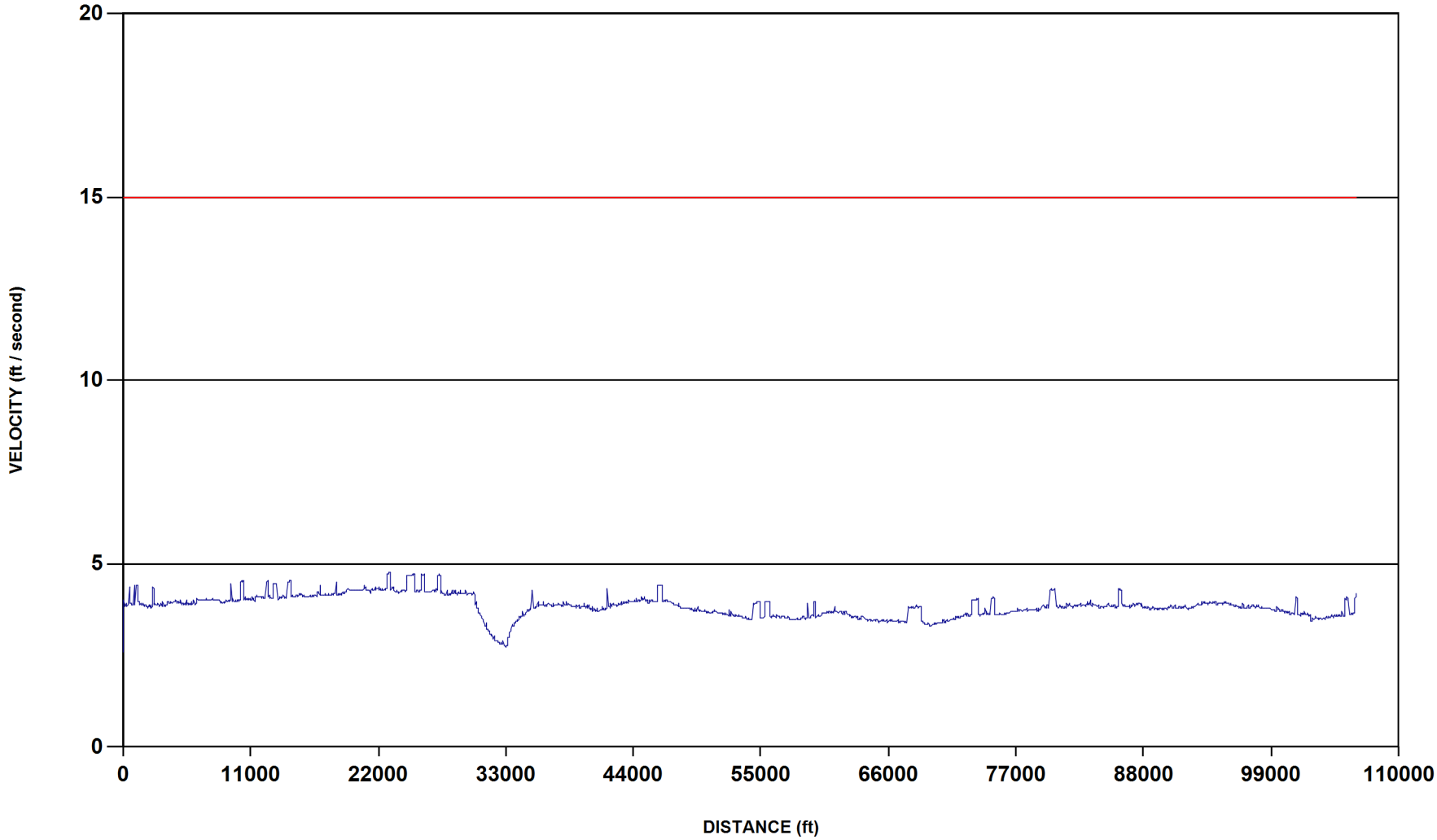
Bethel to Catwalk

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	4,868.82	0.0	110	1.5	1.6	Valve (Launcher), Bethel	48.28429732	-103.81618673	2312.500
10000002	4,869.48	1.1	110	2.6	0.5	Flange	48.28429733	-103.81618222	2312.478
10000003	4,870.52	3.3	120	1.6	2.4	Pipe Support	48.28429737	-103.81617302	2312.423
10000004	4,871.71	6.0	130	0.1	1.0	Tee at 270 deg.	48.28429741	-103.81616200	2312.364
10000005	4,872.70	8.3	140	1.5	1.0	Pipe Support	48.28429743	-103.81615276	2312.317
10000006	4,873.30	9.6	150	0.5	0.5	Flange	48.28429747	-103.81614738	2312.291
10000007	4,874.61	12.6	160	2.4	2.6	Pipe Support	48.28429756	-103.81613499	2312.232
10000008	4,875.73	15.6	170	0.1	1.1	Tee at 270 deg.	48.28429764	-103.81612282	2312.161
10000009	4,876.21	17.2	180	0.8	0.5	Pipe Support	48.28429767	-103.81611656	2312.124
10000010	4,876.45	17.9	190	0.5	2.6	Flange	48.28429770	-103.81611341	2312.105
10000011	4,876.78	19.0	190	1.5	1.6	Valve	48.28429774	-103.81610893	2312.074
10000012	4,877.12	20.1	190	2.6	0.5	Flange	48.28429779	-103.81610451	2312.044
10000013	4,877.82	22.4	200	1.7	9.7	Pipe Support	48.28429789	-103.81609509	2311.986
10000014	4,879.34	27.6	200	6.9	4.5	Fitting on top of pipe	48.28429812	-103.81607405	2311.860
10000015	4,880.81	32.6	210	0.2	1.0	Tee on bottom of pipe	48.28429835	-103.81605366	2311.774
10000016	4,881.62	35.3	220	2.0	2.3	Pipe Support	48.28429849	-103.81604239	2311.730
10000017	4,882.37	37.9	230	0.4	2.8	Flange	48.28429862	-103.81603176	2311.686
10000018	4,882.66	39.1	230	1.6	1.6	Valve	48.28429866	-103.81602703	2311.674
10000019	4,883.00	40.3	230	2.7	0.5	Flange	48.28429865	-103.81602232	2311.666
10000020	4,883.21	41.0	240	0.1	1.1	Pipe Support	48.28429865	-103.81601937	2311.662
10000021	4,883.66	42.5	250	0.1	1.0	Tee at 270 deg.	48.28429870	-103.81601296	2311.662
10000022	4,883.97	43.6	260	0.5	0.5	Flange	48.28429871	-103.81600845	2311.668
10000023	4,884.92	46.8	280	0.1	1.5	Bend down - 45 deg., 3D	48.28429883	-103.81599513	2311.502
10000024	4,885.89	50.1	290	2.5	7.5	Pipe Entering Ground, Bethel -- Survey Point	48.28429887	-103.81598513	2309.287
10000025	4,888.12	58.4	300	0.1	1.4	Bend up - 45 deg., 3D	48.28429916	-103.81596099	2303.635
10000026	4,907.93	122.2	340	1.1	8.1	Bend right - 90 deg., 6D	48.28429975	-103.81569933	2304.866
10000027	5,060.24	627.8	490	0.1	1.5	Bend left - 45 deg., 3D	48.28291340	-103.81561804	2284.698
10000028	5,118.73	825.9	550	0.1	1.4	Bend left - 45 deg., 3D	48.28253317	-103.81503302	2286.115
10000029	5,417.57	1,880.3	840	0.1	1.2	Bend left - 35 deg., 3D	48.28292417	-103.81072883	2286.217
10000030	5,675.24	2,802.1	1,110	0.1	1.1	Bend right - 45 deg., 1.5D	48.28458784	-103.80787302	2311.666
10000031	6,687.22	6,407.9	2,000	26.2	22.9	AGM 010 -- Han #8777	48.28459946	-103.79301643	2358.670
10000032	7,735.08	10,269.7	2,860	27.7	14.3	AGM 020 -- Han #8208	48.28461543	-103.77709813	2318.416
10000033	8,310.39	12,383.3	3,360	0.0	0.9	Bend left - 30 deg., 3D	48.28462138	-103.76838095	2306.352

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000034	8,381.23	12,659.2	3,450	0.0	0.9	Bend right - 32 deg., 1.5D	48.28501552	-103.76740899	2305.808
10000035	9,142.63	15,597.9	4,090	37.9	11.3	AGM 030 -- Han #8776	48.28501913	-103.75528864	2308.245
10000036	9,540.50	17,074.4	4,400	1.3	7.9	Bend left - 90 deg., 6D	48.28500104	-103.74920702	2296.664
10000037	9,727.76	17,754.6	4,550	1.3	8.0	Bend right - 90 deg., 6D	48.28684452	-103.74875203	2291.084
10000038	9,914.28	18,429.4	4,700	1.4	8.0	Bend left - 90 deg., 6D	48.28683986	-103.74597395	2285.190
10000039	11,153.91	22,998.0	5,660	17.5	24.5	AGM 040 -- Han #8666	48.29940023	-103.74636384	2307.669
10000040	11,475.91	24,180.0	5,910	1.6	8.1	Bend right - 90 deg., 6D	48.30264020	-103.74670307	2301.371
10000041	12,312.67	27,254.0	6,610	0.0	1.0	Bend right - 33 deg., 3D	48.30264869	-103.73406450	2267.425
10000042	12,364.78	27,451.1	6,670	17.3	24.6	AGM 050 -- Survey Point	48.30238935	-103.73335274	2259.546
10000043	12,393.93	27,551.7	6,700	0.0	0.8	Bend right - 30 deg., 1.5D	48.30225149	-103.73299256	2258.940
10000044	12,736.00	28,701.7	7,010	0.1	1.2	Bend left - 36 deg., 3D	48.29955459	-103.73051822	2261.089
10000045	12,738.01	28,708.9	7,030	0.1	0.7	Bend left - 25 deg., 3D	48.29954619	-103.73049139	2260.591
10000046	13,808.66	32,410.0	7,950	0.1	1.5	Bend left - 45 deg., 3D	48.29952093	-103.71523097	2180.956
10000047	13,811.56	32,420.1	7,970	0.0	0.5	Bend left - 18 deg., 3D	48.29953985	-103.71520043	2180.885
10000048	13,888.50	32,688.3	8,050	0.1	1.5	Bend right - 45 deg., 3D	48.30017143	-103.71462692	2178.399
10000049	13,893.79	32,708.1	8,070	0.0	0.8	Bend right - 20 deg., 3D	48.30018363	-103.71454760	2177.560
10000050	13,965.17	32,957.6	8,140	28.2	5.7	AGM 060 -- Han #8592	48.30007582	-103.71353094	2173.920
10000051	13,966.94	32,964.0	8,150	0.1	1.3	Bend right - 45 deg., 3D	48.30007251	-103.71350513	2173.585
10000052	14,068.71	33,316.2	8,260	0.0	1.1	Bend left - 36 deg., 3D	48.29943297	-103.71243022	2181.001
10000053	15,162.50	37,222.2	9,230	18.9	16.6	AGM 070 -- Han #8776	48.29940816	-103.69632805	2159.546
10000054	17,395.72	45,145.1	11,180	42.6	2.7	AGM 080 -- Han #8607	48.29933722	-103.66366246	2013.635
10000055	17,993.53	47,364.9	11,680	18.1	31.0	Bend left - 14 deg., 99D	48.29963636	-103.65460052	1948.350
10000056	18,326.10	48,632.8	11,950	0.0	0.9	Bend right - 30 deg., 3D	48.30139670	-103.65010093	1965.444
10000057	18,902.91	50,866.1	12,430	7.0	36.1	Bend right - 16 deg., 120D	48.30151538	-103.64088670	1966.273
10000058	19,069.99	51,516.7	12,560	29.5	18.9	Bend left - 12 deg., 116D	48.30098423	-103.63832216	1965.934
10000059	19,309.49	52,441.3	12,760	0.0	0.8	Bend right - 25 deg., 3D	48.30083299	-103.63451373	1948.059
10000060	19,668.94	53,796.2	13,050	32.9	15.6	AGM 090 -- Han #8776	48.29911441	-103.62955046	1929.233
10000061	19,844.79	54,471.3	13,200	0.0	0.6	Bend left - 24 deg., 1.5D	48.29824875	-103.62708671	1919.805
10000062	19,846.62	54,478.3	13,220	0.0	1.5	Bend left - 45 deg., 3D	48.29824634	-103.62705791	1919.618
10000063	19,998.39	55,109.2	13,390	0.1	1.2	Bend right - 35 deg., 3D	48.29922167	-103.62491081	1952.931
10000064	21,354.22	60,189.9	14,510	0.0	1.5	Bend right - 45 deg., 3D	48.29923105	-103.60397269	1905.569
10000065	21,377.01	60,274.3	14,550	0.0	1.5	Bend right - 45 deg., 3D	48.29908069	-103.60370714	1904.146
10000066	21,727.50	61,562.8	14,830	0.0	1.1	Bend left - 36 deg., 3D	48.29553393	-103.60370387	1898.393

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000067	21,745.57	61,629.9	14,850	45.0	3.7	AGM 100 -- Han #8666	48.29537786	-103.60355547	1896.674
10000068	21,750.04	61,646.7	14,870	0.0	0.8	Bend left - 25 deg., 3D	48.29533931	-103.60351787	1896.112
10000069	22,247.48	63,498.2	15,260	0.1	1.5	Bend left - 45 deg., 3D	48.29280276	-103.59691280	1883.776
10000070	22,399.10	64,057.8	15,380	28.3	20.9	Bend left - 14 deg., 100D	48.29327733	-103.59471921	1881.139
10000071	22,706.66	65,196.6	15,620	0.0	1.1	Bend left - 36 deg., 3D	48.29508624	-103.59088682	1877.947
10000072	22,989.12	66,251.4	15,850	0.1	1.5	Bend right - 45 deg., 3D	48.29785460	-103.58975099	1875.824
10000073	23,193.33	67,022.3	16,020	6.5	42.6	Bend left - 10 deg., 91D	48.29910800	-103.58718942	1872.090
10000074	23,406.29	67,835.3	16,190	0.0	1.0	Bend right - 36 deg., 1.5D	48.30067206	-103.58479360	1873.592
10000075	24,016.12	70,327.7	16,770	27.4	21.8	AGM 110 -- Han #8776	48.30072520	-103.57482458	1885.158
10000076	24,837.85	73,508.0	17,430	41.9	0.1	AGM 120 -- Han #8592	48.29918377	-103.56198258	1912.525
10000077	25,224.60	75,040.3	17,770	0.0	1.1	Bend left - 45 deg., 1.5D	48.29878332	-103.55583047	1918.271
10000078	25,696.78	76,941.8	18,200	0.1	1.5	Bend right - 45 deg., 3D	48.30278647	-103.55078845	1947.193
10000079	26,168.26	78,832.6	18,600	0.1	1.5	Bend right - 45 deg., 3D	48.30273051	-103.54299590	1976.975
10000080	26,427.71	79,875.1	18,830	0.0	0.7	Bend right - 24 deg., 3D	48.30064344	-103.54005358	2010.068
10000081	26,616.67	80,712.7	19,040	6.0	41.4	AGM 130 -- Han #8777	48.29852854	-103.53871209	1986.545
10000082	27,912.91	86,029.3	20,120	32.1	17.2	AGM 140 -- Han #8208	48.28520915	-103.52980259	2140.957
10000083	27,929.89	86,099.3	20,140	7.4	0.7	Fitting on top of pipe	48.28504611	-103.52965107	2145.963
10000084	27,933.42	86,115.4	20,170	0.1	0.7	Bend right - 24 deg., 1.5D	48.28500782	-103.52961746	2146.622
10000085	28,165.57	87,115.5	20,410	0.0	1.5	Bend left - 45 deg., 3D	48.28227308	-103.52929384	2165.870
10000086	28,417.19	88,168.7	20,640	0.0	0.7	Bend left - 18 deg., 3D	48.28071013	-103.52567674	2074.411
10000087	28,419.88	88,180.1	20,660	0.0	0.4	Bend up - 18 deg., 1.5D	48.28070437	-103.52563069	2073.907
10000088	28,863.97	90,047.2	21,050	9.1	40.3	Bend right - 15 deg., 115D	48.27965193	-103.51813815	2075.054
10000089	29,090.10	91,012.4	21,250	0.6	48.8	AGM 150 -- Han #8777	48.27817998	-103.51484840	2079.778
10000090	30,329.19	96,268.2	22,340	0.0	0.8	Bend left - 24 deg., 3D	48.27084858	-103.49629187	2214.826
10000091	30,500.12	97,011.1	22,540	4.4	36.5	AGM 160 -- Han #8656	48.27082755	-103.49323641	2231.258
10000092	31,726.01	101,473.3	23,470	25.2	16.7	AGM 170 -- Han #8777	48.27078138	-103.47485871	2207.796
10000093	34,094.60	106,756.9	24,760	0.1	1.4	Bend up - 45 deg., 3D	48.27071374	-103.45313773	2146.022
10000094	34,096.22	106,764.2	24,780	0.7	5.2	Pipe Exiting Ground, Catwalk -- Survey Point	48.27071376	-103.45311632	2151.302
10000095	34,097.56	106,770.2	24,790	0.1	1.4	Bend down - 45 deg., 3D	48.27071444	-103.45309857	2155.396
10000096	34,097.85	106,771.4	24,800	0.5	2.6	Flange	48.27071468	-103.45309333	2155.559
10000097	34,098.09	106,772.5	24,800	1.5	1.6	Valve	48.27071486	-103.45308882	2155.549
10000098	34,098.34	106,773.6	24,800	2.6	0.5	Flange	48.27071492	-103.45308447	2155.591
10000099	34,098.57	106,774.6	24,810	0.1	1.1	Tee at 270 deg.	48.27071494	-103.45308037	2155.635

Locations Summary

ID#	Time	Dist (ft)	Joint #	U/S Weld Dist.	D/S Weld Dist.	Description	Latitude	Longitude	Altitude
10000100	34,098.82	106,775.8	24,820	0.4	0.7	Pipe Support	48.27071496	-103.45307596	2155.674
10000101	34,099.03	106,776.8	24,830	0.5	2.7	Flange	48.27071499	-103.45307176	2155.710
10000102	34,099.27	106,778.0	24,830	1.6	1.6	Valve (Receiver), Catwalk	48.27071502	-103.45306732	2155.752

Locations	Number
Bend	53
Casing	0
Flange	12
Fitting	2
Marker	19
Repair	0
Tee	5
Valve	5
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
14000000	1,940.4	0.40	5.0%	347	11:30		7.78	With possible associated metal loss, repaired		Yes	**U/S:** Pipe Entering Ground, Bethel -- Survey Point	1890.22
											D/S: AGM 010 -- Han #8777	4467.53
14000002	63,302.1	0.20	2.5%	169	5:30		7.91				**U/S:** AGM 100 -- Han #8666	1672.07
											D/S: AGM 110 -- Han #8776	7025.67
14000001	30,436.3	0.18	2.3%	314	10:15		8.01				**U/S:** AGM 050 -- Survey Point	2985.08
											D/S: AGM 060 -- Han #8592	2521.45

Type	Number
DENT	3

Gains (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. 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 AGM Dist.	The distance to the upstream (U/S) AGM (in feet or meters).
D/S AGM Dist.	The distance to the downstream (D/S) AGM (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 AGM Dist.	D/S AGM Dist.
13000000	53298.19	2.07	4.54	55	125 to 190	4:00 to 6:15	12950	8153.0	498.1

Total Number of Gains

1

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	-1.55	0.322	ERW	52000	0.72	66.78
11000001	65.23	0.188	ERW	52000	0.72	448.2
11000002	513.42	0.322	ERW	52000	0.72	115.2
11000003	628.62	0.188	ERW	52000	0.72	294.66
11000004	923.28	0.322	ERW	52000	0.72	83.79
11000005	1007.08	0.188	ERW	52000	0.72	54.18
11000006	1061.26	0.322	ERW	52000	0.72	293.85
11000007	1355.11	0.188	ERW	52000	0.72	1181.54
11000008	2536.65	0.322	ERW	52000	0.72	164.9
11000009	2701.55	0.188	ERW	52000	0.72	6609.39
11000010	9310.94	0.322	ERW	52000	0.72	116.31
11000011	9427.25	0.188	ERW	52000	0.72	772.78
11000012	10200.03	0.322	ERW	52000	0.72	230.36
11000013	10430.39	0.188	ERW	52000	0.72	1952.36
11000014	12382.75	0.322	ERW	52000	0.72	204.46
11000015	12587.21	0.188	ERW	52000	0.72	405.63
11000016	12992.84	0.322	ERW	52000	0.72	334.29
11000017	13327.14	0.188	ERW	52000	0.72	881.26
11000018	14208.39	0.322	ERW	52000	0.72	377.43
11000019	14585.83	0.188	ERW	52000	0.72	8268.69
11000020	22854.52	0.322	ERW	52000	0.72	251.89
11000021	23106.40	0.188	ERW	52000	0.72	1449.12
11000022	24555.52	0.322	ERW	52000	0.72	741.17
11000023	25296.69	0.188	ERW	52000	0.72	557.51
11000024	25854.21	0.322	ERW	52000	0.72	209.91
11000025	26064.12	0.188	ERW	52000	0.72	1189.36
11000026	27253.47	0.322	ERW	52000	0.72	222.17
11000027	27475.64	0.188	ERW	52000	0.72	7827.21
11000028	35302.85	0.322	ERW	52000	0.72	167.52
11000029	35470.37	0.188	ERW	52000	0.72	6396.58
11000030	41866.95	0.322	ERW	52000	0.72	125.63
11000031	41992.58	0.188	ERW	52000	0.72	4266.88
11000032	46259.46	0.322	ERW	52000	0.72	392.36
11000033	46651.82	0.188	ERW	52000	0.72	7825.72
11000034	54477.53	0.322	ERW	52000	0.72	632.29
11000035	55109.83	0.188	ERW	52000	0.72	417.65
11000036	55527.47	0.322	ERW	52000	0.72	425.86
11000037	55953.34	0.188	ERW	52000	0.72	3223.4
11000038	59176.74	0.322	ERW	52000	0.72	125.57
11000039	59302.30	0.188	ERW	52000	0.72	454.39

Nominal Wall Thickness

ID#	Distance (ft)	Wall Thickness (in)	Pipetype	Yield Strength (SMYS)	Safety Factor	Length of Segment (ft)
11000040	59756.70	0.322	ERW	52000	0.72	165.41
11000041	59922.11	0.188	ERW	52000	0.72	7935.29
11000042	67857.40	0.322	ERW	52000	0.72	1244.53
11000043	69101.93	0.188	ERW	52000	0.72	4331.76
11000044	73433.69	0.322	ERW	52000	0.72	534.77
11000045	73968.46	0.188	ERW	52000	0.72	1086.33
11000046	75054.79	0.322	ERW	52000	0.72	342.24
11000047	75397.03	0.188	ERW	52000	0.72	4751.31
11000048	80148.33	0.322	ERW	52000	0.72	558.32
11000049	80706.65	0.188	ERW	52000	0.72	5393.27
11000050	86099.92	0.322	ERW	52000	0.72	12.01
11000051	86111.93	0.188	ERW	52000	0.72	3.9
11000052	86115.83	0.322	ERW	52000	0.72	323.35
11000053	86439.17	0.188	ERW	52000	0.72	14967.11
11000054	101406.28	0.322	ERW	52000	0.72	209.78
11000055	101616.06	0.188	ERW	52000	0.72	4057.15
11000056	105673.21	0.322	ERW	52000	0.72	377.45
11000057	106050.66	0.188	ERW	52000	0.72	543.64
11000058	106594.31	0.322	ERW	52000	0.72	183.65

Wall Thickness	Pipetype	Total Length (ft)	Total Length (miles)	Percent of Total Distance
0.188	ERW	97,546	18.475	91.4%
0.322	ERW	9,233	1.749	8.6%

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	4868.82	0.00	Valve (Launcher), Bethel	48.28429732	-103.81618673	2312.500
10000011	4876.78	19.03	Valve	48.28429774	-103.81610893	2312.074
10000018	4882.66	39.11	Valve	48.28429866	-103.81602703	2311.674
10000024	4885.89	50.13	Pipe Entering Ground, Bethel -- Survey Point	48.28429887	-103.81598513	2309.287
10000031	6687.22	6407.88	AGM 010 -- Han #8777	48.28459946	-103.79301643	2358.670
10000032	7735.08	10269.66	AGM 020 -- Han #8208	48.28461543	-103.77709813	2318.416
10000035	9142.63	15597.89	AGM 030 -- Han #8776	48.28501913	-103.75528864	2308.245
10000039	11153.91	22997.99	AGM 040 -- Han #8666	48.29940023	-103.74636384	2307.669
10000042	12364.78	27451.06	AGM 050 -- Survey Point	48.30238935	-103.73335274	2259.546
10000050	13965.17	32957.59	AGM 060 -- Han #8592	48.30007582	-103.71353094	2173.920
10000053	15162.50	37222.16	AGM 070 -- Han #8776	48.29940816	-103.69632805	2159.546
10000054	17395.72	45145.13	AGM 080 -- Han #8607	48.29933722	-103.66366246	2013.635
10000060	19668.94	53796.25	AGM 090 -- Han #8776	48.29911441	-103.62955046	1929.233
10000067	21745.57	61629.95	AGM 100 -- Han #8666	48.29537786	-103.60355547	1896.674
10000075	24016.12	70327.69	AGM 110 -- Han #8776	48.30072520	-103.57482458	1885.158
10000076	24837.85	73507.98	AGM 120 -- Han #8592	48.29918377	-103.56198258	1912.525
10000081	26616.67	80712.68	AGM 130 -- Han #8777	48.29852854	-103.53871209	1986.545
10000082	27912.91	86029.33	AGM 140 -- Han #8208	48.28520915	-103.52980259	2140.957
10000089	29090.10	91012.42	AGM 150 -- Han #8777	48.27817998	-103.51484840	2079.778
10000091	30500.12	97011.12	AGM 160 -- Han #8656	48.27082755	-103.49323641	2231.258
10000092	31726.01	101473.26	AGM 170 -- Han #8777	48.27078138	-103.47485871	2207.796
10000094	34096.22	106764.25	Pipe Exiting Ground, Catwalk -- Survey Point	48.27071376	-103.45311632	2151.302
10000097	34098.09	106772.50	Valve	48.27071486	-103.45308882	2155.549
10000102	34099.27	106777.95	Valve (Receiver), Catwalk	48.27071502	-103.45306732	2155.752

TYPE	NUMBER
Valves	5
Markers	19

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	366.66	-26.96	Begin Run Tickle
12000001	5,435.00	1,940.36	Dig#23-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 5.63%D x 6.5"L x 4.0"W - Dent (repaired w/new pipe)
12000002	5,435.04	1,940.47	Dig#23-Verification Digs were performed in 2014 to validate the MFL tool run. Actual: Metal Loss not measurable due to sharp slope of dent (repaired w/new pipe)
12000003	7,408.79	9,107.66	Dig#22-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 11.7%D x 1.0"L x 1.0"W (repaired w/Res-Q wrap)
12000004	7,419.49	9,145.26	Dig#22-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 9.6%D x .75"L x .95"W (repaired w/Res-Q wrap)
12000005	12,556.47	28,099.39	Debris
12000006	23,901.56	69,887.01	Dig#21-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 3.7%D x .25"L x .25"W (repaired w/Res-Q wrap)
12000007	25,400.47	75,761.15	Debris
12000008	35,476.92	106,816.21	End Run Tickle

Total	Number
Misc listings	9

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
20000007	Seam Variation	18,329.8	0.47	0.34	26	INT	6:30 / N/D	**U/S:**	AGM 030 -- Han #8776	2731.85
								D/S:	AGM 040 -- Han #8666	4668.25
20000008	Seam Variation	24,162.5	0.47	0.38	40	INT	11:45 / N/D	**U/S:**	AGM 040 -- Han #8666	1164.54
								D/S:	AGM 050 -- Survey Point	3288.53
20000010	Seam Variation	26,682.8	0.47	0.52	34	INT	10:15 / N/D	**U/S:**	AGM 040 -- Han #8666	3684.82
								D/S:	AGM 050 -- Survey Point	768.25
20000011	Seam Variation	26,683.4	0.47	0.55	30	INT	10:15 / N/D	**U/S:**	AGM 040 -- Han #8666	3685.43
								D/S:	AGM 050 -- Survey Point	767.64
20000020	Mill Anomaly	42,161.6	1.30	0.41	157	INT	5:45 / N/D	**U/S:**	AGM 070 -- Han #8776	4939.40
								D/S:	AGM 080 -- Han #8607	2983.57
20000022	Seam Variation	46,917.7	0.82	0.57	28	INT	8:00 / N/D	**U/S:**	AGM 080 -- Han #8607	1772.57
								D/S:	AGM 090 -- Han #8776	6878.55
20000025	Seam Variation	56,704.8	0.59	0.84	36	INT	8:00 / N/D	**U/S:**	AGM 090 -- Han #8776	2908.55
								D/S:	AGM 100 -- Han #8666	4925.15
20000033	Seam Variation	71,454.6	1.06	0.63	31	EXT	4:00 / N/D	**U/S:**	AGM 110 -- Han #8776	1126.89
								D/S:	AGM 120 -- Han #8592	2053.39
20000034	Seam Variation	72,422.5	0.82	0.75	36	INT	1:15 / N/D	**U/S:**	AGM 110 -- Han #8776	2094.77
								D/S:	AGM 120 -- Han #8592	1085.51
20000036	Seam Variation	76,486.4	0.59	0.53	27	INT	5:00 / N/D	**U/S:**	AGM 120 -- Han #8592	2978.37
								D/S:	AGM 130 -- Han #8777	4226.34
20000041	Seam Variation	99,806.1	0.59	0.51	28	INT	7:15 / N/D	**U/S:**	AGM 160 -- Han #8656	2794.99
								D/S:	AGM 170 -- Han #8777	1667.15

Other Anomalies Type	Number
Girth Weld Anomaly	0
Mill Anomaly	1
Seam Variation	10

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
Bethel to Catwalk

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	-27.0	0	-	25.4	48.28429732	-103.81618667	2312.501	0	12:00					
11000000	WT CHANGE	-1.6	0	0.0	0.0	48.28429732	-103.81618667	2312.501	0	12:00		0.322	52000	0.72	
110	WELD	-1.5	110	0.0	3.1	48.28429732	-103.81618667	2312.501	0	12:00					
10000000	Flange	-1.1	110	0.4	2.7	48.28429732	-103.81618667	2312.501	0	12:00					
10000001	Valve (Launcher), Bethel	0.0	110	1.5	1.6	48.28429732	-103.81618673	2312.500	0	12:00					
10000002	Flange	1.1	110	2.6	0.5	48.28429733	-103.81618222	2312.478	0	12:00					
120	WELD	1.6	120	0.0	3.9	48.28429734	-103.81618029	2312.467	0	12:00					
10000003	Pipe Support	3.3	120	1.6	2.4	48.28429737	-103.81617302	2312.423	0	12:00					
130	WELD	5.5	130	0.0	1.1	48.28429741	-103.81616415	2312.371	0	12:00					
10000004	Tee at 270 deg.	6.0	130	0.1	1.0	48.28429741	-103.81616200	2312.364	276	9:00					
140	WELD	6.7	140	0.0	2.5	48.28429741	-103.81615946	2312.354	0	12:00					
10000005	Pipe Support	8.3	140	1.5	1.0	48.28429743	-103.81615276	2312.317	0	12:00					
150	WELD	9.2	150	0.0	0.9	48.28429745	-103.81614925	2312.300	0	12:00					
10000006	Flange	9.6	150	0.5	0.5	48.28429747	-103.81614738	2312.291	0	12:00					
160	WELD	10.1	160	0.0	5.0	48.28429749	-103.81614548	2312.284	0	12:00					
10000007	Pipe Support	12.6	160	2.4	2.6	48.28429756	-103.81613499	2312.232	0	12:00					
170	WELD	15.1	170	0.0	1.2	48.28429763	-103.81612509	2312.173	0	12:00					
10000008	Tee at 270 deg.	15.6	170	0.1	1.1	48.28429764	-103.81612282	2312.161	278	9:15					
180	WELD	16.2	180	0.0	1.3	48.28429765	-103.81612034	2312.147	0	12:00					
10000009	Pipe Support	17.2	180	0.8	0.5	48.28429767	-103.81611656	2312.124	0	12:00					
190	WELD	17.5	190	0.0	3.1	48.28429768	-103.81611526	2312.116	0	12:00					
10000010	Flange	17.9	190	0.5	2.6	48.28429770	-103.81611341	2312.105	0	12:00					
10000011	Valve	19.0	190	1.5	1.6	48.28429774	-103.81610893	2312.074	0	12:00					
10000012	Flange	20.1	190	2.6	0.5	48.28429779	-103.81610451	2312.044	0	12:00					
200	WELD	20.6	200	0.0	11.4	48.28429781	-103.81610258	2312.032	0	12:00					
10000013	Pipe Support	22.4	200	1.7	9.7	48.28429789	-103.81609509	2311.986	0	12:00					
10000014	Fitting on top of pipe	27.6	200	6.9	4.5	48.28429812	-103.81607405	2311.860	1	12:00					
210	WELD	32.0	210	0.0	1.2	48.28429833	-103.81605594	2311.779	0	12:00					
10000015	Tee on bottom of pipe	32.6	210	0.2	1.0	48.28429835	-103.81605366	2311.774	181	6:00					
220	WELD	33.2	220	0.0	4.3	48.28429838	-103.81605116	2311.771	0	12:00					
10000016	Pipe Support	35.3	220	2.0	2.3	48.28429849	-103.81604239	2311.730	0	12:00					
230	WELD	37.5	230	0.0	3.2	48.28429860	-103.81603360	2311.690	0	12:00					
10000017	Flange	37.9	230	0.4	2.8	48.28429862	-103.81603176	2311.686	0	12:00					
10000018	Valve	39.1	230	1.6	1.6	48.28429866	-103.81602703	2311.674	0	12:00					
10000019	Flange	40.3	230	2.7	0.5	48.28429865	-103.81602232	2311.666	0	12:00					
240	WELD	40.7	240	0.0	1.2	48.28429865	-103.81602038	2311.663	0	12:00					
10000020	Pipe Support	41.0	240	0.1	1.1	48.28429865	-103.81601937	2311.662	0	12:00					

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)
250	WELD	42.0	250	0.0	1.2	48.28429869	-103.81601523	2311.660	0	12:00					
10000021	Tee at 270 deg.	42.5	250	0.1	1.0	48.28429870	-103.81601296	2311.662	279	9:15					
260	WELD	43.1	260	0.0	0.9	48.28429870	-103.81601034	2311.665	0	12:00					
10000022	Flange	43.6	260	0.5	0.5	48.28429871	-103.81600845	2311.668	0	12:00					
270	WELD	44.1	270	0.0	2.0	48.28429873	-103.81600643	2311.670	0	12:00					
280	WELD	46.0	280	0.0	1.6	48.28429881	-103.81599823	2311.680	0	12:00					
10000023	Bend down - 45 deg., 3D	46.8	280	0.1	1.5	48.28429883	-103.81599513	2311.502	0	12:00					
290	WELD	47.6	290	0.0	10.0	48.28429885	-103.81599239	2311.059	0	12:00					
10000024	Pipe Entering Ground, Bethel -- Survey Point	50.1	290	2.5	7.5	48.28429887	-103.81598513	2309.287	0	12:00					
300	WELD	57.6	300	0.0	1.5	48.28429911	-103.81596373	2304.003	0	12:00					
10000025	Bend up - 45 deg., 3D	58.4	300	0.1	1.4	48.28429916	-103.81596099	2303.635	0	12:00					
310	WELD	59.1	310	0.0	6.2	48.28429921	-103.81595798	2303.514	0	12:00					
11000001	WT CHANGE	65.2	310	0.0	0.0	48.28429963	-103.81593273	2303.536	0	12:00		0.188	52000	0.72	
320	WELD	65.3	320	0.0	16.4	48.28429963	-103.81593262	2303.536	0	12:00					
330	WELD	81.6	330	0.0	35.9	48.28430085	-103.81586513	2303.725	0	12:00					
340	WELD	117.5	340	0.0	9.2	48.28430290	-103.81571727	2304.725	0	12:00					
10000026	Bend right - 90 deg., 6D	122.2	340	1.1	8.1	48.28429975	-103.81569933	2304.866	0	12:00					
350	WELD	126.7	350	0.0	7.1	48.28428820	-103.81569430	2305.005	0	12:00					
360	WELD	133.8	360	0.0	36.7	48.28426869	-103.81569370	2305.086	0	12:00					
370	WELD	170.5	370	0.0	41.1	48.28416765	-103.81569079	2304.558	0	12:00					
380	WELD	211.6	380	0.0	41.1	48.28405468	-103.81568613	2303.447	0	12:00					
390	WELD	252.7	390	0.0	41.1	48.28394176	-103.81567896	2302.514	0	12:00					
400	WELD	293.8	400	0.0	41.1	48.28382885	-103.81567013	2303.170	0	12:00					
410	WELD	334.8	410	0.0	41.1	48.28371599	-103.81566208	2302.402	0	12:00					
420	WELD	375.9	420	0.0	41.0	48.28360305	-103.81565471	2301.814	0	12:00					
430	WELD	416.9	430	0.0	41.1	48.28349038	-103.81564763	2300.709	0	12:00					
440	WELD	458.0	440	0.0	41.1	48.28337757	-103.81563929	2298.882	0	12:00					
450	WELD	499.1	450	0.0	14.4	48.28326486	-103.81563227	2296.549	0	12:00					
11000002	WT CHANGE	513.4	450	0.0	0.1	48.28322577	-103.81563041	2294.936	0	12:00		0.322	52000	0.72	
460	WELD	513.5	460	0.0	30.8	48.28322550	-103.81563040	2294.922	0	12:00					
470	WELD	544.3	470	0.0	42.0	48.28314211	-103.81562599	2289.701	0	12:00					
480	WELD	586.3	480	0.0	40.7	48.28302748	-103.81562100	2285.513	0	12:00					
490	WELD	627.0	490	0.0	1.6	48.28291547	-103.81561872	2284.714	0	12:00					
10000027	Bend left - 45 deg., 3D	627.8	490	0.1	1.5	48.28291340	-103.81561804	2284.698	0	12:00					
11000003	WT CHANGE	628.6	490	0.0	0.0	48.28291151	-103.81561632	2284.713	0	12:00		0.188	52000	0.72	
500	WELD	628.6	500	0.0	40.4	48.28291146	-103.81561627	2284.714	0	12:00					

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)
510	WELD	669.1	510	0.0	41.0	48.28283399	-103.81549675	2284.633	0	12:00					
520	WELD	710.1	520	0.0	41.0	48.28275619	-103.81537413	2285.259	0	12:00					
530	WELD	751.1	530	0.0	41.0	48.28267785	-103.81525238	2286.079	0	12:00					
540	WELD	792.1	540	0.0	33.0	48.28259859	-103.81513193	2286.059	0	12:00					
550	WELD	825.1	550	0.0	1.6	48.28253419	-103.81503577	2286.114	0	12:00					
10000028	Bend left - 45 deg., 3D	825.9	550	0.1	1.4	48.28253317	-103.81503302	2286.115	0	12:00					
560	WELD	826.7	560	0.0	19.1	48.28253281	-103.81502993	2286.091	0	12:00					
570	WELD	845.8	570	0.0	37.1	48.28253772	-103.81495147	2285.706	0	12:00					
580	WELD	882.9	580	0.0	40.5	48.28255163	-103.81480016	2285.836	0	12:00					
11000004	WT CHANGE	923.3	580	0.0	0.1	48.28256692	-103.81463520	2285.208	0	12:00		0.322	52000	0.72	
590	WELD	923.4	590	0.0	41.9	48.28256695	-103.81463492	2285.204	0	12:00					
600	WELD	965.3	600	0.0	41.9	48.28258215	-103.81446410	2282.269	0	12:00					
11000005	WT CHANGE	1,007.1	600	0.0	0.1	48.28259813	-103.81429342	2282.400	0	12:00		0.188	52000	0.72	
610	WELD	1,007.2	610	0.0	40.9	48.28259817	-103.81429299	2282.401	0	12:00					
620	WELD	1,048.1	620	0.0	13.3	48.28261140	-103.81412564	2283.953	0	12:00					
11000006	WT CHANGE	1,061.3	620	0.0	0.1	48.28261564	-103.81407167	2284.197	0	12:00		0.322	52000	0.72	
630	WELD	1,061.3	630	0.0	41.9	48.28261567	-103.81407131	2284.200	0	12:00					
640	WELD	1,103.2	640	0.0	41.9	48.28263186	-103.81390044	2283.560	0	12:00					
650	WELD	1,145.2	650	0.0	42.0	48.28264910	-103.81372979	2281.283	0	12:00					
660	WELD	1,187.2	660	0.0	42.0	48.28266686	-103.81355947	2277.732	0	12:00					
670	WELD	1,229.2	670	0.0	42.0	48.28268238	-103.81338803	2276.029	0	12:00					
680	WELD	1,271.2	680	0.0	42.0	48.28269628	-103.81321639	2278.517	0	12:00					
690	WELD	1,313.2	690	0.0	42.0	48.28271276	-103.81304531	2281.728	0	12:00					
11000007	WT CHANGE	1,355.1	690	0.0	0.1	48.28273093	-103.81287471	2283.771	0	12:00		0.188	52000	0.72	
700	WELD	1,355.2	700	0.0	12.2	48.28273097	-103.81287434	2283.774	0	12:00					
710	WELD	1,367.4	710	0.0	41.0	48.28273590	-103.81282461	2284.459	0	12:00					
720	WELD	1,408.4	720	0.0	23.7	48.28275234	-103.81265738	2285.796	0	12:00					
730	WELD	1,432.1	730	0.0	40.1	48.28276073	-103.81256029	2285.979	0	12:00					
740	WELD	1,472.2	740	0.0	40.9	48.28277392	-103.81239619	2285.846	0	12:00					
750	WELD	1,513.1	750	0.0	40.8	48.28278798	-103.81222905	2286.074	0	12:00					
760	WELD	1,553.9	760	0.0	40.9	48.28280250	-103.81206206	2286.837	0	12:00					
770	WELD	1,594.8	770	0.0	41.1	48.28281741	-103.81189473	2287.512	0	12:00					
780	WELD	1,635.9	780	0.0	41.1	48.28283231	-103.81172672	2287.799	0	12:00					
790	WELD	1,677.1	790	0.0	41.1	48.28284778	-103.81155892	2287.447	0	12:00					
800	WELD	1,718.1	800	0.0	41.1	48.28286328	-103.81139110	2287.391	0	12:00					
810	WELD	1,759.2	810	0.0	41.1	48.28287844	-103.81122325	2287.748	0	12:00					
820	WELD	1,800.3	820	0.0	41.1	48.28289314	-103.81105545	2288.123	0	12:00					

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC
Bethel to Catwalk

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)
830	WELD	1,841.3	830	0.0	38.4	48.28290830	-103.81088774	2287.268	0	12:00					
40000000	Metal Loss - INTERNAL	1,859.6	830	18.3	20.1	48.28291556	-103.81081317	2286.610	278	9:15	10%	0.45	0.46	1760	100%
840	WELD	1,879.7	840	0.0	1.2	48.28292361	-103.81073118	2286.225	0	12:00					
10000029	Bend left - 35 deg., 3D	1,880.3	840	0.1	1.2	48.28292417	-103.81072883	2286.217	0	12:00					
850	WELD	1,880.9	850	0.0	40.4	48.28292508	-103.81072666	2286.196	0	12:00					
860	WELD	1,921.3	860	0.0	40.8	48.28299842	-103.81060208	2284.323	0	12:00					
14000000	DENT	1,940.4	860	19.0	21.7	48.28303327	-103.81054287	2284.114	347	11:30	5.0%				
12000001	Dig#23-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 5.63%D x 6.5"L x 4.0"W - Dent (repaired w/new pipe)	1,940.4	860	19.1	21.7	0.00000000	0.00000000	0.000	0	12:00					
40000001	Metal Loss - EXTERNAL	1,940.5	860	19.1	21.7	48.28303331	-103.81054280	2284.114	336	11:00	8%	0.69	0.80	1760	100%
12000002	Dig#23-Verification Digs were performed in 2014 to validate the MFL tool run. Actual: Metal Loss not measurable due to sharp slope of dent (repaired w/new pipe)	1,940.5	860	19.2	21.6	0.00000000	0.00000000	0.000	0	12:00					
870	WELD	1,962.1	870	0.0	40.9	48.28307276	-103.81047602	2284.102	0	12:00					
880	WELD	2,003.0	880	0.0	41.0	48.28314659	-103.81034862	2284.541	0	12:00					
890	WELD	2,044.0	890	0.0	40.9	48.28322081	-103.81022123	2284.429	0	12:00					
900	WELD	2,084.9	900	0.0	40.9	48.28329548	-103.81009503	2284.426	0	12:00					
910	WELD	2,125.8	910	0.0	40.8	48.28337039	-103.80996901	2285.577	0	12:00					
920	WELD	2,166.7	920	0.0	41.1	48.28344528	-103.80984341	2286.707	0	12:00					
930	WELD	2,207.7	930	0.0	41.1	48.28351918	-103.80971533	2287.517	0	12:00					
940	WELD	2,248.9	940	0.0	41.1	48.28359435	-103.80958856	2288.500	0	12:00					
950	WELD	2,289.9	950	0.0	41.1	48.28366966	-103.80946230	2289.692	0	12:00					
960	WELD	2,331.0	960	0.0	8.1	48.28374467	-103.80933565	2289.531	0	12:00					
970	WELD	2,339.1	970	0.0	31.1	48.28375953	-103.80931045	2289.401	0	12:00					
980	WELD	2,370.2	980	0.0	40.9	48.28381592	-103.80921417	2290.251	0	12:00					
990	WELD	2,411.1	990	0.0	40.6	48.28389100	-103.80908876	2290.664	0	12:00					
1000	WELD	2,451.7	1000	0.0	15.4	48.28396423	-103.80896207	2290.866	0	12:00					
1010	WELD	2,467.1	1010	0.0	41.0	48.28399146	-103.80891318	2290.981	0	12:00					
1020	WELD	2,508.1	1020	0.0	28.6	48.28406551	-103.80878565	2291.315	0	12:00					
11000008	WT CHANGE	2,536.6	1020	0.0	0.0	48.28411783	-103.80869809	2290.603	0	12:00		0.322	52000	0.72	
1030	WELD	2,536.7	1030	0.0	7.3	48.28411792	-103.80869794	2290.602	0	12:00					
1040	WELD	2,544.0	1040	0.0	41.9	48.28413124	-103.80867527	2290.276	0	12:00					

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)
1050	WELD	2,585.9	1050	0.0	41.1	48.28420715	-103.80854643	2286.340	0	12:00					
1060	WELD	2,627.1	1060	0.0	33.4	48.28428152	-103.80841986	2290.022	0	12:00					
1070	WELD	2,660.5	1070	0.0	41.1	48.28433901	-103.80831634	2297.577	0	12:00					
11000009	WT CHANGE	2,701.6	1070	0.0	0.1	48.28440980	-103.80818922	2306.504	0	12:00		0.188	52000	0.72	
1080	WELD	2,701.6	1080	0.0	22.9	48.28440991	-103.80818903	2306.514	0	12:00					
1090	WELD	2,724.5	1090	0.0	41.0	48.28445009	-103.80811708	2309.495	0	12:00					
1100	WELD	2,765.6	1100	0.0	35.9	48.28452278	-103.80798765	2311.248	0	12:00					
1110	WELD	2,801.5	1110	0.0	1.2	48.28458707	-103.80787508	2311.655	0	12:00					
10000030	Bend right - 45 deg., 1.5D	2,802.1	1110	0.1	1.1	48.28458784	-103.80787302	2311.666	0	12:00					
1120	WELD	2,802.7	1120	0.0	11.7	48.28458827	-103.80787070	2311.671	0	12:00					
1130	WELD	2,814.4	1130	0.0	40.8	48.28458862	-103.80782240	2311.963	0	12:00					
1140	WELD	2,855.2	1140	0.0	41.1	48.28459058	-103.80765399	2312.929	0	12:00					
1150	WELD	2,896.3	1150	0.0	41.0	48.28459195	-103.80748472	2313.878	0	12:00					
1160	WELD	2,937.3	1160	0.0	41.0	48.28459269	-103.80731577	2313.974	0	12:00					
1170	WELD	2,978.3	1170	0.0	41.0	48.28459290	-103.80714674	2314.308	0	12:00					
1180	WELD	3,019.3	1180	0.0	41.0	48.28459228	-103.80697745	2314.263	0	12:00					
1190	WELD	3,060.3	1190	0.0	40.9	48.28459199	-103.80680841	2314.985	0	12:00					
1200	WELD	3,101.2	1200	0.0	41.0	48.28459118	-103.80663969	2315.242	0	12:00					
1210	WELD	3,142.2	1210	0.0	41.0	48.28459189	-103.80647056	2316.160	0	12:00					
1220	WELD	3,183.3	1220	0.0	41.1	48.28459197	-103.80630132	2316.247	0	12:00					
1230	WELD	3,224.3	1230	0.0	41.1	48.28459183	-103.80613195	2316.994	0	12:00					
1240	WELD	3,265.4	1240	0.0	41.1	48.28459189	-103.80596258	2317.543	0	12:00					
1250	WELD	3,306.5	1250	0.0	41.1	48.28459207	-103.80579319	2317.557	0	12:00					
1260	WELD	3,347.6	1260	0.0	40.9	48.28459122	-103.80562381	2318.605	0	12:00					
1270	WELD	3,388.4	1270	0.0	40.9	48.28458972	-103.80545522	2320.179	0	12:00					
1280	WELD	3,429.4	1280	0.0	40.9	48.28458911	-103.80528663	2321.891	0	12:00					
1290	WELD	3,470.2	1290	0.0	40.9	48.28458902	-103.80511808	2322.696	0	12:00					
1300	WELD	3,511.1	1300	0.0	40.9	48.28458998	-103.80494957	2323.005	0	12:00					
1310	WELD	3,552.0	1310	0.0	41.0	48.28459083	-103.80478095	2321.783	0	12:00					
1320	WELD	3,593.0	1320	0.0	41.1	48.28459317	-103.80461184	2321.007	0	12:00					
1330	WELD	3,634.1	1330	0.0	41.1	48.28459532	-103.80444252	2321.604	0	12:00					
1340	WELD	3,675.2	1340	0.0	41.1	48.28459755	-103.80427316	2322.517	0	12:00					
1350	WELD	3,716.3	1350	0.0	41.1	48.28459926	-103.80410358	2324.104	0	12:00					
1360	WELD	3,757.4	1360	0.0	41.1	48.28459993	-103.80393429	2325.567	0	12:00					
1370	WELD	3,798.5	1370	0.0	41.1	48.28459933	-103.80376497	2326.890	0	12:00					
1380	WELD	3,839.5	1380	0.0	41.0	48.28459768	-103.80359562	2328.143	0	12:00					
1390	WELD	3,880.6	1390	0.0	41.0	48.28459482	-103.80342645	2329.121	0	12:00					

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)
1400	WELD	3,921.6	1400	0.0	40.9	48.28459214	-103.80325747	2329.825	0	12:00					
1410	WELD	3,962.4	1410	0.0	41.0	48.28459072	-103.80308897	2330.038	0	12:00					
1420	WELD	4,003.5	1420	0.0	41.1	48.28459127	-103.80291973	2330.282	0	12:00					
1430	WELD	4,044.5	1430	0.0	41.1	48.28459164	-103.80275036	2330.446	0	12:00					
1440	WELD	4,085.7	1440	0.0	41.1	48.28459276	-103.80258076	2330.810	0	12:00					
1450	WELD	4,126.7	1450	0.0	41.0	48.28459355	-103.80241142	2331.637	0	12:00					
1460	WELD	4,167.8	1460	0.0	41.1	48.28459389	-103.80224223	2332.369	0	12:00					
1470	WELD	4,208.9	1470	0.0	40.9	48.28459401	-103.80207268	2332.542	0	12:00					
1480	WELD	4,249.8	1480	0.0	40.9	48.28459440	-103.80190391	2333.181	0	12:00					
1490	WELD	4,290.7	1490	0.0	40.9	48.28459448	-103.80173505	2334.264	0	12:00					
1500	WELD	4,331.6	1500	0.0	40.9	48.28459358	-103.80156658	2334.839	0	12:00					
1510	WELD	4,372.5	1510	0.0	41.1	48.28459252	-103.80139785	2336.187	0	12:00					
1520	WELD	4,413.6	1520	0.0	41.0	48.28459203	-103.80122843	2337.793	0	12:00					
1530	WELD	4,454.6	1530	0.0	41.0	48.28459280	-103.80105948	2338.569	0	12:00					
1540	WELD	4,495.6	1540	0.0	41.1	48.28459391	-103.80089023	2339.338	0	12:00					
1550	WELD	4,536.7	1550	0.0	41.1	48.28459517	-103.80072091	2339.470	0	12:00					
1560	WELD	4,577.7	1560	0.0	41.1	48.28459461	-103.80055166	2338.885	0	12:00					
1570	WELD	4,618.8	1570	0.0	41.1	48.28459511	-103.80038242	2337.309	0	12:00					
1580	WELD	4,659.9	1580	0.0	41.0	48.28459665	-103.80021389	2333.682	0	12:00					
1590	WELD	4,701.0	1590	0.0	41.0	48.28459707	-103.80004623	2328.552	0	12:00					
1600	WELD	4,742.0	1600	0.0	40.9	48.28459667	-103.79987855	2323.352	0	12:00					
1610	WELD	4,782.9	1610	0.0	41.0	48.28459656	-103.79971060	2319.720	0	12:00					
1620	WELD	4,824.0	1620	0.0	41.0	48.28459650	-103.79954190	2317.083	0	12:00					
1630	WELD	4,865.0	1630	0.0	41.0	48.28459738	-103.79937272	2316.189	0	12:00					
1640	WELD	4,906.0	1640	0.0	41.1	48.28459780	-103.79920350	2316.234	0	12:00					
1650	WELD	4,947.1	1650	0.0	41.1	48.28459780	-103.79903419	2316.749	0	12:00					
1660	WELD	4,988.2	1660	0.0	41.1	48.28459674	-103.79886475	2317.628	0	12:00					
1670	WELD	5,029.3	1670	0.0	41.0	48.28459653	-103.79869551	2320.213	0	12:00					
1680	WELD	5,070.2	1680	0.0	40.9	48.28459612	-103.79852708	2323.690	0	12:00					
1690	WELD	5,111.1	1690	0.0	40.9	48.28459522	-103.79835867	2325.703	0	12:00					
1700	WELD	5,152.0	1700	0.0	40.8	48.28459471	-103.79819031	2328.368	0	12:00					
1710	WELD	5,192.8	1710	0.0	40.9	48.28459342	-103.79802249	2331.754	0	12:00					
1720	WELD	5,233.7	1720	0.0	41.0	48.28459304	-103.79785445	2335.236	0	12:00					
1730	WELD	5,274.6	1730	0.0	41.0	48.28459416	-103.79768604	2339.259	0	12:00					
1740	WELD	5,315.7	1740	0.0	41.1	48.28459556	-103.79751731	2342.735	0	12:00					
1750	WELD	5,356.8	1750	0.0	41.0	48.28459749	-103.79734829	2346.254	0	12:00					
1760	WELD	5,397.8	1760	0.0	41.1	48.28459824	-103.79717924	2348.786	0	12:00					

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)
1770	WELD	5,438.9	1770	0.0	41.0	48.28459779	-103.79701000	2350.284	0	12:00					
1780	WELD	5,479.9	1780	0.0	41.0	48.28459854	-103.79684090	2350.805	0	12:00					
1790	WELD	5,520.9	1790	0.0	41.0	48.28459911	-103.79667181	2351.517	0	12:00					
1800	WELD	5,561.9	1800	0.0	40.9	48.28459872	-103.79650277	2352.242	0	12:00					
1810	WELD	5,602.8	1810	0.0	40.9	48.28459832	-103.79633404	2351.851	0	12:00					
1820	WELD	5,643.7	1820	0.0	41.1	48.28459873	-103.79616526	2351.554	0	12:00					
1830	WELD	5,684.8	1830	0.0	41.1	48.28459875	-103.79599576	2351.195	0	12:00					
1840	WELD	5,726.0	1840	0.0	41.1	48.28459891	-103.79582626	2350.802	0	12:00					
1850	WELD	5,767.0	1850	0.0	41.1	48.28459958	-103.79565699	2349.619	0	12:00					
1860	WELD	5,808.1	1860	0.0	41.1	48.28460049	-103.79548782	2347.952	0	12:00					
1870	WELD	5,849.2	1870	0.0	41.0	48.28460051	-103.79531883	2345.438	0	12:00					
1880	WELD	5,890.2	1880	0.0	41.0	48.28459946	-103.79515027	2343.285	0	12:00					
1890	WELD	5,931.1	1890	0.0	40.8	48.28459845	-103.79498135	2343.203	0	12:00					
1900	WELD	5,971.9	1900	0.0	40.8	48.28459798	-103.79481324	2345.359	0	12:00					
1910	WELD	6,012.7	1910	0.0	41.0	48.28459747	-103.79464527	2348.537	0	12:00					
1920	WELD	6,053.7	1920	0.0	41.0	48.28459828	-103.79447647	2350.934	0	12:00					
1930	WELD	6,094.7	1930	0.0	41.0	48.28459901	-103.79430741	2350.644	0	12:00					
1940	WELD	6,135.8	1940	0.0	41.1	48.28459980	-103.79413813	2351.089	0	12:00					
1950	WELD	6,176.9	1950	0.0	41.1	48.28460008	-103.79396877	2352.421	0	12:00					
1960	WELD	6,218.0	1960	0.0	41.0	48.28459958	-103.79379936	2354.610	0	12:00					
1970	WELD	6,259.0	1970	0.0	40.9	48.28459894	-103.79363035	2356.822	0	12:00					
1980	WELD	6,299.9	1980	0.0	40.9	48.28459772	-103.79346150	2357.435	0	12:00					
1990	WELD	6,340.8	1990	0.0	40.9	48.28459704	-103.79329288	2357.745	0	12:00					
2000	WELD	6,381.7	2000	0.0	49.1	48.28459818	-103.79312435	2358.580	0	12:00					
10000031	AGM 010 -- Han #8777	6,407.9	2000	26.2	22.9	48.28459946	-103.79301643	2358.670	0	12:00					
2010	WELD	6,430.8	2010	0.0	49.4	48.28460077	-103.79292206	2358.479	0	12:00					
2020	WELD	6,480.1	2020	0.0	49.3	48.28460298	-103.79271856	2357.601	0	12:00					
2030	WELD	6,529.4	2030	0.0	49.1	48.28460480	-103.79251540	2358.005	0	12:00					
2040	WELD	6,578.5	2040	0.0	48.9	48.28460666	-103.79231296	2358.235	0	12:00					
2050	WELD	6,627.4	2050	0.0	49.0	48.28460772	-103.79211124	2358.104	0	12:00					
2060	WELD	6,676.5	2060	0.0	48.8	48.28460707	-103.79190905	2358.033	0	12:00					
2070	WELD	6,725.3	2070	0.0	49.0	48.28460334	-103.79170768	2357.986	0	12:00					
2080	WELD	6,774.3	2080	0.0	49.1	48.28459910	-103.79150577	2358.979	0	12:00					
2090	WELD	6,823.4	2090	0.0	49.0	48.28459751	-103.79130339	2359.928	0	12:00					
2100	WELD	6,872.4	2100	0.0	49.3	48.28459833	-103.79110118	2359.962	0	12:00					
2110	WELD	6,921.7	2110	0.0	48.9	48.28459905	-103.79089797	2359.882	0	12:00					
2120	WELD	6,970.6	2120	0.0	49.3	48.28459761	-103.79069627	2359.897	0	12:00					

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)
2130	WELD	7,019.9	2130	0.0	49.4	48.28459619	-103.79049278	2360.184	0	12:00					
2140	WELD	7,069.3	2140	0.0	49.2	48.28459460	-103.79028917	2360.534	0	12:00					
2150	WELD	7,118.6	2150	0.0	49.2	48.28459477	-103.79008610	2361.290	0	12:00					
2160	WELD	7,167.8	2160	0.0	49.1	48.28459650	-103.78988313	2362.254	0	12:00					
2170	WELD	7,216.9	2170	0.0	49.1	48.28459721	-103.78968072	2362.483	0	12:00					
2180	WELD	7,266.0	2180	0.0	49.4	48.28459768	-103.78947808	2362.796	0	12:00					
2190	WELD	7,315.3	2190	0.0	49.2	48.28460032	-103.78927454	2363.244	0	12:00					
2200	WELD	7,364.6	2200	0.0	49.2	48.28460277	-103.78907162	2362.999	0	12:00					
2210	WELD	7,413.8	2210	0.0	49.2	48.28460463	-103.78886874	2362.782	0	12:00					
2220	WELD	7,463.0	2220	0.0	49.1	48.28460671	-103.78866595	2363.859	0	12:00					
2230	WELD	7,512.1	2230	0.0	48.9	48.28460711	-103.78846359	2362.685	0	12:00					
2240	WELD	7,561.0	2240	0.0	49.0	48.28460884	-103.78826192	2362.855	0	12:00					
2250	WELD	7,609.9	2250	0.0	48.7	48.28460975	-103.78806001	2363.423	0	12:00					
2260	WELD	7,658.7	2260	0.0	49.2	48.28461097	-103.78785896	2363.482	0	12:00					
2270	WELD	7,707.9	2270	0.0	49.1	48.28461216	-103.78765604	2362.614	0	12:00					
2280	WELD	7,757.0	2280	0.0	49.1	48.28461341	-103.78745378	2362.580	0	12:00					
2290	WELD	7,806.1	2290	0.0	49.1	48.28461428	-103.78725109	2362.769	0	12:00					
2300	WELD	7,855.2	2300	0.0	49.1	48.28461505	-103.78704890	2361.749	0	12:00					
2310	WELD	7,904.3	2310	0.0	49.0	48.28461505	-103.78684641	2360.975	0	12:00					
2320	WELD	7,953.2	2320	0.0	49.2	48.28461327	-103.78664454	2359.961	0	12:00					
2330	WELD	8,002.4	2330	0.0	48.8	48.28461139	-103.78644187	2359.600	0	12:00					
2340	WELD	8,051.2	2340	0.0	49.3	48.28461041	-103.78624067	2359.258	0	12:00					
2350	WELD	8,100.5	2350	0.0	48.9	48.28461090	-103.78603742	2358.132	0	12:00					
2360	WELD	8,149.4	2360	0.0	49.1	48.28461180	-103.78583592	2357.620	0	12:00					
2370	WELD	8,198.5	2370	0.0	49.1	48.28461203	-103.78563371	2355.663	0	12:00					
2380	WELD	8,247.6	2380	0.0	48.8	48.28461195	-103.78543110	2355.179	0	12:00					
2390	WELD	8,296.4	2390	0.0	49.0	48.28461144	-103.78522979	2354.524	0	12:00					
2400	WELD	8,345.5	2400	0.0	49.3	48.28461135	-103.78502765	2353.734	0	12:00					
2410	WELD	8,394.7	2410	0.0	40.6	48.28461090	-103.78482469	2352.425	0	12:00					
40000002	Metal Loss - EXTERNAL	8,416.8	2410	22.0	18.6	48.28461039	-103.78473375	2352.038	90	3:00	14%	0.56	0.33	1760	100%
2420	WELD	8,435.4	2420	0.0	40.8	48.28461011	-103.78465714	2352.145	0	12:00					
2430	WELD	8,476.2	2430	0.0	49.3	48.28460938	-103.78448868	2352.081	0	12:00					
2440	WELD	8,525.5	2440	0.0	49.1	48.28460946	-103.78428538	2351.529	0	12:00					
2450	WELD	8,574.6	2450	0.0	41.0	48.28460870	-103.78408309	2350.697	0	12:00					
2460	WELD	8,615.6	2460	0.0	41.0	48.28460781	-103.78391405	2349.923	0	12:00					
2470	WELD	8,656.6	2470	0.0	41.0	48.28460690	-103.78374488	2349.537	0	12:00					
2480	WELD	8,697.6	2480	0.0	40.9	48.28460652	-103.78357614	2348.529	0	12:00					

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)
2490	WELD	8,738.5	2490	0.0	40.9	48.28460616	-103.78340739	2347.085	0	12:00					
2500	WELD	8,779.4	2500	0.0	40.9	48.28460558	-103.78323889	2345.944	0	12:00					
2510	WELD	8,820.3	2510	0.0	40.8	48.28460453	-103.78307028	2345.084	0	12:00					
2520	WELD	8,861.1	2520	0.0	40.8	48.28460347	-103.78290221	2344.611	0	12:00					
2530	WELD	8,901.9	2530	0.0	40.9	48.28460241	-103.78273395	2344.697	0	12:00					
2540	WELD	8,942.8	2540	0.0	41.0	48.28460196	-103.78256513	2344.384	0	12:00					
2550	WELD	8,983.8	2550	0.0	41.0	48.28460200	-103.78239602	2343.471	0	12:00					
2560	WELD	9,024.8	2560	0.0	41.0	48.28460225	-103.78222695	2343.209	0	12:00					
2570	WELD	9,065.8	2570	0.0	41.0	48.28460341	-103.78205797	2342.669	0	12:00					
2580	WELD	9,106.8	2580	0.0	40.9	48.28460497	-103.78188920	2341.445	0	12:00					
40000003	Metal Loss - EXTERNAL	9,107.7	2580	0.9	40.1	48.28460500	-103.78188546	2341.395	72	2:15	21%	0.95	0.53	1760	100%
12000003	Dig#22-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 11.7%D x 1.0"L x 1.0"W (repaired w/Res-Q wrap)	9,107.7	2580	0.9	40.1	0.00000000	0.00000000	0.000	0	12:00					
40000004	Metal Loss - EXTERNAL	9,145.3	2580	38.5	2.5	48.28460660	-103.78173072	2339.521	13	12:15	13%	0.80	0.68	1760	100%
12000004	Dig#22-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 9.6%D x .75"L x .95"W (repaired w/Res-Q wrap)	9,145.3	2580	38.5	2.5	0.00000000	0.00000000	0.000	0	12:00					
2590	WELD	9,147.7	2590	0.0	40.9	48.28460672	-103.78172064	2339.431	0	12:00					
2600	WELD	9,188.7	2600	0.0	40.9	48.28460834	-103.78155202	2337.918	0	12:00					
2610	WELD	9,229.5	2610	0.0	40.8	48.28460885	-103.78138357	2336.946	0	12:00					
2620	WELD	9,270.3	2620	0.0	40.7	48.28460747	-103.78121533	2336.499	0	12:00					
11000010	WT CHANGE	9,310.9	2620	0.0	0.0	48.28460391	-103.78104873	2333.541	0	12:00		0.322	52000	0.72	
2630	WELD	9,311.0	2630	0.0	34.1	48.28460391	-103.78104857	2333.538	0	12:00					
2640	WELD	9,345.1	2640	0.0	42.0	48.28460404	-103.78090870	2330.569	0	12:00					
2650	WELD	9,387.1	2650	0.0	40.3	48.28460841	-103.78073597	2332.455	0	12:00					
11000011	WT CHANGE	9,427.3	2650	0.0	0.1	48.28461087	-103.78057041	2334.584	0	12:00		0.188	52000	0.72	
2660	WELD	9,427.4	2660	0.0	40.5	48.28461088	-103.78057001	2334.584	0	12:00					
2670	WELD	9,467.9	2670	0.0	41.0	48.28461133	-103.78040295	2334.173	0	12:00					
2680	WELD	9,508.8	2680	0.0	41.0	48.28461252	-103.78023409	2333.393	0	12:00					
2690	WELD	9,549.8	2690	0.0	40.9	48.28461304	-103.78006519	2333.016	0	12:00					
2700	WELD	9,590.7	2700	0.0	40.9	48.28461257	-103.77989653	2332.582	0	12:00					
2710	WELD	9,631.6	2710	0.0	40.9	48.28461165	-103.77972774	2332.394	0	12:00					
2720	WELD	9,672.5	2720	0.0	40.8	48.28461086	-103.77955932	2331.479	0	12:00					

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)
2730	WELD	9,713.3	2730	0.0	40.9	48.28461034	-103.77939133	2330.006	0	12:00					
2740	WELD	9,754.1	2740	0.0	40.9	48.28461034	-103.77922301	2328.203	0	12:00					
2750	WELD	9,795.1	2750	0.0	40.9	48.28461125	-103.77905427	2327.100	0	12:00					
2760	WELD	9,836.0	2760	0.0	40.6	48.28461212	-103.77888548	2326.585	0	12:00					
2770	WELD	9,876.6	2770	0.0	40.9	48.28461298	-103.77871814	2326.341	0	12:00					
2780	WELD	9,917.5	2780	0.0	40.9	48.28461345	-103.77854937	2325.696	0	12:00					
2790	WELD	9,958.5	2790	0.0	40.9	48.28461396	-103.77838068	2324.510	0	12:00					
2800	WELD	9,999.4	2800	0.0	40.9	48.28461261	-103.77821235	2322.797	0	12:00					
2810	WELD	10,040.3	2810	0.0	39.4	48.28461069	-103.77804381	2321.356	0	12:00					
2820	WELD	10,079.6	2820	0.0	40.8	48.28460952	-103.77788156	2320.313	0	12:00					
2830	WELD	10,120.4	2830	0.0	41.0	48.28460977	-103.77771339	2320.226	0	12:00					
2840	WELD	10,161.4	2840	0.0	38.7	48.28461233	-103.77754432	2319.934	0	12:00					
11000012	WT CHANGE	10,200.0	2840	0.0	0.1	48.28461572	-103.77738518	2319.469	0	12:00		0.322	52000	0.72	
2850	WELD	10,200.1	2850	0.0	41.9	48.28461573	-103.77738495	2319.468	0	12:00					
2860	WELD	10,242.0	2860	0.0	42.0	48.28461634	-103.77721227	2319.149	0	12:00					
10000032	AGM 020 -- Han #8208	10,269.7	2860	27.7	14.3	48.28461543	-103.77709813	2318.416	0	12:00					
2870	WELD	10,284.0	2870	0.0	42.0	48.28461484	-103.77703918	2318.050	0	12:00					
2880	WELD	10,326.0	2880	0.0	42.0	48.28461452	-103.77686599	2316.676	0	12:00					
2890	WELD	10,368.0	2890	0.0	42.0	48.28461401	-103.77669290	2317.370	0	12:00					
2900	WELD	10,410.0	2900	0.0	20.5	48.28461193	-103.77651984	2319.295	0	12:00					
11000013	WT CHANGE	10,430.4	2900	0.0	0.1	48.28461130	-103.77643564	2319.183	0	12:00		0.188	52000	0.72	
2910	WELD	10,430.5	2910	0.0	40.3	48.28461129	-103.77643535	2319.183	0	12:00					
2920	WELD	10,470.8	2920	0.0	40.9	48.28461063	-103.77626906	2318.847	0	12:00					
2930	WELD	10,511.7	2930	0.0	41.0	48.28461164	-103.77610023	2318.731	0	12:00					
2940	WELD	10,552.7	2940	0.0	41.1	48.28461209	-103.77593095	2318.388	0	12:00					
2950	WELD	10,593.8	2950	0.0	41.1	48.28461212	-103.77576153	2318.289	0	12:00					
2960	WELD	10,634.9	2960	0.0	41.0	48.28461226	-103.77559210	2318.395	0	12:00					
2970	WELD	10,675.9	2970	0.0	41.1	48.28461275	-103.77542273	2318.492	0	12:00					
2980	WELD	10,717.0	2980	0.0	40.9	48.28461262	-103.77525327	2318.393	0	12:00					
2990	WELD	10,757.9	2990	0.0	40.8	48.28461205	-103.77508473	2317.611	0	12:00					
3000	WELD	10,798.7	3000	0.0	40.7	48.28461212	-103.77491642	2317.664	0	12:00					
40000005	Metal Loss - INTERNAL	10,799.6	3000	0.9	39.8	48.28461212	-103.77491275	2317.664	134	4:15	11%	0.75	0.49	1760	100%
40000006	Metal Loss - EXTERNAL	10,837.0	3000	38.2	2.5	48.28461153	-103.77475851	2317.601	80	2:30	15%	0.68	0.54	1760	100%
3010	WELD	10,839.4	3010	0.0	40.8	48.28461152	-103.77474848	2317.605	0	12:00					
3020	WELD	10,880.2	3020	0.0	40.9	48.28461152	-103.77458026	2317.522	0	12:00					
3030	WELD	10,921.1	3030	0.0	40.9	48.28461229	-103.77441170	2317.086	0	12:00					
3040	WELD	10,962.0	3040	0.0	40.9	48.28461303	-103.77424297	2316.206	0	12:00					

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)
3050	WELD	11,002.9	3050	0.0	40.9	48.28461326	-103.77407423	2315.390	0	12:00					
3060	WELD	11,043.8	3060	0.0	40.9	48.28461320	-103.77390534	2315.122	0	12:00					
3070	WELD	11,084.7	3070	0.0	40.9	48.28461255	-103.77373655	2314.701	0	12:00					
3080	WELD	11,125.7	3080	0.0	40.8	48.28461153	-103.77356783	2314.962	0	12:00					
3090	WELD	11,166.5	3090	0.0	40.8	48.28461070	-103.77339937	2315.511	0	12:00					
3100	WELD	11,207.3	3100	0.0	41.0	48.28461008	-103.77323122	2315.208	0	12:00					
3110	WELD	11,248.2	3110	0.0	40.9	48.28461165	-103.77306219	2315.015	0	12:00					
3120	WELD	11,289.1	3120	0.0	40.9	48.28461351	-103.77289372	2314.458	0	12:00					
3130	WELD	11,330.0	3130	0.0	41.0	48.28461419	-103.77272493	2313.383	0	12:00					
3140	WELD	11,371.0	3140	0.0	41.0	48.28461440	-103.77255595	2313.104	0	12:00					
3150	WELD	11,412.0	3150	0.0	40.9	48.28461436	-103.77238670	2313.262	0	12:00					
3160	WELD	11,452.9	3160	0.0	48.9	48.28461320	-103.77221826	2312.541	0	12:00					
3170	WELD	11,501.8	3170	0.0	49.1	48.28461322	-103.77201630	2312.728	0	12:00					
3180	WELD	11,550.9	3180	0.0	49.3	48.28461441	-103.77181389	2313.105	0	12:00					
3190	WELD	11,600.2	3190	0.0	49.3	48.28461572	-103.77161046	2313.021	0	12:00					
3200	WELD	11,649.5	3200	0.0	49.3	48.28461586	-103.77140723	2313.021	0	12:00					
3210	WELD	11,698.7	3210	0.0	49.3	48.28461581	-103.77120397	2313.194	0	12:00					
3220	WELD	11,748.1	3220	0.0	49.1	48.28461550	-103.77100048	2313.807	0	12:00					
3230	WELD	11,797.1	3230	0.0	47.6	48.28461587	-103.77079801	2313.613	0	12:00					
3240	WELD	11,844.7	3240	0.0	42.4	48.28461707	-103.77060195	2312.642	0	12:00					
3250	WELD	11,887.1	3250	0.0	48.8	48.28461670	-103.77042700	2311.951	0	12:00					
3260	WELD	11,935.9	3260	0.0	49.2	48.28461560	-103.77022562	2310.991	0	12:00					
3270	WELD	11,985.2	3270	0.0	49.3	48.28461625	-103.77002272	2309.372	0	12:00					
3280	WELD	12,034.5	3280	0.0	49.3	48.28461678	-103.76981936	2307.846	0	12:00					
3290	WELD	12,083.8	3290	0.0	49.3	48.28461696	-103.76961589	2307.339	0	12:00					
3300	WELD	12,133.1	3300	0.0	49.3	48.28461762	-103.76941274	2306.834	0	12:00					
3310	WELD	12,182.4	3310	0.0	49.4	48.28461716	-103.76920945	2306.396	0	12:00					
3320	WELD	12,231.8	3320	0.0	49.0	48.28461666	-103.76900569	2306.069	0	12:00					
3330	WELD	12,280.8	3330	0.0	49.2	48.28461582	-103.76880352	2306.056	0	12:00					
3340	WELD	12,330.0	3340	0.0	46.8	48.28461675	-103.76860048	2306.355	0	12:00					
3350	WELD	12,376.8	3350	0.0	6.0	48.28462060	-103.76840756	2306.506	0	12:00					
11000014	WT CHANGE	12,382.8	3350	0.0	0.0	48.28462106	-103.76838299	2306.357	0	12:00		0.322	52000	0.72	
3360	WELD	12,382.8	3360	0.0	1.0	48.28462106	-103.76838287	2306.356	0	12:00					
10000033	Bend left - 30 deg., 3D	12,383.3	3360	0.0	0.9	48.28462138	-103.76838095	2306.352	0	12:00					
3370	WELD	12,383.8	3370	0.0	35.6	48.28462183	-103.76837902	2306.348	0	12:00					
3380	WELD	12,419.4	3380	0.0	42.0	48.28467179	-103.76825251	2306.527	0	12:00					
3390	WELD	12,461.4	3390	0.0	42.0	48.28473317	-103.76810580	2306.814	0	12:00					

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	12,503.4	3400	0.0	41.9	48.28479568	-103.76796012	2306.758	0	12:00					
3410	WELD	12,545.3	3410	0.0	42.0	48.28486001	-103.76781644	2306.722	0	12:00					
11000015	WT CHANGE	12,587.2	3410	0.0	0.0	48.28492075	-103.76766957	2305.569	0	12:00		0.188	52000	0.72	
3420	WELD	12,587.3	3420	0.0	24.9	48.28492082	-103.76766939	2305.569	0	12:00					
3430	WELD	12,612.2	3430	0.0	40.5	48.28495435	-103.76757971	2305.586	0	12:00					
3440	WELD	12,652.7	3440	0.0	6.0	48.28500734	-103.76743252	2305.753	0	12:00					
3450	WELD	12,658.7	3450	0.0	0.9	48.28501513	-103.76741075	2305.810	0	12:00					
10000034	Bend right - 32 deg., 1.5D	12,659.2	3450	0.0	0.9	48.28501552	-103.76740899	2305.808	0	12:00					
3460	WELD	12,659.6	3460	0.0	36.9	48.28501566	-103.76740704	2305.799	0	12:00					
3470	WELD	12,696.5	3470	0.0	49.1	48.28501659	-103.76725482	2305.826	0	12:00					
3480	WELD	12,745.6	3480	0.0	49.4	48.28501666	-103.76705245	2305.641	0	12:00					
3490	WELD	12,795.0	3490	0.0	49.3	48.28501590	-103.76684864	2304.787	0	12:00					
3500	WELD	12,844.3	3500	0.0	46.1	48.28501487	-103.76664536	2304.341	0	12:00					
3510	WELD	12,890.4	3510	0.0	49.1	48.28501509	-103.76645506	2304.023	0	12:00					
3520	WELD	12,939.5	3520	0.0	46.1	48.28501561	-103.76625264	2302.941	0	12:00					
3530	WELD	12,985.6	3530	0.0	7.3	48.28501579	-103.76606269	2301.501	0	12:00					
11000016	WT CHANGE	12,992.8	3530	0.0	0.0	48.28501592	-103.76603282	2301.497	0	12:00		0.322	52000	0.72	
3540	WELD	12,992.9	3540	0.0	41.8	48.28501592	-103.76603270	2301.498	0	12:00					
3550	WELD	13,034.6	3550	0.0	41.9	48.28501877	-103.76586055	2301.212	0	12:00					
3560	WELD	13,076.5	3560	0.0	41.8	48.28501957	-103.76568795	2300.067	0	12:00					
3570	WELD	13,118.3	3570	0.0	41.9	48.28501713	-103.76551541	2299.609	0	12:00					
3580	WELD	13,160.2	3580	0.0	42.0	48.28501541	-103.76534264	2299.786	0	12:00					
3590	WELD	13,202.3	3590	0.0	42.0	48.28501595	-103.76516925	2300.883	0	12:00					
3600	WELD	13,244.2	3600	0.0	42.0	48.28501475	-103.76499629	2302.640	0	12:00					
3610	WELD	13,286.2	3610	0.0	41.0	48.28501449	-103.76482314	2304.746	0	12:00					
11000017	WT CHANGE	13,327.1	3610	0.0	0.0	48.28501472	-103.76465468	2307.573	0	12:00		0.188	52000	0.72	
3620	WELD	13,327.2	3620	0.0	49.2	48.28501472	-103.76465447	2307.575	0	12:00					
3630	WELD	13,376.3	3630	0.0	49.3	48.28501529	-103.76445177	2307.432	0	12:00					
3640	WELD	13,425.7	3640	0.0	48.9	48.28501606	-103.76424835	2306.915	0	12:00					
3650	WELD	13,474.6	3650	0.0	49.1	48.28501493	-103.76404660	2306.655	0	12:00					
3660	WELD	13,523.7	3660	0.0	48.2	48.28501316	-103.76384394	2307.274	0	12:00					
3670	WELD	13,571.9	3670	0.0	49.1	48.28501174	-103.76364513	2308.048	0	12:00					
3680	WELD	13,620.9	3680	0.0	49.2	48.28501086	-103.76344281	2307.274	0	12:00					
3690	WELD	13,670.1	3690	0.0	49.2	48.28501067	-103.76323996	2305.805	0	12:00					
3700	WELD	13,719.3	3700	0.0	49.2	48.28501190	-103.76303709	2305.169	0	12:00					
3710	WELD	13,768.6	3710	0.0	49.3	48.28501396	-103.76283404	2304.384	0	12:00					
3720	WELD	13,817.9	3720	0.0	49.2	48.28501533	-103.76263088	2303.249	0	12:00					

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)
3730	WELD	13,867.1	3730	0.0	49.1	48.28501526	-103.76242788	2302.316	0	12:00					
3740	WELD	13,916.1	3740	0.0	49.1	48.28501470	-103.76222561	2301.878	0	12:00					
3750	WELD	13,965.2	3750	0.0	49.1	48.28501384	-103.76202317	2302.082	0	12:00					
3760	WELD	14,014.3	3760	0.0	49.1	48.28501340	-103.76182062	2301.535	0	12:00					
3770	WELD	14,063.4	3770	0.0	49.2	48.28501363	-103.76161789	2301.853	0	12:00					
3780	WELD	14,112.6	3780	0.0	49.3	48.28501336	-103.76141513	2302.504	0	12:00					
3790	WELD	14,161.8	3790	0.0	46.6	48.28501338	-103.76121191	2303.526	0	12:00					
11000018	WT CHANGE	14,208.4	3790	0.0	0.0	48.28501532	-103.76101994	2304.278	0	12:00		0.322	52000	0.72	
3800	WELD	14,208.4	3800	0.0	41.9	48.28501532	-103.76101982	2304.278	0	12:00					
3810	WELD	14,250.4	3810	0.0	42.0	48.28501685	-103.76084694	2303.445	0	12:00					
3820	WELD	14,292.4	3820	0.0	42.0	48.28501725	-103.76067369	2301.794	0	12:00					
3830	WELD	14,334.4	3830	0.0	41.9	48.28501769	-103.76050059	2300.978	0	12:00					
3840	WELD	14,376.3	3840	0.0	42.0	48.28501609	-103.76032771	2300.785	0	12:00					
3850	WELD	14,418.2	3850	0.0	41.9	48.28501571	-103.76015467	2300.354	0	12:00					
3860	WELD	14,460.1	3860	0.0	41.9	48.28501822	-103.75998202	2300.486	0	12:00					
3870	WELD	14,502.0	3870	0.0	41.9	48.28501790	-103.75980917	2300.948	0	12:00					
3880	WELD	14,543.9	3880	0.0	41.9	48.28501465	-103.75963632	2300.862	0	12:00					
11000019	WT CHANGE	14,585.8	3880	0.0	0.0	48.28501543	-103.75946348	2301.353	0	12:00		0.188	52000	0.72	
3890	WELD	14,585.9	3890	0.0	49.1	48.28501543	-103.75946336	2301.352	0	12:00					
3900	WELD	14,634.9	3900	0.0	46.9	48.28501666	-103.75926087	2302.542	0	12:00					
3910	WELD	14,681.9	3910	0.0	49.3	48.28501680	-103.75906727	2302.916	0	12:00					
3920	WELD	14,731.1	3920	0.0	49.3	48.28501647	-103.75886407	2303.359	0	12:00					
3930	WELD	14,780.4	3930	0.0	49.3	48.28501877	-103.75866079	2304.416	0	12:00					
3940	WELD	14,829.7	3940	0.0	49.2	48.28501987	-103.75845745	2305.012	0	12:00					
3950	WELD	14,878.9	3950	0.0	49.2	48.28501896	-103.75825465	2304.839	0	12:00					
3960	WELD	14,928.1	3960	0.0	49.3	48.28501804	-103.75805160	2304.859	0	12:00					
3970	WELD	14,977.3	3970	0.0	49.2	48.28501704	-103.75784846	2304.550	0	12:00					
3980	WELD	15,026.6	3980	0.0	49.3	48.28501658	-103.75764533	2304.436	0	12:00					
3990	WELD	15,075.9	3990	0.0	49.1	48.28501670	-103.75744178	2304.595	0	12:00					
4000	WELD	15,125.0	4000	0.0	49.1	48.28501743	-103.75723918	2304.616	0	12:00					
4010	WELD	15,174.1	4010	0.0	49.1	48.28501859	-103.75703677	2304.775	0	12:00					
4020	WELD	15,223.2	4020	0.0	49.4	48.28501903	-103.75683434	2304.799	0	12:00					
4030	WELD	15,272.5	4030	0.0	49.3	48.28501795	-103.75663063	2305.024	0	12:00					
4040	WELD	15,321.9	4040	0.0	49.2	48.28501683	-103.75642728	2304.878	0	12:00					
4050	WELD	15,371.1	4050	0.0	49.2	48.28501617	-103.75622430	2304.425	0	12:00					
4060	WELD	15,420.3	4060	0.0	45.8	48.28501612	-103.75602135	2305.418	0	12:00					
4070	WELD	15,466.1	4070	0.0	49.2	48.28501624	-103.75583228	2305.994	0	12:00					

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	15,515.3	4080	0.0	44.7	48.28501588	-103.75562934	2306.799	0	12:00					
4090	WELD	15,560.0	4090	0.0	49.2	48.28501719	-103.75544490	2307.605	0	12:00					
10000035	AGM 030 -- Han #8776	15,597.9	4090	37.9	11.3	48.28501913	-103.75528864	2308.245	0	12:00					
4100	WELD	15,609.2	4100	0.0	43.6	48.28501964	-103.75524212	2308.258	0	12:00					
4110	WELD	15,652.8	4110	0.0	49.0	48.28502029	-103.75506219	2308.711	0	12:00					
4120	WELD	15,701.9	4120	0.0	49.3	48.28502094	-103.75486011	2308.606	0	12:00					
4130	WELD	15,751.1	4130	0.0	49.3	48.28502111	-103.75465711	2308.624	0	12:00					
4140	WELD	15,800.4	4140	0.0	49.0	48.28502084	-103.75445396	2308.348	0	12:00					
4150	WELD	15,849.5	4150	0.0	49.0	48.28501980	-103.75425182	2308.046	0	12:00					
4160	WELD	15,898.4	4160	0.0	49.0	48.28501832	-103.75404999	2307.815	0	12:00					
4170	WELD	15,947.5	4170	0.0	48.5	48.28501778	-103.75384796	2307.912	0	12:00					
4180	WELD	15,996.0	4180	0.0	49.1	48.28501801	-103.75364799	2307.966	0	12:00					
4190	WELD	16,045.1	4190	0.0	49.1	48.28501861	-103.75344562	2307.765	0	12:00					
4200	WELD	16,094.2	4200	0.0	49.1	48.28501927	-103.75324336	2307.430	0	12:00					
4210	WELD	16,143.3	4210	0.0	48.9	48.28502039	-103.75304105	2307.152	0	12:00					
4220	WELD	16,192.1	4220	0.0	49.1	48.28502048	-103.75283977	2305.933	0	12:00					
4230	WELD	16,241.3	4230	0.0	48.9	48.28502002	-103.75263737	2304.801	0	12:00					
4240	WELD	16,290.1	4240	0.0	49.1	48.28501925	-103.75243602	2304.806	0	12:00					
4250	WELD	16,339.2	4250	0.0	49.0	48.28501887	-103.75223382	2305.062	0	12:00					
4260	WELD	16,388.2	4260	0.0	48.9	48.28501853	-103.75203168	2305.466	0	12:00					
4270	WELD	16,437.1	4270	0.0	49.1	48.28501834	-103.75183018	2306.013	0	12:00					
4280	WELD	16,486.2	4280	0.0	48.9	48.28501849	-103.75162780	2306.236	0	12:00					
4290	WELD	16,535.2	4290	0.0	49.2	48.28501893	-103.75142616	2305.814	0	12:00					
4300	WELD	16,584.4	4300	0.0	49.1	48.28501860	-103.75122333	2305.249	0	12:00					
4310	WELD	16,633.5	4310	0.0	49.1	48.28501831	-103.75102111	2304.452	0	12:00					
4320	WELD	16,682.6	4320	0.0	49.0	48.28501961	-103.75081890	2303.380	0	12:00					
4330	WELD	16,731.6	4330	0.0	49.0	48.28502046	-103.75061726	2301.091	0	12:00					
4340	WELD	16,780.6	4340	0.0	48.4	48.28501975	-103.75041544	2299.233	0	12:00					
4350	WELD	16,829.0	4350	0.0	48.9	48.28501867	-103.75021578	2298.658	0	12:00					
4360	WELD	16,878.0	4360	0.0	49.0	48.28501637	-103.75001423	2298.455	0	12:00					
4370	WELD	16,926.9	4370	0.0	49.1	48.28501519	-103.74981237	2297.949	0	12:00					
4380	WELD	16,976.1	4380	0.0	49.3	48.28501473	-103.74961000	2296.753	0	12:00					
4390	WELD	17,025.4	4390	0.0	44.2	48.28501004	-103.74940696	2296.046	0	12:00					
4400	WELD	17,069.6	4400	0.0	9.2	48.28499878	-103.74922555	2296.528	0	12:00					
10000036	Bend left - 90 deg., 6D	17,074.4	4400	1.3	7.9	48.28500104	-103.74920702	2296.664	0	12:00					
4410	WELD	17,078.8	4410	0.0	35.7	48.28501216	-103.74920088	2296.583	0	12:00					
4420	WELD	17,114.5	4420	0.0	48.9	48.28510973	-103.74918453	2295.237	0	12:00					

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)
4430	WELD	17,163.4	4430	0.0	48.8	48.28524290	-103.74915798	2294.124	0	12:00					
4440	WELD	17,212.2	4440	0.0	48.6	48.28537523	-103.74912352	2294.041	0	12:00					
4450	WELD	17,260.9	4450	0.0	49.1	48.28550676	-103.74908669	2293.840	0	12:00					
4460	WELD	17,310.0	4460	0.0	49.3	48.28563957	-103.74904917	2293.967	0	12:00					
4470	WELD	17,359.3	4470	0.0	49.2	48.28577293	-103.74901311	2294.358	0	12:00					
4480	WELD	17,408.5	4480	0.0	49.2	48.28590639	-103.74897943	2294.827	0	12:00					
4490	WELD	17,457.7	4490	0.0	49.1	48.28603974	-103.74894519	2295.184	0	12:00					
4500	WELD	17,506.8	4500	0.0	49.3	48.28617279	-103.74891000	2295.565	0	12:00					
4510	WELD	17,556.1	4510	0.0	49.4	48.28630628	-103.74887606	2293.440	0	12:00					
4520	WELD	17,605.5	4520	0.0	49.4	48.28643996	-103.74884205	2291.299	0	12:00					
4530	WELD	17,654.8	4530	0.0	49.3	48.28657358	-103.74880686	2289.910	0	12:00					
4540	WELD	17,704.1	4540	0.0	45.7	48.28670776	-103.74877675	2290.237	0	12:00					
4550	WELD	17,749.8	4550	0.0	9.4	48.28683279	-103.74875869	2290.978	0	12:00					
10000037	Bend right - 90 deg., 6D	17,754.6	4550	1.3	8.0	48.28684452	-103.74875203	2291.084	0	12:00					
4560	WELD	17,759.2	4560	0.0	34.9	48.28684691	-103.74873397	2291.168	0	12:00					
4570	WELD	17,794.0	4570	0.0	49.1	48.28684158	-103.74859048	2291.390	0	12:00					
4580	WELD	17,843.2	4580	0.0	49.0	48.28683998	-103.74838809	2291.155	0	12:00					
4590	WELD	17,892.2	4590	0.0	48.9	48.28683978	-103.74818595	2291.888	0	12:00					
4600	WELD	17,941.1	4600	0.0	49.3	48.28684002	-103.74798445	2292.395	0	12:00					
4610	WELD	17,990.4	4610	0.0	49.2	48.28683982	-103.74778147	2292.424	0	12:00					
4620	WELD	18,039.6	4620	0.0	49.2	48.28683939	-103.74757862	2292.083	0	12:00					
4630	WELD	18,088.8	4630	0.0	49.2	48.28683886	-103.74737597	2291.190	0	12:00					
4640	WELD	18,137.9	4640	0.0	49.3	48.28683873	-103.74717325	2290.404	0	12:00					
4650	WELD	18,187.2	4650	0.0	49.2	48.28683840	-103.74697022	2289.630	0	12:00					
4660	WELD	18,236.4	4660	0.0	49.0	48.28683782	-103.74676767	2288.525	0	12:00					
4670	WELD	18,285.4	4670	0.0	49.0	48.28683687	-103.74656568	2287.005	0	12:00					
20000007	Seam Variation	18,329.8	4670	44.3	4.7	48.28683599	-103.74638311	2286.416	199	6:30	-	0.47	0.34		
4680	WELD	18,334.5	4680	0.0	49.2	48.28683587	-103.74636374	2286.367	0	12:00					
4690	WELD	18,383.6	4690	0.0	41.1	48.28683488	-103.74616112	2285.709	0	12:00					
4700	WELD	18,424.7	4700	0.0	9.3	48.28683626	-103.74599197	2285.176	0	12:00					
10000038	Bend left - 90 deg., 6D	18,429.4	4700	1.4	8.0	48.28683986	-103.74597395	2285.190	0	12:00					
4710	WELD	18,434.0	4710	0.0	19.7	48.28685171	-103.74596960	2285.347	0	12:00					
4720	WELD	18,453.7	4720	0.0	49.0	48.28690587	-103.74597101	2285.834	0	12:00					
4730	WELD	18,502.7	4730	0.0	49.2	48.28704072	-103.74597555	2285.974	0	12:00					
4740	WELD	18,551.9	4740	0.0	49.2	48.28717600	-103.74598157	2286.138	0	12:00					
4750	WELD	18,601.1	4750	0.0	49.3	48.28731118	-103.74598640	2286.260	0	12:00					
4760	WELD	18,650.4	4760	0.0	49.0	48.28744668	-103.74599120	2286.488	0	12:00					

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)
4770	WELD	18,699.4	4770	0.0	49.0	48.28758142	-103.74599500	2286.129	0	12:00					
4780	WELD	18,748.4	4780	0.0	49.2	48.28771620	-103.74599690	2285.464	0	12:00					
4790	WELD	18,797.6	4790	0.0	49.2	48.28785153	-103.74599961	2285.677	0	12:00					
4800	WELD	18,846.8	4800	0.0	49.0	48.28798690	-103.74600365	2286.418	0	12:00					
4810	WELD	18,895.8	4810	0.0	49.1	48.28812163	-103.74600720	2287.220	0	12:00					
4820	WELD	18,944.9	4820	0.0	49.0	48.28825675	-103.74601120	2287.635	0	12:00					
4830	WELD	18,993.9	4830	0.0	49.0	48.28839141	-103.74601620	2287.439	0	12:00					
4840	WELD	19,042.9	4840	0.0	49.2	48.28852615	-103.74602120	2286.440	0	12:00					
4850	WELD	19,092.1	4850	0.0	49.3	48.28866140	-103.74602638	2285.485	0	12:00					
4860	WELD	19,141.4	4860	0.0	49.2	48.28879684	-103.74603178	2284.230	0	12:00					
4870	WELD	19,190.6	4870	0.0	49.2	48.28893214	-103.74603497	2283.201	0	12:00					
4880	WELD	19,239.9	4880	0.0	48.9	48.28906748	-103.74603726	2282.213	0	12:00					
4890	WELD	19,288.8	4890	0.0	48.8	48.28920193	-103.74603950	2281.664	0	12:00					
4900	WELD	19,337.6	4900	0.0	49.0	48.28933614	-103.74604337	2282.201	0	12:00					
4910	WELD	19,386.6	4910	0.0	49.3	48.28947102	-103.74604744	2282.766	0	12:00					
4920	WELD	19,435.9	4920	0.0	49.2	48.28960657	-103.74605212	2283.512	0	12:00					
4930	WELD	19,485.1	4930	0.0	48.7	48.28974190	-103.74605839	2283.360	0	12:00					
4940	WELD	19,533.9	4940	0.0	49.2	48.28987585	-103.74606492	2283.719	0	12:00					
4950	WELD	19,583.1	4950	0.0	49.0	48.29001120	-103.74607127	2283.724	0	12:00					
4960	WELD	19,632.1	4960	0.0	49.1	48.29014592	-103.74607808	2283.940	0	12:00					
4970	WELD	19,681.2	4970	0.0	48.9	48.29028076	-103.74608470	2285.568	0	12:00					
4980	WELD	19,730.1	4980	0.0	48.7	48.29041538	-103.74608913	2285.972	0	12:00					
4990	WELD	19,778.8	4990	0.0	49.2	48.29054919	-103.74609220	2286.602	0	12:00					
5000	WELD	19,827.9	5000	0.0	49.3	48.29068444	-103.74609550	2287.041	0	12:00					
5010	WELD	19,877.2	5010	0.0	49.2	48.29081998	-103.74609968	2287.486	0	12:00					
5020	WELD	19,926.5	5020	0.0	48.9	48.29095533	-103.74610520	2287.674	0	12:00					
5030	WELD	19,975.4	5030	0.0	49.1	48.29108983	-103.74611030	2288.171	0	12:00					
5040	WELD	20,024.5	5040	0.0	49.0	48.29122482	-103.74611510	2288.748	0	12:00					
5050	WELD	20,073.5	5050	0.0	49.3	48.29135965	-103.74611920	2289.609	0	12:00					
5060	WELD	20,122.8	5060	0.0	48.9	48.29149533	-103.74612310	2290.635	0	12:00					
5070	WELD	20,171.7	5070	0.0	49.2	48.29162980	-103.74612807	2291.555	0	12:00					
5080	WELD	20,220.9	5080	0.0	49.0	48.29176497	-103.74613190	2292.695	0	12:00					
5090	WELD	20,269.9	5090	0.0	49.2	48.29189961	-103.74613280	2294.557	0	12:00					
5100	WELD	20,319.0	5100	0.0	49.2	48.29203476	-103.74613310	2296.668	0	12:00					
5110	WELD	20,368.2	5110	0.0	45.0	48.29216993	-103.74613530	2298.391	0	12:00					
5120	WELD	20,413.2	5120	0.0	44.9	48.29229378	-103.74613987	2298.806	0	12:00					
5130	WELD	20,458.1	5130	0.0	49.1	48.29241702	-103.74614836	2297.581	0	12:00					

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)
5140	WELD	20,507.2	5140	0.0	49.1	48.29255197	-103.74615464	2295.472	0	12:00					
5150	WELD	20,556.3	5150	0.0	49.0	48.29268681	-103.74615910	2294.111	0	12:00					
5160	WELD	20,605.3	5160	0.0	48.9	48.29282157	-103.74616255	2293.145	0	12:00					
5170	WELD	20,654.2	5170	0.0	49.0	48.29295609	-103.74616513	2293.563	0	12:00					
5180	WELD	20,703.3	5180	0.0	49.0	48.29309090	-103.74616770	2294.244	0	12:00					
5190	WELD	20,752.3	5190	0.0	42.6	48.29322567	-103.74617040	2295.519	0	12:00					
5200	WELD	20,794.9	5200	0.0	48.9	48.29334285	-103.74617293	2296.085	0	12:00					
5210	WELD	20,843.8	5210	0.0	48.0	48.29347742	-103.74617831	2296.519	0	12:00					
5220	WELD	20,891.8	5220	0.0	49.1	48.29360947	-103.74618364	2296.524	0	12:00					
5230	WELD	20,940.9	5230	0.0	49.2	48.29374443	-103.74618972	2296.589	0	12:00					
5240	WELD	20,990.2	5240	0.0	42.6	48.29387982	-103.74619460	2296.341	0	12:00					
5250	WELD	21,032.8	5250	0.0	49.2	48.29399706	-103.74619881	2296.534	0	12:00					
5260	WELD	21,082.0	5260	0.0	46.0	48.29413237	-103.74620601	2297.233	0	12:00					
5270	WELD	21,128.0	5270	0.0	48.9	48.29425878	-103.74621349	2297.023	0	12:00					
5280	WELD	21,176.9	5280	0.0	49.0	48.29439325	-103.74621960	2296.104	0	12:00					
5290	WELD	21,226.0	5290	0.0	49.0	48.29452793	-103.74622420	2294.266	0	12:00					
5300	WELD	21,275.0	5300	0.0	49.0	48.29466280	-103.74622790	2294.345	0	12:00					
5310	WELD	21,324.1	5310	0.0	49.3	48.29479767	-103.74623107	2295.809	0	12:00					
5320	WELD	21,373.4	5320	0.0	40.9	48.29493321	-103.74623403	2297.761	0	12:00					
5330	WELD	21,414.3	5330	0.0	41.0	48.29504579	-103.74623710	2298.435	0	12:00					
5340	WELD	21,455.3	5340	0.0	48.9	48.29515862	-103.74624158	2298.324	0	12:00					
5350	WELD	21,504.2	5350	0.0	48.8	48.29529301	-103.74624895	2298.673	0	12:00					
5360	WELD	21,553.0	5360	0.0	49.1	48.29542714	-103.74625472	2298.778	0	12:00					
5370	WELD	21,602.1	5370	0.0	49.3	48.29556218	-103.74626067	2298.825	0	12:00					
5380	WELD	21,651.4	5380	0.0	49.3	48.29569761	-103.74626600	2297.788	0	12:00					
5390	WELD	21,700.7	5390	0.0	49.2	48.29583311	-103.74626950	2297.571	0	12:00					
5400	WELD	21,749.9	5400	0.0	48.6	48.29596848	-103.74627140	2298.169	0	12:00					
5410	WELD	21,798.5	5410	0.0	49.1	48.29610223	-103.74627401	2298.472	0	12:00					
5420	WELD	21,847.7	5420	0.0	49.0	48.29623737	-103.74627720	2298.778	0	12:00					
5430	WELD	21,896.7	5430	0.0	49.3	48.29637223	-103.74627985	2300.012	0	12:00					
5440	WELD	21,946.0	5440	0.0	49.3	48.29650770	-103.74628310	2301.351	0	12:00					
5450	WELD	21,995.2	5450	0.0	49.3	48.29664311	-103.74628871	2302.438	0	12:00					
5460	WELD	22,044.6	5460	0.0	49.3	48.29677870	-103.74629524	2303.355	0	12:00					
5470	WELD	22,093.8	5470	0.0	49.3	48.29691422	-103.74630148	2304.022	0	12:00					
5480	WELD	22,143.1	5480	0.0	49.3	48.29704973	-103.74630731	2304.307	0	12:00					
5490	WELD	22,192.4	5490	0.0	49.3	48.29718525	-103.74631266	2304.335	0	12:00					
5500	WELD	22,241.7	5500	0.0	48.9	48.29732080	-103.74631610	2304.765	0	12:00					

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)
5510	WELD	22,290.6	5510	0.0	49.2	48.29745533	-103.74631970	2305.782	0	12:00					
5520	WELD	22,339.8	5520	0.0	49.2	48.29759065	-103.74632261	2306.980	0	12:00					
5530	WELD	22,389.1	5530	0.0	49.1	48.29772602	-103.74632590	2308.136	0	12:00					
5540	WELD	22,438.2	5540	0.0	49.1	48.29786103	-103.74633122	2309.035	0	12:00					
5550	WELD	22,487.3	5550	0.0	49.2	48.29799609	-103.74633655	2309.704	0	12:00					
5560	WELD	22,536.5	5560	0.0	49.1	48.29813128	-103.74634310	2309.753	0	12:00					
5570	WELD	22,585.6	5570	0.0	49.2	48.29826633	-103.74634742	2310.136	0	12:00					
5580	WELD	22,634.8	5580	0.0	49.2	48.29840166	-103.74635070	2310.645	0	12:00					
5590	WELD	22,683.9	5590	0.0	48.7	48.29853688	-103.74635410	2311.222	0	12:00					
5600	WELD	22,732.6	5600	0.0	48.6	48.29867070	-103.74635530	2311.125	0	12:00					
5610	WELD	22,781.2	5610	0.0	24.8	48.29880431	-103.74635998	2311.028	0	12:00					
5620	WELD	22,806.0	5620	0.0	48.5	48.29887260	-103.74636190	2310.242	0	12:00					
11000020	WT CHANGE	22,854.5	5620	0.0	0.0	48.29900590	-103.74636420	2309.694	0	12:00		0.322	52000	0.72	
5630	WELD	22,854.6	5630	0.0	41.9	48.29900601	-103.74636420	2309.694	0	12:00					
5640	WELD	22,896.5	5640	0.0	42.0	48.29912128	-103.74636690	2308.929	0	12:00					
5650	WELD	22,938.5	5650	0.0	42.0	48.29923671	-103.74636244	2307.109	0	12:00					
5660	WELD	22,980.5	5660	0.0	42.0	48.29935222	-103.74636152	2307.168	0	12:00					
10000039	AGM 040 -- Han #8666	22,998.0	5660	17.5	24.5	48.29940023	-103.74636384	2307.669	0	12:00					
5670	WELD	23,022.5	5670	0.0	42.0	48.29946758	-103.74636868	2308.580	0	12:00					
5680	WELD	23,064.5	5680	0.0	42.0	48.29958269	-103.74638038	2308.953	0	12:00					
11000021	WT CHANGE	23,106.4	5680	0.0	0.0	48.29969754	-103.74639672	2308.848	0	12:00		0.188	52000	0.72	
5690	WELD	23,106.4	5690	0.0	47.3	48.29969764	-103.74639674	2308.848	0	12:00					
5700	WELD	23,153.7	5700	0.0	49.0	48.29982721	-103.74641440	2309.258	0	12:00					
5710	WELD	23,202.8	5710	0.0	48.9	48.29996164	-103.74642999	2309.950	0	12:00					
5720	WELD	23,251.6	5720	0.0	49.0	48.30009572	-103.74644457	2311.242	0	12:00					
5730	WELD	23,300.7	5730	0.0	49.1	48.30023025	-103.74645802	2311.410	0	12:00					
5740	WELD	23,349.7	5740	0.0	49.0	48.30036500	-103.74646975	2311.084	0	12:00					
5750	WELD	23,398.7	5750	0.0	49.2	48.30049952	-103.74648286	2311.017	0	12:00					
5760	WELD	23,447.9	5760	0.0	49.1	48.30063444	-103.74649763	2311.106	0	12:00					
5770	WELD	23,497.1	5770	0.0	49.1	48.30076913	-103.74651296	2310.474	0	12:00					
5780	WELD	23,546.1	5780	0.0	49.0	48.30090374	-103.74652830	2309.436	0	12:00					
5790	WELD	23,595.2	5790	0.0	49.1	48.30103814	-103.74654409	2308.422	0	12:00					
5800	WELD	23,644.3	5800	0.0	49.0	48.30117291	-103.74655856	2307.322	0	12:00					
5810	WELD	23,693.3	5810	0.0	49.2	48.30130733	-103.74657176	2305.829	0	12:00					
5820	WELD	23,742.5	5820	0.0	49.1	48.30144212	-103.74658479	2303.945	0	12:00					
5830	WELD	23,791.6	5830	0.0	49.2	48.30157661	-103.74659963	2301.550	0	12:00					
5840	WELD	23,840.8	5840	0.0	48.8	48.30171148	-103.74661314	2301.375	0	12:00					

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)
5850	WELD	23,889.6	5850	0.0	48.6	48.30184532	-103.74662570	2304.459	0	12:00					
5860	WELD	23,938.2	5860	0.0	48.8	48.30197856	-103.74663788	2306.715	0	12:00					
5870	WELD	23,987.0	5870	0.0	49.1	48.30211253	-103.74665112	2306.047	0	12:00					
5880	WELD	24,036.1	5880	0.0	49.1	48.30224664	-103.74666635	2301.991	0	12:00					
5890	WELD	24,085.2	5890	0.0	49.2	48.30238125	-103.74668081	2299.611	0	12:00					
5900	WELD	24,134.4	5900	0.0	40.7	48.30251613	-103.74669722	2300.143	0	12:00					
20000008	Seam Variation	24,162.5	5900	28.1	12.6	48.30259325	-103.74670509	2300.873	355	11:45	-	0.47	0.38		
5910	WELD	24,175.1	5910	0.0	9.7	48.30262774	-103.74670761	2301.220	0	12:00					
10000040	Bend right - 90 deg., 6D	24,180.0	5910	1.6	8.1	48.30264020	-103.74670307	2301.371	0	12:00					
5920	WELD	24,184.8	5920	0.0	26.9	48.30264372	-103.74668449	2301.476	0	12:00					
5930	WELD	24,211.6	5930	0.0	49.3	48.30264641	-103.74657389	2301.245	0	12:00					
5940	WELD	24,261.0	5940	0.0	49.3	48.30264841	-103.74637124	2297.470	0	12:00					
5950	WELD	24,310.3	5950	0.0	49.3	48.30264802	-103.74616968	2291.409	0	12:00					
5960	WELD	24,359.6	5960	0.0	48.9	48.30264818	-103.74596794	2286.057	0	12:00					
5970	WELD	24,408.5	5970	0.0	49.3	48.30264770	-103.74576683	2282.576	0	12:00					
5980	WELD	24,457.8	5980	0.0	48.9	48.30264678	-103.74556375	2281.617	0	12:00					
5990	WELD	24,506.7	5990	0.0	48.8	48.30264491	-103.74536219	2279.956	0	12:00					
11000022	WT CHANGE	24,555.5	5990	0.0	0.0	48.30264348	-103.74516128	2278.225	0	12:00		0.322	52000	0.72	
6000	WELD	24,555.6	6000	0.0	28.4	48.30264349	-103.74516115	2278.224	0	12:00					
6010	WELD	24,583.9	6010	0.0	42.0	48.30264317	-103.74504441	2276.525	0	12:00					
6020	WELD	24,625.9	6020	0.0	42.0	48.30264271	-103.74487158	2274.484	0	12:00					
6030	WELD	24,667.9	6030	0.0	42.0	48.30264586	-103.74469895	2272.959	0	12:00					
6040	WELD	24,709.9	6040	0.0	41.9	48.30264488	-103.74452580	2272.783	0	12:00					
6050	WELD	24,751.8	6050	0.0	41.9	48.30264316	-103.74435309	2272.077	0	12:00					
6060	WELD	24,793.7	6060	0.0	41.9	48.30264317	-103.74418035	2270.776	0	12:00					
6070	WELD	24,835.6	6070	0.0	41.9	48.30264404	-103.74400774	2269.352	0	12:00					
6080	WELD	24,877.5	6080	0.0	41.9	48.30264450	-103.74383502	2268.207	0	12:00					
6090	WELD	24,919.4	6090	0.0	41.9	48.30264514	-103.74366241	2267.447	0	12:00					
6100	WELD	24,961.3	6100	0.0	41.9	48.30264630	-103.74348985	2267.040	0	12:00					
6110	WELD	25,003.2	6110	0.0	42.0	48.30264658	-103.74331701	2266.443	0	12:00					
6120	WELD	25,045.2	6120	0.0	41.9	48.30264664	-103.74314401	2266.156	0	12:00					
6130	WELD	25,087.1	6130	0.0	41.9	48.30264629	-103.74297127	2266.468	0	12:00					
6140	WELD	25,129.0	6140	0.0	41.9	48.30264394	-103.74279857	2266.640	0	12:00					
6150	WELD	25,170.9	6150	0.0	41.9	48.30264058	-103.74262585	2267.321	0	12:00					
6160	WELD	25,212.8	6160	0.0	42.0	48.30264042	-103.74245305	2269.018	0	12:00					
6170	WELD	25,254.8	6170	0.0	41.9	48.30264261	-103.74228042	2272.017	0	12:00					
11000023	WT CHANGE	25,296.7	6170	0.0	0.0	48.30264433	-103.74210874	2276.832	0	12:00		0.188	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)
6180	WELD	25,296.7	6180	0.0	31.0	48.30264433	-103.74210862	2276.834	0	12:00					
6190	WELD	25,327.7	6190	0.0	46.8	48.30264589	-103.74198158	2280.188	0	12:00					
6200	WELD	25,374.5	6200	0.0	48.9	48.30264679	-103.74178966	2285.597	0	12:00					
6210	WELD	25,423.4	6210	0.0	49.1	48.30264764	-103.74158907	2290.324	0	12:00					
6220	WELD	25,472.4	6220	0.0	49.2	48.30264856	-103.74138700	2292.094	0	12:00					
6230	WELD	25,521.6	6230	0.0	49.1	48.30264803	-103.74118450	2290.171	0	12:00					
6240	WELD	25,570.7	6240	0.0	47.5	48.30264771	-103.74098307	2285.824	0	12:00					
6250	WELD	25,618.2	6250	0.0	48.7	48.30264810	-103.74078809	2282.562	0	12:00					
6260	WELD	25,666.9	6260	0.0	47.9	48.30264863	-103.74058721	2282.432	0	12:00					
6270	WELD	25,714.8	6270	0.0	48.8	48.30264885	-103.74038972	2283.240	0	12:00					
6280	WELD	25,763.6	6280	0.0	49.2	48.30264667	-103.74018909	2279.947	0	12:00					
6290	WELD	25,812.8	6290	0.0	41.4	48.30264429	-103.73998829	2273.248	0	12:00					
11000024	WT CHANGE	25,854.2	6290	0.0	0.0	48.30264251	-103.73981939	2268.047	0	12:00		0.322	52000	0.72	
6300	WELD	25,854.2	6300	0.0	41.9	48.30264251	-103.73981926	2268.044	0	12:00					
6310	WELD	25,896.2	6310	0.0	42.0	48.30264332	-103.73964686	2265.176	0	12:00					
6320	WELD	25,938.2	6320	0.0	42.0	48.30264261	-103.73947400	2263.192	0	12:00					
6330	WELD	25,980.2	6330	0.0	42.0	48.30264124	-103.73930113	2261.703	0	12:00					
6340	WELD	26,022.1	6340	0.0	42.0	48.30264574	-103.73912845	2263.965	0	12:00					
11000025	WT CHANGE	26,064.1	6340	0.0	0.0	48.30265035	-103.73895658	2268.972	0	12:00		0.188	52000	0.72	
6350	WELD	26,064.1	6350	0.0	49.1	48.30265035	-103.73895650	2268.975	0	12:00					
6360	WELD	26,113.2	6360	0.0	24.8	48.30265110	-103.73875612	2276.229	0	12:00					
40000007	Metal Loss - INTERNAL	26,120.7	6360	7.4	17.4	48.30265132	-103.73872565	2277.091	255	8:30	7%	0.39	0.40	1760	100%
6370	WELD	26,138.0	6370	0.0	48.6	48.30265193	-103.73865441	2278.867	0	12:00					
6380	WELD	26,186.6	6380	0.0	49.2	48.30265423	-103.73845504	2284.222	0	12:00					
6390	WELD	26,235.8	6390	0.0	48.7	48.30265602	-103.73825313	2288.817	0	12:00					
6400	WELD	26,284.5	6400	0.0	49.3	48.30265633	-103.73805249	2289.618	0	12:00					
6410	WELD	26,333.8	6410	0.0	49.1	48.30265605	-103.73784945	2287.595	0	12:00					
6420	WELD	26,382.9	6420	0.0	49.3	48.30265450	-103.73764783	2283.304	0	12:00					
6430	WELD	26,432.2	6430	0.0	49.4	48.30265225	-103.73744486	2281.717	0	12:00					
6440	WELD	26,481.6	6440	0.0	49.2	48.30265165	-103.73724136	2282.628	0	12:00					
6450	WELD	26,530.8	6450	0.0	49.2	48.30265099	-103.73703838	2281.979	0	12:00					
6460	WELD	26,580.1	6460	0.0	49.1	48.30265202	-103.73683546	2283.518	0	12:00					
6470	WELD	26,629.2	6470	0.0	49.0	48.30265256	-103.73663351	2287.197	0	12:00					
6480	WELD	26,678.2	6480	0.0	48.9	48.30265256	-103.73643165	2290.475	0	12:00					
20000010	Seam Variation	26,682.8	6480	4.6	44.3	48.30265253	-103.73641270	2290.790	310	10:15	-	0.47	0.52		
20000011	Seam Variation	26,683.4	6480	5.2	43.7	48.30265253	-103.73641018	2290.833	309	10:15	-	0.47	0.55		
6490	WELD	26,727.1	6490	0.0	29.9	48.30265147	-103.73623038	2293.865	0	12:00					

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)
6500	WELD	26,757.1	6500	0.0	48.8	48.30265154	-103.73610709	2295.193	0	12:00					
6510	WELD	26,805.8	6510	0.0	48.8	48.30265577	-103.73590630	2296.240	0	12:00					
6520	WELD	26,854.6	6520	0.0	49.1	48.30265590	-103.73570547	2293.572	0	12:00					
6530	WELD	26,903.7	6530	0.0	49.1	48.30265480	-103.73550418	2288.573	0	12:00					
6540	WELD	26,952.8	6540	0.0	49.2	48.30265330	-103.73530348	2282.844	0	12:00					
6550	WELD	27,002.1	6550	0.0	48.8	48.30265187	-103.73510153	2278.232	0	12:00					
6560	WELD	27,050.8	6560	0.0	49.0	48.30265062	-103.73490124	2274.322	0	12:00					
6570	WELD	27,099.8	6570	0.0	49.0	48.30264922	-103.73469960	2271.499	0	12:00					
6580	WELD	27,148.8	6580	0.0	48.9	48.30264919	-103.73449779	2269.885	0	12:00					
6590	WELD	27,197.8	6590	0.0	46.7	48.30264906	-103.73429631	2267.886	0	12:00					
6600	WELD	27,244.5	6600	0.0	9.0	48.30264873	-103.73410375	2267.461	0	12:00					
11000026	WT CHANGE	27,253.5	6600	0.0	0.0	48.30264900	-103.73406675	2267.437	0	12:00		0.322	52000	0.72	
6610	WELD	27,253.5	6610	0.0	1.1	48.30264899	-103.73406667	2267.436	0	12:00					
10000041	Bend right - 33 deg., 3D	27,254.0	6610	0.0	1.0	48.30264869	-103.73406450	2267.425	0	12:00					
6620	WELD	27,254.6	6620	0.0	12.2	48.30264812	-103.73406251	2267.406	0	12:00					
6630	WELD	27,266.8	6630	0.0	40.9	48.30263145	-103.73401891	2267.101	0	12:00					
6640	WELD	27,307.7	6640	0.0	42.0	48.30257522	-103.73387299	2265.619	0	12:00					
6650	WELD	27,349.7	6650	0.0	42.0	48.30251936	-103.73372206	2262.619	0	12:00					
6660	WELD	27,391.7	6660	0.0	42.1	48.30246608	-103.73356887	2260.417	0	12:00					
6670	WELD	27,433.7	6670	0.0	42.0	48.30241225	-103.73341546	2259.675	0	12:00					
10000042	AGM 050 -- Survey Point	27,451.1	6670	17.3	24.6	48.30238935	-103.73335274	2259.546	0	12:00					
11000027	WT CHANGE	27,475.6	6670	0.0	0.0	48.30235677	-103.73326386	2258.918	0	12:00		0.188	52000	0.72	
6680	WELD	27,475.7	6680	0.0	34.6	48.30235675	-103.73326379	2258.916	0	12:00					
6690	WELD	27,510.3	6690	0.0	41.0	48.30230934	-103.73313978	2257.848	0	12:00					
6700	WELD	27,551.3	6700	0.0	0.9	48.30225226	-103.73299388	2258.923	0	12:00					
10000043	Bend right - 30 deg., 1.5D	27,551.7	6700	0.0	0.8	48.30225149	-103.73299256	2258.940	0	12:00					
6710	WELD	27,552.2	6710	0.0	5.8	48.30225059	-103.73299129	2258.960	0	12:00					
6720	WELD	27,557.9	6720	0.0	48.7	48.30223737	-103.73297818	2259.192	0	12:00					
6730	WELD	27,606.7	6730	0.0	40.6	48.30212482	-103.73286871	2260.939	0	12:00					
6740	WELD	27,647.2	6740	0.0	40.9	48.30202997	-103.73278032	2261.604	0	12:00					
6750	WELD	27,688.1	6750	0.0	40.9	48.30193449	-103.73269068	2260.633	0	12:00					
40000008	Metal Loss - EXTERNAL	27,712.3	6750	24.2	16.8	48.30187797	-103.73263787	2260.222	32	1:00	19%	0.58	0.53	1760	100%
6760	WELD	27,729.1	6760	0.0	41.0	48.30183872	-103.73260154	2259.727	0	12:00					
6770	WELD	27,770.1	6770	0.0	41.0	48.30174232	-103.73251388	2258.273	0	12:00					
6780	WELD	27,811.0	6780	0.0	41.0	48.30164614	-103.73242584	2256.844	0	12:00					
6790	WELD	27,852.0	6790	0.0	40.9	48.30155036	-103.73233649	2255.177	0	12:00					
6800	WELD	27,893.0	6800	0.0	41.0	48.30145458	-103.73224786	2253.543	0	12:00					

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)
6810	WELD	27,933.9	6810	0.0	41.0	48.30135837	-103.73215952	2254.925	0	12:00					
6820	WELD	27,974.9	6820	0.0	41.0	48.30126209	-103.73207134	2256.509	0	12:00					
6830	WELD	28,015.9	6830	0.0	41.0	48.30116598	-103.73198254	2256.476	0	12:00					
6840	WELD	28,056.9	6840	0.0	41.0	48.30106992	-103.73189409	2258.343	0	12:00					
6850	WELD	28,097.9	6850	0.0	41.0	48.30097386	-103.73180578	2261.310	0	12:00					
12000005	Debris	28,099.4	6850	1.5	39.5	48.30097037	-103.73180257	2261.452	0	12:00					
6860	WELD	28,138.9	6860	0.0	41.1	48.30087805	-103.73171719	2265.069	0	12:00					
6870	WELD	28,180.0	6870	0.0	41.0	48.30078263	-103.73162789	2269.618	0	12:00					
6880	WELD	28,221.0	6880	0.0	41.0	48.30068732	-103.73153771	2272.779	0	12:00					
6890	WELD	28,262.0	6890	0.0	40.9	48.30059177	-103.73144813	2275.458	0	12:00					
6900	WELD	28,302.9	6900	0.0	40.9	48.30049619	-103.73135880	2276.042	0	12:00					
6910	WELD	28,343.8	6910	0.0	40.9	48.30040012	-103.73127065	2276.270	0	12:00					
6920	WELD	28,384.6	6920	0.0	40.9	48.30030419	-103.73118240	2276.970	0	12:00					
6930	WELD	28,425.5	6930	0.0	40.9	48.30020809	-103.73109447	2277.486	0	12:00					
6940	WELD	28,466.4	6940	0.0	41.0	48.30011136	-103.73100805	2276.974	0	12:00					
6950	WELD	28,507.4	6950	0.0	41.0	48.30001443	-103.73092133	2276.279	0	12:00					
6960	WELD	28,548.4	6960	0.0	40.9	48.29991741	-103.73083458	2275.220	0	12:00					
6970	WELD	28,589.4	6970	0.0	41.1	48.29982048	-103.73074906	2272.783	0	12:00					
6980	WELD	28,630.5	6980	0.0	41.1	48.29972344	-103.73066416	2268.449	0	12:00					
6990	WELD	28,671.5	6990	0.0	23.6	48.29962617	-103.73058005	2263.957	0	12:00					
7000	WELD	28,695.1	7000	0.0	6.0	48.29957007	-103.73053206	2261.645	0	12:00					
7010	WELD	28,701.1	7010	0.0	1.2	48.29955581	-103.73051984	2261.136	0	12:00					
10000044	Bend left - 36 deg., 3D	28,701.7	7010	0.1	1.2	48.29955459	-103.73051822	2261.089	0	12:00					
7020	WELD	28,702.3	7020	0.0	6.2	48.29955361	-103.73051612	2261.042	0	12:00					
7030	WELD	28,708.6	7030	0.0	0.8	48.29954642	-103.73049290	2260.601	0	12:00					
10000045	Bend left - 25 deg., 3D	28,708.9	7030	0.1	0.7	48.29954619	-103.73049139	2260.591	0	12:00					
7040	WELD	28,709.3	7040	0.0	20.9	48.29954600	-103.73048981	2260.584	0	12:00					
7050	WELD	28,730.2	7050	0.0	40.7	48.29954674	-103.73040379	2260.554	0	12:00					
7060	WELD	28,770.9	7060	0.0	41.0	48.29954807	-103.73023571	2260.371	0	12:00					
7070	WELD	28,811.9	7070	0.0	40.9	48.29954922	-103.73006655	2261.024	0	12:00					
7080	WELD	28,852.8	7080	0.0	40.9	48.29954957	-103.72989775	2262.338	0	12:00					
7090	WELD	28,893.6	7090	0.0	40.9	48.29954874	-103.72972927	2265.041	0	12:00					
7100	WELD	28,934.6	7100	0.0	40.9	48.29954699	-103.72956101	2269.222	0	12:00					
7110	WELD	28,975.5	7110	0.0	41.0	48.29954567	-103.72939225	2270.992	0	12:00					
7120	WELD	29,016.5	7120	0.0	41.0	48.29954540	-103.72922309	2271.258	0	12:00					
7130	WELD	29,057.5	7130	0.0	41.0	48.29954562	-103.72905405	2269.528	0	12:00					
7140	WELD	29,098.5	7140	0.0	41.1	48.29954534	-103.72888492	2267.276	0	12:00					

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)
7150	WELD	29,139.7	7150	0.0	41.1	48.29954513	-103.72871539	2265.101	0	12:00					
7160	WELD	29,180.8	7160	0.0	41.1	48.29954460	-103.72854588	2263.800	0	12:00					
7170	WELD	29,221.9	7170	0.0	41.1	48.29954398	-103.72837662	2262.171	0	12:00					
7180	WELD	29,262.9	7180	0.0	41.0	48.29954359	-103.72820755	2259.052	0	12:00					
7190	WELD	29,304.0	7190	0.0	41.0	48.29954330	-103.72803920	2255.159	0	12:00					
7200	WELD	29,345.0	7200	0.0	41.0	48.29954198	-103.72787036	2252.511	0	12:00					
7210	WELD	29,385.9	7210	0.0	40.9	48.29954100	-103.72770156	2250.213	0	12:00					
7220	WELD	29,426.9	7220	0.0	40.9	48.29954068	-103.72753346	2246.660	0	12:00					
7230	WELD	29,467.8	7230	0.0	40.9	48.29953994	-103.72736509	2243.891	0	12:00					
7240	WELD	29,508.7	7240	0.0	41.0	48.29953920	-103.72719649	2241.566	0	12:00					
7250	WELD	29,549.7	7250	0.0	41.0	48.29953845	-103.72702762	2239.578	0	12:00					
7260	WELD	29,590.7	7260	0.0	41.0	48.29953917	-103.72685870	2236.986	0	12:00					
7270	WELD	29,631.7	7270	0.0	41.0	48.29953989	-103.72668951	2235.420	0	12:00					
7280	WELD	29,672.7	7280	0.0	41.0	48.29954022	-103.72652068	2233.267	0	12:00					
7290	WELD	29,713.8	7290	0.0	41.1	48.29954074	-103.72635151	2231.413	0	12:00					
7300	WELD	29,754.8	7300	0.0	41.0	48.29954107	-103.72618217	2229.956	0	12:00					
7310	WELD	29,795.8	7310	0.0	40.9	48.29954132	-103.72601307	2229.011	0	12:00					
7320	WELD	29,836.7	7320	0.0	40.9	48.29954125	-103.72584418	2228.495	0	12:00					
7330	WELD	29,877.6	7330	0.0	40.9	48.29954076	-103.72567536	2227.917	0	12:00					
7340	WELD	29,918.5	7340	0.0	40.9	48.29953991	-103.72550659	2226.744	0	12:00					
7350	WELD	29,959.4	7350	0.0	40.9	48.29953902	-103.72533793	2225.494	0	12:00					
7360	WELD	30,000.3	7360	0.0	40.9	48.29953783	-103.72516922	2224.392	0	12:00					
7370	WELD	30,041.3	7370	0.0	41.0	48.29953650	-103.72500038	2223.005	0	12:00					
7380	WELD	30,082.3	7380	0.0	41.0	48.29953720	-103.72483147	2221.146	0	12:00					
7390	WELD	30,123.3	7390	0.0	40.9	48.29953862	-103.72466226	2220.145	0	12:00					
7400	WELD	30,164.2	7400	0.0	41.0	48.29953965	-103.72449335	2219.476	0	12:00					
7410	WELD	30,205.2	7410	0.0	41.0	48.29953992	-103.72432402	2219.764	0	12:00					
7420	WELD	30,246.3	7420	0.0	41.0	48.29953998	-103.72415460	2219.016	0	12:00					
7430	WELD	30,287.3	7430	0.0	41.0	48.29953988	-103.72398545	2218.732	0	12:00					
7440	WELD	30,328.3	7440	0.0	40.9	48.29953910	-103.72381620	2218.345	0	12:00					
7450	WELD	30,369.2	7450	0.0	40.9	48.29953769	-103.72364733	2218.310	0	12:00					
7460	WELD	30,410.1	7460	0.0	40.9	48.29953550	-103.72347852	2218.877	0	12:00					
14000001	DENT	30,436.3	7460	26.1	14.8	48.29953421	-103.72337047	2219.885	314	10:15	2.3%				
7470	WELD	30,451.0	7470	0.0	40.9	48.29953385	-103.72330971	2220.530	0	12:00					
7480	WELD	30,491.9	7480	0.0	41.0	48.29953308	-103.72314101	2222.032	0	12:00					
7490	WELD	30,532.9	7490	0.0	40.9	48.29953287	-103.72297186	2224.412	0	12:00					
7500	WELD	30,573.9	7500	0.0	40.9	48.29953255	-103.72280283	2224.976	0	12:00					

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)
7510	WELD	30,614.7	7510	0.0	41.1	48.29953446	-103.72263435	2223.168	0	12:00					
7520	WELD	30,655.8	7520	0.0	41.1	48.29953620	-103.72246549	2220.056	0	12:00					
7530	WELD	30,696.9	7530	0.0	41.1	48.29953774	-103.72229629	2217.937	0	12:00					
7540	WELD	30,738.0	7540	0.0	41.0	48.29953884	-103.72212691	2215.771	0	12:00					
7550	WELD	30,779.0	7550	0.0	40.9	48.29953889	-103.72195780	2214.648	0	12:00					
7560	WELD	30,819.9	7560	0.0	40.9	48.29953759	-103.72178882	2213.947	0	12:00					
7570	WELD	30,860.8	7570	0.0	40.9	48.29953575	-103.72162020	2213.314	0	12:00					
7580	WELD	30,901.7	7580	0.0	40.9	48.29953424	-103.72145125	2213.950	0	12:00					
7590	WELD	30,942.6	7590	0.0	40.9	48.29953267	-103.72128248	2214.646	0	12:00					
7600	WELD	30,983.5	7600	0.0	41.0	48.29953232	-103.72111355	2214.853	0	12:00					
7610	WELD	31,024.5	7610	0.0	41.0	48.29953346	-103.72094452	2214.279	0	12:00					
7620	WELD	31,065.5	7620	0.0	41.0	48.29953525	-103.72077549	2212.774	0	12:00					
7630	WELD	31,106.5	7630	0.0	41.1	48.29953637	-103.72060635	2210.782	0	12:00					
7640	WELD	31,147.6	7640	0.0	41.0	48.29953658	-103.72043716	2208.649	0	12:00					
7650	WELD	31,188.6	7650	0.0	41.0	48.29953597	-103.72026810	2207.484	0	12:00					
7660	WELD	31,229.6	7660	0.0	40.9	48.29953538	-103.72009899	2207.349	0	12:00					
7670	WELD	31,270.5	7670	0.0	40.9	48.29953378	-103.71993005	2207.039	0	12:00					
7680	WELD	31,311.4	7680	0.0	40.9	48.29953197	-103.71976115	2206.785	0	12:00					
7690	WELD	31,352.4	7690	0.0	40.9	48.29953142	-103.71959205	2207.104	0	12:00					
7700	WELD	31,393.2	7700	0.0	41.0	48.29953112	-103.71942345	2206.891	0	12:00					
7710	WELD	31,434.2	7710	0.0	41.0	48.29953042	-103.71925430	2206.488	0	12:00					
7720	WELD	31,475.2	7720	0.0	40.9	48.29952997	-103.71908507	2207.641	0	12:00					
7730	WELD	31,516.2	7730	0.0	40.9	48.29953064	-103.71891602	2207.943	0	12:00					
7740	WELD	31,557.1	7740	0.0	41.0	48.29953250	-103.71874722	2206.358	0	12:00					
7750	WELD	31,598.1	7750	0.0	41.0	48.29953417	-103.71857885	2202.457	0	12:00					
7760	WELD	31,639.1	7760	0.0	41.1	48.29953472	-103.71841045	2198.693	0	12:00					
7770	WELD	31,680.2	7770	0.0	41.0	48.29953438	-103.71824146	2195.597	0	12:00					
7780	WELD	31,721.3	7780	0.0	40.9	48.29953355	-103.71807238	2193.464	0	12:00					
7790	WELD	31,762.2	7790	0.0	41.0	48.29953293	-103.71790355	2191.966	0	12:00					
7800	WELD	31,803.2	7800	0.0	40.9	48.29953101	-103.71773446	2190.479	0	12:00					
7810	WELD	31,844.2	7810	0.0	39.4	48.29952922	-103.71756561	2189.053	0	12:00					
7820	WELD	31,883.6	7820	0.0	40.9	48.29952790	-103.71740287	2188.957	0	12:00					
7830	WELD	31,924.5	7830	0.0	41.0	48.29952744	-103.71723388	2189.168	0	12:00					
7840	WELD	31,965.5	7840	0.0	41.0	48.29952715	-103.71706467	2188.933	0	12:00					
7850	WELD	32,006.6	7850	0.0	41.0	48.29952753	-103.71689527	2188.061	0	12:00					
7860	WELD	32,047.5	7860	0.0	41.0	48.29952849	-103.71672634	2187.005	0	12:00					
7870	WELD	32,088.6	7870	0.0	41.1	48.29952898	-103.71655720	2185.313	0	12:00					

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)
7880	WELD	32,129.6	7880	0.0	41.0	48.29952896	-103.71638762	2184.485	0	12:00					
7890	WELD	32,170.7	7890	0.0	41.1	48.29952902	-103.71621838	2183.524	0	12:00					
7900	WELD	32,211.7	7900	0.0	41.0	48.29952906	-103.71604893	2183.143	0	12:00					
7910	WELD	32,252.7	7910	0.0	40.9	48.29952884	-103.71587968	2182.700	0	12:00					
7920	WELD	32,293.7	7920	0.0	40.9	48.29952812	-103.71571076	2182.157	0	12:00					
7930	WELD	32,334.6	7930	0.0	40.9	48.29952679	-103.71554194	2181.758	0	12:00					
7940	WELD	32,375.5	7940	0.0	33.7	48.29952331	-103.71537306	2181.330	0	12:00					
7950	WELD	32,409.2	7950	0.0	1.6	48.29952054	-103.71523401	2180.969	0	12:00					
10000046	Bend left - 45 deg., 3D	32,410.0	7950	0.1	1.5	48.29952093	-103.71523097	2180.956	0	12:00					
7960	WELD	32,410.8	7960	0.0	9.1	48.29952203	-103.71522818	2180.939	0	12:00					
7970	WELD	32,419.8	7970	0.0	0.5	48.29953929	-103.71520116	2180.884	0	12:00					
10000047	Bend left - 18 deg., 3D	32,420.1	7970	0.0	0.5	48.29953985	-103.71520043	2180.885	0	12:00					
7980	WELD	32,420.4	7980	0.0	36.8	48.29954047	-103.71519973	2180.886	0	12:00					
7990	WELD	32,457.2	7990	0.0	40.9	48.29962720	-103.71512077	2180.961	0	12:00					
8000	WELD	32,498.2	8000	0.0	41.0	48.29972352	-103.71503323	2179.965	0	12:00					
8010	WELD	32,539.1	8010	0.0	40.9	48.29982043	-103.71494681	2179.029	0	12:00					
8020	WELD	32,580.0	8020	0.0	41.0	48.29991745	-103.71486140	2178.480	0	12:00					
8030	WELD	32,621.0	8030	0.0	41.1	48.30001437	-103.71477480	2178.134	0	12:00					
8040	WELD	32,662.0	8040	0.0	25.5	48.30011085	-103.71468612	2178.150	0	12:00					
8050	WELD	32,687.5	8050	0.0	1.6	48.30016992	-103.71462918	2178.398	0	12:00					
10000048	Bend right - 45 deg., 3D	32,688.3	8050	0.1	1.5	48.30017143	-103.71462692	2178.399	0	12:00					
8060	WELD	32,689.1	8060	0.0	18.6	48.30017233	-103.71462398	2178.372	0	12:00					
8070	WELD	32,707.7	8070	0.0	0.8	48.30018349	-103.71454915	2177.571	0	12:00					
10000049	Bend right - 20 deg., 3D	32,708.1	8070	0.0	0.8	48.30018363	-103.71454760	2177.560	0	12:00					
8080	WELD	32,708.5	8080	0.0	16.3	48.30018363	-103.71454593	2177.553	0	12:00					
8090	WELD	32,724.9	8090	0.0	40.7	48.30017770	-103.71447909	2177.481	0	12:00					
8100	WELD	32,765.6	8100	0.0	40.9	48.30015992	-103.71431334	2176.051	0	12:00					
8110	WELD	32,806.5	8110	0.0	40.9	48.30014063	-103.71414689	2175.518	0	12:00					
8120	WELD	32,847.5	8120	0.0	40.9	48.30012337	-103.71397987	2175.008	0	12:00					
8130	WELD	32,888.3	8130	0.0	41.1	48.30010636	-103.71381313	2174.980	0	12:00					
8140	WELD	32,929.4	8140	0.0	34.0	48.30008882	-103.71364571	2175.046	0	12:00					
10000050	AGM 060 -- Han #8592	32,957.6	8140	28.2	5.7	48.30007582	-103.71353094	2173.920	0	12:00					
8150	WELD	32,963.3	8150	0.0	1.4	48.30007316	-103.71350766	2173.607	0	12:00					
10000051	Bend right - 45 deg., 3D	32,964.0	8150	0.1	1.3	48.30007251	-103.71350513	2173.585	0	12:00					
8160	WELD	32,964.7	8160	0.0	7.1	48.30007139	-103.71350288	2173.564	0	12:00					
8170	WELD	32,971.8	8170	0.0	34.6	48.30005680	-103.71348350	2173.297	0	12:00					
8180	WELD	33,006.3	8180	0.0	30.6	48.29998559	-103.71338879	2172.230	0	12:00					

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)
8190	WELD	33,037.0	8190	0.0	38.3	48.29992273	-103.71330518	2169.414	0	12:00					
8200	WELD	33,075.3	8200	0.0	39.9	48.29984199	-103.71320438	2172.568	0	12:00					
8210	WELD	33,115.2	8210	0.0	40.8	48.29976331	-103.71309118	2176.753	0	12:00					
8220	WELD	33,156.0	8220	0.0	40.8	48.29968998	-103.71296334	2178.733	0	12:00					
8230	WELD	33,196.8	8230	0.0	40.9	48.29961723	-103.71283488	2179.018	0	12:00					
8240	WELD	33,237.7	8240	0.0	41.0	48.29954820	-103.71270187	2177.053	0	12:00					
8250	WELD	33,278.7	8250	0.0	36.9	48.29948807	-103.71255929	2175.738	0	12:00					
8260	WELD	33,315.6	8260	0.0	1.2	48.29943364	-103.71243236	2180.911	0	12:00					
10000052	Bend left - 36 deg., 3D	33,316.2	8260	0.0	1.1	48.29943297	-103.71243022	2181.001	0	12:00					
8270	WELD	33,316.8	8270	0.0	34.8	48.29943267	-103.71242778	2181.090	0	12:00					
8280	WELD	33,351.6	8280	0.0	41.0	48.29943531	-103.71228474	2184.846	0	12:00					
8290	WELD	33,392.5	8290	0.0	41.0	48.29943834	-103.71211592	2187.879	0	12:00					
8300	WELD	33,433.5	8300	0.0	41.0	48.29943986	-103.71194672	2189.494	0	12:00					
8310	WELD	33,474.6	8310	0.0	41.0	48.29944021	-103.71177720	2191.271	0	12:00					
8320	WELD	33,515.6	8320	0.0	41.0	48.29944043	-103.71160794	2193.143	0	12:00					
8330	WELD	33,556.5	8330	0.0	40.9	48.29944070	-103.71143873	2194.772	0	12:00					
8340	WELD	33,597.4	8340	0.0	41.0	48.29944061	-103.71126995	2196.986	0	12:00					
8350	WELD	33,638.4	8350	0.0	40.9	48.29943937	-103.71110071	2197.806	0	12:00					
8360	WELD	33,679.3	8360	0.0	40.9	48.29943800	-103.71093180	2198.719	0	12:00					
8370	WELD	33,720.2	8370	0.0	40.9	48.29943667	-103.71076286	2198.953	0	12:00					
8380	WELD	33,761.1	8380	0.0	40.9	48.29943661	-103.71059368	2199.368	0	12:00					
8390	WELD	33,802.1	8390	0.0	41.0	48.29943794	-103.71042459	2200.662	0	12:00					
8400	WELD	33,843.1	8400	0.0	40.9	48.29943879	-103.71025532	2202.694	0	12:00					
8410	WELD	33,884.0	8410	0.0	41.0	48.29943943	-103.71008628	2201.928	0	12:00					
8420	WELD	33,925.0	8420	0.0	41.1	48.29943987	-103.70991760	2198.975	0	12:00					
8430	WELD	33,966.0	8430	0.0	41.0	48.29944042	-103.70974823	2196.888	0	12:00					
8440	WELD	34,007.1	8440	0.0	41.0	48.29944027	-103.70957897	2195.660	0	12:00					
8450	WELD	34,048.0	8450	0.0	40.9	48.29943920	-103.70940976	2195.375	0	12:00					
8460	WELD	34,088.9	8460	0.0	40.9	48.29943780	-103.70924081	2197.030	0	12:00					
8470	WELD	34,129.8	8470	0.0	40.9	48.29943667	-103.70907217	2199.544	0	12:00					
8480	WELD	34,170.7	8480	0.0	40.9	48.29943566	-103.70890336	2202.048	0	12:00					
8490	WELD	34,211.6	8490	0.0	41.0	48.29943543	-103.70873453	2204.046	0	12:00					
8500	WELD	34,252.6	8500	0.0	41.0	48.29943611	-103.70856531	2204.890	0	12:00					
8510	WELD	34,293.6	8510	0.0	41.0	48.29943672	-103.70839602	2204.073	0	12:00					
8520	WELD	34,334.5	8520	0.0	41.0	48.29943665	-103.70822695	2202.419	0	12:00					
8530	WELD	34,375.6	8530	0.0	41.0	48.29943641	-103.70805758	2201.223	0	12:00					
8540	WELD	34,416.6	8540	0.0	41.0	48.29943565	-103.70788820	2200.523	0	12:00					

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)
8550	WELD	34,457.5	8550	0.0	40.9	48.29943401	-103.70771905	2199.704	0	12:00					
8560	WELD	34,498.5	8560	0.0	41.0	48.29943224	-103.70755009	2198.102	0	12:00					
8570	WELD	34,539.4	8570	0.0	40.9	48.29943149	-103.70738123	2195.642	0	12:00					
8580	WELD	34,580.4	8580	0.0	40.9	48.29943073	-103.70721263	2193.321	0	12:00					
8590	WELD	34,621.3	8590	0.0	41.0	48.29942979	-103.70704364	2193.712	0	12:00					
8600	WELD	34,662.3	8600	0.0	40.9	48.29943022	-103.70687423	2195.101	0	12:00					
8610	WELD	34,703.2	8610	0.0	40.9	48.29943002	-103.70670573	2198.840	0	12:00					
8620	WELD	34,744.1	8620	0.0	40.9	48.29943032	-103.70653687	2201.531	0	12:00					
8630	WELD	34,785.1	8630	0.0	41.1	48.29943036	-103.70636788	2202.711	0	12:00					
8640	WELD	34,826.1	8640	0.0	41.0	48.29943052	-103.70619846	2200.761	0	12:00					
8650	WELD	34,867.2	8650	0.0	40.9	48.29943102	-103.70602964	2197.315	0	12:00					
8660	WELD	34,908.1	8660	0.0	40.9	48.29943077	-103.70586137	2194.063	0	12:00					
8670	WELD	34,948.9	8670	0.0	40.9	48.29943021	-103.70569275	2192.438	0	12:00					
8680	WELD	34,989.8	8680	0.0	40.8	48.29942958	-103.70552387	2191.296	0	12:00					
8690	WELD	35,030.7	8690	0.0	40.9	48.29942852	-103.70535572	2188.526	0	12:00					
8700	WELD	35,071.5	8700	0.0	41.0	48.29942757	-103.70518836	2183.529	0	12:00					
8710	WELD	35,112.5	8710	0.0	40.9	48.29942739	-103.70502020	2179.153	0	12:00					
40000009	Metal Loss - INTERNAL	35,118.4	8710	5.8	35.1	48.29942744	-103.70499608	2178.673	223	7:15	12%	0.77	0.58	1760	100%
8720	WELD	35,153.4	8720	0.0	41.1	48.29942752	-103.70485185	2175.780	0	12:00					
8730	WELD	35,194.5	8730	0.0	41.1	48.29942729	-103.70468242	2174.198	0	12:00					
8740	WELD	35,235.6	8740	0.0	40.5	48.29942843	-103.70451289	2176.296	0	12:00					
8750	WELD	35,276.1	8750	0.0	26.8	48.29943086	-103.70434563	2178.242	0	12:00					
11000028	WT CHANGE	35,302.9	8750	0.0	0.0	48.29943056	-103.70423502	2178.330	0	12:00		0.322	52000	0.72	
8760	WELD	35,302.9	8760	0.0	41.8	48.29943056	-103.70423494	2178.331	0	12:00					
8770	WELD	35,344.6	8770	0.0	41.9	48.29942980	-103.70406239	2178.317	0	12:00					
8780	WELD	35,386.5	8780	0.0	41.9	48.29942996	-103.70388925	2179.043	0	12:00					
8790	WELD	35,428.4	8790	0.0	42.0	48.29943308	-103.70371653	2181.926	0	12:00					
11000029	WT CHANGE	35,470.4	8790	0.0	0.0	48.29943887	-103.70354358	2182.895	0	12:00		0.188	52000	0.72	
8800	WELD	35,470.4	8800	0.0	13.8	48.29943887	-103.70354346	2182.895	0	12:00					
8810	WELD	35,484.2	8810	0.0	40.4	48.29944112	-103.70348665	2182.570	0	12:00					
8820	WELD	35,524.6	8820	0.0	40.9	48.29944905	-103.70332042	2181.249	0	12:00					
8830	WELD	35,565.4	8830	0.0	41.0	48.29945854	-103.70315216	2181.318	0	12:00					
8840	WELD	35,606.4	8840	0.0	41.0	48.29946765	-103.70298332	2181.557	0	12:00					
8850	WELD	35,647.4	8850	0.0	41.0	48.29947613	-103.70281450	2182.124	0	12:00					
8860	WELD	35,688.4	8860	0.0	41.0	48.29948498	-103.70264558	2183.175	0	12:00					
8870	WELD	35,729.4	8870	0.0	40.8	48.29949426	-103.70247678	2183.408	0	12:00					
8880	WELD	35,770.2	8880	0.0	40.8	48.29950327	-103.70230878	2182.098	0	12:00					

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)
8890	WELD	35,811.1	8890	0.0	40.9	48.29951122	-103.70214150	2178.101	0	12:00					
8900	WELD	35,852.0	8900	0.0	40.9	48.29951784	-103.70197432	2172.797	0	12:00					
40000010	Metal Loss - EXTERNAL	35,864.1	8900	12.0	28.8	48.29951944	-103.70192508	2171.243	294	9:45	5%	0.40	0.52	1760	100%
8910	WELD	35,892.9	8910	0.0	41.0	48.29952236	-103.70180739	2167.334	0	12:00					
8920	WELD	35,933.8	8920	0.0	41.0	48.29951926	-103.70163945	2163.043	0	12:00					
8930	WELD	35,974.8	8930	0.0	40.9	48.29951370	-103.70147081	2160.522	0	12:00					
8940	WELD	36,015.7	8940	0.0	41.0	48.29950780	-103.70130207	2158.896	0	12:00					
8950	WELD	36,056.7	8950	0.0	41.0	48.29950157	-103.70113322	2157.799	0	12:00					
8960	WELD	36,097.6	8960	0.0	41.0	48.29949479	-103.70096450	2156.257	0	12:00					
8970	WELD	36,138.7	8970	0.0	41.0	48.29948755	-103.70079542	2155.250	0	12:00					
8980	WELD	36,179.7	8980	0.0	41.0	48.29948031	-103.70062644	2154.346	0	12:00					
8990	WELD	36,220.7	8990	0.0	40.9	48.29947261	-103.70045763	2153.537	0	12:00					
9000	WELD	36,261.5	9000	0.0	40.9	48.29946477	-103.70028919	2152.628	0	12:00					
9010	WELD	36,302.4	9010	0.0	40.9	48.29945615	-103.70012084	2151.333	0	12:00					
9020	WELD	36,343.3	9020	0.0	40.9	48.29944729	-103.69995238	2151.079	0	12:00					
9030	WELD	36,384.3	9030	0.0	41.0	48.29943841	-103.69978395	2150.545	0	12:00					
9040	WELD	36,425.3	9040	0.0	40.9	48.29943111	-103.69961477	2149.938	0	12:00					
9050	WELD	36,466.2	9050	0.0	41.0	48.29942602	-103.69944586	2149.864	0	12:00					
9060	WELD	36,507.2	9060	0.0	41.1	48.29942369	-103.69927689	2148.197	0	12:00					
9070	WELD	36,548.3	9070	0.0	41.0	48.29942292	-103.69910698	2147.859	0	12:00					
9080	WELD	36,589.3	9080	0.0	41.0	48.29942297	-103.69893759	2148.002	0	12:00					
9090	WELD	36,630.3	9090	0.0	40.9	48.29942254	-103.69876832	2147.538	0	12:00					
9100	WELD	36,671.2	9100	0.0	40.9	48.29942142	-103.69859946	2147.160	0	12:00					
40000011	Metal Loss - EXTERNAL	36,707.6	9100	36.4	4.5	48.29942020	-103.69844914	2147.016	135	4:30	9%	0.34	0.34	1760	100%
9110	WELD	36,712.0	9110	0.0	40.9	48.29942008	-103.69843058	2147.053	0	12:00					
9120	WELD	36,753.0	9120	0.0	40.9	48.29941930	-103.69826161	2146.807	0	12:00					
9130	WELD	36,793.9	9130	0.0	41.0	48.29941896	-103.69809247	2146.860	0	12:00					
9140	WELD	36,834.8	9140	0.0	41.0	48.29941900	-103.69792326	2147.221	0	12:00					
9150	WELD	36,875.8	9150	0.0	41.0	48.29941911	-103.69775401	2146.619	0	12:00					
40000012	Metal Loss - INTERNAL	36,899.9	9150	24.0	17.0	48.29941919	-103.69765472	2145.693	229	7:30	9%	0.62	0.51	1760	100%
9160	WELD	36,916.9	9160	0.0	41.1	48.29941942	-103.69758467	2144.840	0	12:00					
9170	WELD	36,957.9	9170	0.0	41.0	48.29941968	-103.69741545	2142.403	0	12:00					
9180	WELD	36,999.0	9180	0.0	40.9	48.29941919	-103.69724633	2139.899	0	12:00					
9190	WELD	37,039.9	9190	0.0	40.9	48.29941845	-103.69707804	2143.492	0	12:00					
9200	WELD	37,080.8	9200	0.0	40.9	48.29941772	-103.69690992	2148.227	0	12:00					
9210	WELD	37,121.7	9210	0.0	40.9	48.29941769	-103.69674181	2152.433	0	12:00					
9220	WELD	37,162.6	9220	0.0	40.7	48.29941205	-103.69657350	2155.881	0	12:00					

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)
9230	WELD	37,203.3	9230	0.0	35.5	48.29940769	-103.69640593	2158.819	0	12:00					
10000053	AGM 070 -- Han #8776	37,222.2	9230	18.9	16.6	48.29940816	-103.69632805	2159.546	0	12:00					
9240	WELD	37,238.8	9240	0.0	40.7	48.29940995	-103.69625942	2160.081	0	12:00					
9250	WELD	37,279.4	9250	0.0	40.8	48.29941533	-103.69609170	2161.132	0	12:00					
9260	WELD	37,320.2	9260	0.0	41.0	48.29941660	-103.69592337	2160.256	0	12:00					
9270	WELD	37,361.2	9270	0.0	41.1	48.29941451	-103.69575444	2157.448	0	12:00					
40000013	Metal Loss - EXTERNAL	37,363.7	9270	2.5	38.6	48.29941447	-103.69574409	2157.253	235	7:45	5%	1.46	1.27	1760	100%
9280	WELD	37,402.3	9280	0.0	41.1	48.29941353	-103.69558517	2154.792	0	12:00					
9290	WELD	37,443.4	9290	0.0	40.9	48.29941237	-103.69541591	2152.556	0	12:00					
9300	WELD	37,484.3	9300	0.0	40.9	48.29941110	-103.69524767	2149.495	0	12:00					
9310	WELD	37,525.2	9310	0.0	40.9	48.29940994	-103.69507971	2145.362	0	12:00					
9320	WELD	37,566.0	9320	0.0	40.9	48.29940922	-103.69491191	2141.304	0	12:00					
9330	WELD	37,606.9	9330	0.0	41.0	48.29940930	-103.69474401	2137.200	0	12:00					
9340	WELD	37,647.9	9340	0.0	40.9	48.29940967	-103.69457548	2133.572	0	12:00					
9350	WELD	37,688.9	9350	0.0	41.0	48.29940999	-103.69440709	2130.232	0	12:00					
9360	WELD	37,729.9	9360	0.0	41.1	48.29941020	-103.69423778	2128.395	0	12:00					
9370	WELD	37,771.0	9370	0.0	41.1	48.29940965	-103.69406822	2127.020	0	12:00					
9380	WELD	37,812.1	9380	0.0	41.0	48.29940979	-103.69389850	2127.761	0	12:00					
9390	WELD	37,853.1	9390	0.0	40.9	48.29940903	-103.69372921	2130.025	0	12:00					
9400	WELD	37,894.0	9400	0.0	40.9	48.29940803	-103.69356017	2131.664	0	12:00					
9410	WELD	37,935.0	9410	0.0	40.9	48.29940671	-103.69339115	2133.153	0	12:00					
9420	WELD	37,975.9	9420	0.0	40.9	48.29940599	-103.69322202	2133.915	0	12:00					
9430	WELD	38,016.9	9430	0.0	41.0	48.29940648	-103.69305290	2133.965	0	12:00					
9440	WELD	38,057.8	9440	0.0	41.0	48.29940716	-103.69288364	2133.749	0	12:00					
9450	WELD	38,098.8	9450	0.0	40.9	48.29940739	-103.69271433	2134.023	0	12:00					
9460	WELD	38,139.7	9460	0.0	41.0	48.29940723	-103.69254525	2135.014	0	12:00					
9470	WELD	38,180.8	9470	0.0	41.1	48.29940590	-103.69237577	2135.376	0	12:00					
9480	WELD	38,221.9	9480	0.0	41.0	48.29940462	-103.69220613	2134.891	0	12:00					
9490	WELD	38,262.9	9490	0.0	36.7	48.29940344	-103.69203670	2133.782	0	12:00					
9500	WELD	38,299.6	9500	0.0	40.7	48.29940273	-103.69188544	2131.723	0	12:00					
9510	WELD	38,340.3	9510	0.0	40.9	48.29940174	-103.69171762	2130.409	0	12:00					
9520	WELD	38,381.2	9520	0.0	41.0	48.29940181	-103.69154871	2129.730	0	12:00					
9530	WELD	38,422.1	9530	0.0	40.9	48.29940148	-103.69137954	2129.823	0	12:00					
9540	WELD	38,463.1	9540	0.0	41.0	48.29940120	-103.69121031	2130.373	0	12:00					
9550	WELD	38,504.0	9550	0.0	41.0	48.29940104	-103.69104119	2130.010	0	12:00					
9560	WELD	38,545.0	9560	0.0	41.1	48.29940104	-103.69087195	2128.788	0	12:00					
9570	WELD	38,586.1	9570	0.0	41.0	48.29940108	-103.69070229	2127.312	0	12:00					

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)
9580	WELD	38,627.2	9580	0.0	41.0	48.29940119	-103.69053286	2126.298	0	12:00					
9590	WELD	38,668.2	9590	0.0	41.0	48.29940177	-103.69036358	2125.710	0	12:00					
9600	WELD	38,709.1	9600	0.0	40.9	48.29940307	-103.69019433	2124.775	0	12:00					
9610	WELD	38,750.1	9610	0.0	40.9	48.29940423	-103.69002536	2124.161	0	12:00					
9620	WELD	38,791.0	9620	0.0	40.9	48.29940450	-103.68985652	2122.581	0	12:00					
9630	WELD	38,831.9	9630	0.0	41.0	48.29940405	-103.68968747	2121.857	0	12:00					
9640	WELD	38,872.9	9640	0.0	41.0	48.29940412	-103.68951825	2120.836	0	12:00					
9650	WELD	38,913.9	9650	0.0	41.0	48.29940391	-103.68934939	2118.427	0	12:00					
9660	WELD	38,954.9	9660	0.0	41.1	48.29940313	-103.68918030	2115.870	0	12:00					
9670	WELD	38,996.0	9670	0.0	41.1	48.29940204	-103.68901055	2114.726	0	12:00					
9680	WELD	39,037.2	9680	0.0	41.0	48.29940161	-103.68884078	2114.816	0	12:00					
9690	WELD	39,078.1	9690	0.0	40.9	48.29940165	-103.68867159	2115.982	0	12:00					
9700	WELD	39,119.0	9700	0.0	40.8	48.29940160	-103.68850309	2119.024	0	12:00					
9710	WELD	39,159.8	9710	0.0	40.9	48.29940143	-103.68833562	2124.197	0	12:00					
9720	WELD	39,200.7	9720	0.0	41.0	48.29940105	-103.68816765	2128.585	0	12:00					
40000014	Metal Loss - EXTERNAL	39,225.6	9720	24.9	16.1	48.29940060	-103.68806486	2129.743	184	6:00	8%	0.59	0.63	1760	100%
9730	WELD	39,241.7	9730	0.0	40.9	48.29940044	-103.68799835	2130.069	0	12:00					
9740	WELD	39,282.6	9740	0.0	41.0	48.29940066	-103.68782931	2129.509	0	12:00					
9750	WELD	39,323.6	9750	0.0	41.0	48.29940145	-103.68766043	2127.374	0	12:00					
9760	WELD	39,364.5	9760	0.0	41.1	48.29940274	-103.68749186	2124.052	0	12:00					
9770	WELD	39,405.6	9770	0.0	41.0	48.29940403	-103.68732296	2120.710	0	12:00					
9780	WELD	39,446.6	9780	0.0	40.9	48.29940432	-103.68715401	2118.269	0	12:00					
9790	WELD	39,487.6	9790	0.0	40.9	48.29940408	-103.68698505	2116.510	0	12:00					
9800	WELD	39,528.5	9800	0.0	40.9	48.29940333	-103.68681635	2114.405	0	12:00					
9810	WELD	39,569.4	9810	0.0	40.9	48.29940179	-103.68664729	2114.080	0	12:00					
9820	WELD	39,610.3	9820	0.0	40.9	48.29940050	-103.68647834	2113.522	0	12:00					
9830	WELD	39,651.2	9830	0.0	40.9	48.29940027	-103.68630958	2111.792	0	12:00					
9840	WELD	39,692.1	9840	0.0	40.9	48.29940029	-103.68614089	2110.254	0	12:00					
9850	WELD	39,733.0	9850	0.0	41.0	48.29940092	-103.68597221	2108.167	0	12:00					
9860	WELD	39,774.0	9860	0.0	41.0	48.29940187	-103.68580340	2105.571	0	12:00					
9870	WELD	39,815.0	9870	0.0	41.0	48.29940254	-103.68563466	2102.718	0	12:00					
9880	WELD	39,856.0	9880	0.0	41.1	48.29940293	-103.68546554	2100.089	0	12:00					
9890	WELD	39,897.1	9890	0.0	41.0	48.29940310	-103.68529623	2098.004	0	12:00					
9900	WELD	39,938.1	9900	0.0	40.9	48.29940311	-103.68512696	2096.342	0	12:00					
9910	WELD	39,979.0	9910	0.0	40.9	48.29940249	-103.68495818	2095.177	0	12:00					
9920	WELD	40,019.9	9920	0.0	40.9	48.29940084	-103.68478910	2094.590	0	12:00					
9930	WELD	40,060.9	9930	0.0	40.9	48.29939913	-103.68461992	2094.609	0	12:00					

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)
9940	WELD	40,101.8	9940	0.0	41.0	48.29939896	-103.68445104	2094.557	0	12:00					
9950	WELD	40,142.8	9950	0.0	40.9	48.29940009	-103.68428178	2094.200	0	12:00					
9960	WELD	40,183.7	9960	0.0	41.0	48.29940092	-103.68411295	2092.392	0	12:00					
9970	WELD	40,224.7	9970	0.0	41.0	48.29940148	-103.68394390	2090.168	0	12:00					
9980	WELD	40,265.7	9980	0.0	42.9	48.29940179	-103.68377481	2087.875	0	12:00					
9990	WELD	40,308.6	9990	0.0	41.0	48.29940214	-103.68359780	2086.098	0	12:00					
10000	WELD	40,349.6	10000	0.0	40.9	48.29940229	-103.68342869	2084.617	0	12:00					
10010	WELD	40,390.5	10010	0.0	40.9	48.29940177	-103.68326002	2083.126	0	12:00					
10020	WELD	40,431.3	10020	0.0	40.9	48.29940034	-103.68309127	2082.483	0	12:00					
10030	WELD	40,472.3	10030	0.0	40.9	48.29939916	-103.68292222	2081.398	0	12:00					
10040	WELD	40,513.1	10040	0.0	41.0	48.29939893	-103.68275352	2080.379	0	12:00					
10050	WELD	40,554.2	10050	0.0	41.0	48.29939909	-103.68258414	2079.606	0	12:00					
40000015	Metal Loss - EXTERNAL	40,573.6	10050	19.4	21.5	48.29939923	-103.68250381	2079.401	14	12:15	7%	0.36	0.34	1760	100%
10060	WELD	40,595.1	10060	0.0	40.9	48.29939938	-103.68241488	2079.124	0	12:00					
10070	WELD	40,636.1	10070	0.0	41.0	48.29939991	-103.68224577	2078.882	0	12:00					
10080	WELD	40,677.0	10080	0.0	41.1	48.29940032	-103.68207659	2078.690	0	12:00					
10090	WELD	40,718.1	10090	0.0	41.0	48.29940101	-103.68190702	2078.058	0	12:00					
10100	WELD	40,759.1	10100	0.0	40.9	48.29940136	-103.68173757	2077.720	0	12:00					
10110	WELD	40,800.1	10110	0.0	40.9	48.29940096	-103.68156847	2077.312	0	12:00					
10120	WELD	40,840.9	10120	0.0	40.8	48.29940101	-103.68139972	2077.234	0	12:00					
10130	WELD	40,881.7	10130	0.0	40.9	48.29940025	-103.68123119	2077.202	0	12:00					
10140	WELD	40,922.6	10140	0.0	40.9	48.29940033	-103.68106218	2077.238	0	12:00					
10150	WELD	40,963.5	10150	0.0	41.0	48.29940114	-103.68089340	2077.148	0	12:00					
10160	WELD	41,004.5	10160	0.0	40.9	48.29940226	-103.68072409	2076.534	0	12:00					
10170	WELD	41,045.4	10170	0.0	41.0	48.29940412	-103.68055504	2075.782	0	12:00					
10180	WELD	41,086.4	10180	0.0	40.8	48.29940709	-103.68038582	2075.053	0	12:00					
10190	WELD	41,127.2	10190	0.0	37.6	48.29940871	-103.68021750	2074.742	0	12:00					
10200	WELD	41,164.8	10200	0.0	41.0	48.29940774	-103.68006209	2073.676	0	12:00					
10210	WELD	41,205.8	10210	0.0	40.7	48.29940492	-103.67989324	2071.899	0	12:00					
10220	WELD	41,246.5	10220	0.0	40.3	48.29940251	-103.67972503	2071.039	0	12:00					
10230	WELD	41,286.9	10230	0.0	40.9	48.29940223	-103.67955852	2070.171	0	12:00					
10240	WELD	41,327.8	10240	0.0	40.9	48.29940210	-103.67938956	2069.921	0	12:00					
10250	WELD	41,368.7	10250	0.0	40.9	48.29940070	-103.67922052	2070.181	0	12:00					
10260	WELD	41,409.6	10260	0.0	40.9	48.29939836	-103.67905166	2070.495	0	12:00					
10270	WELD	41,450.5	10270	0.0	41.0	48.29939699	-103.67888261	2070.973	0	12:00					
10280	WELD	41,491.5	10280	0.0	41.0	48.29939727	-103.67871314	2071.241	0	12:00					
10290	WELD	41,532.5	10290	0.0	41.0	48.29939804	-103.67854378	2071.407	0	12:00					

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)
10300	WELD	41,573.5	10300	0.0	41.0	48.29939798	-103.67837430	2070.562	0	12:00					
10310	WELD	41,614.6	10310	0.0	41.0	48.29939783	-103.67820479	2070.216	0	12:00					
10320	WELD	41,655.6	10320	0.0	41.0	48.29939732	-103.67803542	2070.356	0	12:00					
10330	WELD	41,696.6	10330	0.0	40.9	48.29939651	-103.67786619	2070.658	0	12:00					
10340	WELD	41,737.4	10340	0.0	40.8	48.29939606	-103.67769724	2071.285	0	12:00					
10350	WELD	41,778.3	10350	0.0	37.7	48.29939576	-103.67752861	2072.379	0	12:00					
10360	WELD	41,816.0	10360	0.0	40.7	48.29939577	-103.67737300	2074.412	0	12:00					
10370	WELD	41,856.6	10370	0.0	10.3	48.29939843	-103.67720512	2075.545	0	12:00					
11000030	WT CHANGE	41,866.9	10370	0.0	0.0	48.29939952	-103.67716258	2075.438	0	12:00		0.322	52000	0.72	
10380	WELD	41,867.0	10380	0.0	41.8	48.29939952	-103.67716254	2075.438	0	12:00					
10390	WELD	41,908.8	10390	0.0	41.9	48.29940487	-103.67699006	2074.438	0	12:00					
10400	WELD	41,950.7	10400	0.0	41.9	48.29941379	-103.67681754	2075.376	0	12:00					
11000031	WT CHANGE	41,992.6	10400	0.0	0.0	48.29943261	-103.67664679	2076.520	0	12:00		0.188	52000	0.72	
10410	WELD	41,992.6	10410	0.0	36.0	48.29943262	-103.67664671	2076.520	0	12:00					
10420	WELD	42,028.6	10420	0.0	9.7	48.29945274	-103.67650115	2076.519	0	12:00					
10430	WELD	42,038.3	10430	0.0	41.0	48.29945834	-103.67646211	2076.357	0	12:00					
10440	WELD	42,079.2	10440	0.0	41.0	48.29948287	-103.67629693	2076.023	0	12:00					
10450	WELD	42,120.2	10450	0.0	40.9	48.29950544	-103.67613114	2077.331	0	12:00					
10460	WELD	42,161.1	10460	0.0	40.9	48.29951412	-103.67596359	2079.893	0	12:00					
20000020	Mill Anomaly	42,161.6	10460	0.5	40.4	48.29951413	-103.67596134	2079.941	177	5:45	-	1.30	0.41		
10470	WELD	42,202.0	10470	0.0	40.9	48.29951362	-103.67579486	2082.850	0	12:00					
10480	WELD	42,242.9	10480	0.0	40.9	48.29951208	-103.67562582	2084.468	0	12:00					
10490	WELD	42,283.9	10490	0.0	41.0	48.29951087	-103.67545679	2084.884	0	12:00					
10500	WELD	42,324.9	10500	0.0	41.0	48.29951114	-103.67528758	2083.207	0	12:00					
10510	WELD	42,365.9	10510	0.0	41.0	48.29951144	-103.67511870	2080.609	0	12:00					
10520	WELD	42,406.9	10520	0.0	41.1	48.29951190	-103.67494934	2078.988	0	12:00					
10530	WELD	42,448.0	10530	0.0	41.1	48.29951280	-103.67477979	2077.827	0	12:00					
10540	WELD	42,489.1	10540	0.0	40.9	48.29951317	-103.67461010	2077.486	0	12:00					
10550	WELD	42,530.0	10550	0.0	40.9	48.29951308	-103.67444117	2076.936	0	12:00					
10560	WELD	42,570.9	10560	0.0	41.0	48.29951257	-103.67427206	2076.417	0	12:00					
10570	WELD	42,611.9	10570	0.0	41.0	48.29951156	-103.67410268	2076.226	0	12:00					
10580	WELD	42,652.9	10580	0.0	41.0	48.29951038	-103.67393342	2076.726	0	12:00					
10590	WELD	42,693.9	10590	0.0	41.0	48.29950926	-103.67376416	2077.894	0	12:00					
10600	WELD	42,734.9	10600	0.0	41.0	48.29950917	-103.67359476	2077.464	0	12:00					
10610	WELD	42,775.9	10610	0.0	41.0	48.29950973	-103.67342548	2076.300	0	12:00					
10620	WELD	42,816.9	10620	0.0	41.0	48.29951016	-103.67325628	2074.857	0	12:00					
10630	WELD	42,858.0	10630	0.0	41.0	48.29950999	-103.67308701	2072.654	0	12:00					

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)
10640	WELD	42,899.0	10640	0.0	40.9	48.29950938	-103.67291783	2070.956	0	12:00					
10650	WELD	42,939.9	10650	0.0	40.9	48.29950866	-103.67274901	2069.406	0	12:00					
10660	WELD	42,980.8	10660	0.0	40.9	48.29950796	-103.67258024	2068.111	0	12:00					
10670	WELD	43,021.6	10670	0.0	40.9	48.29950671	-103.67241148	2067.097	0	12:00					
10680	WELD	43,062.5	10680	0.0	41.0	48.29950474	-103.67224269	2066.491	0	12:00					
10690	WELD	43,103.5	10690	0.0	41.8	48.29950307	-103.67207348	2065.726	0	12:00					
10700	WELD	43,145.3	10700	0.0	41.0	48.29950264	-103.67190095	2064.254	0	12:00					
10710	WELD	43,186.3	10710	0.0	41.0	48.29950380	-103.67173208	2062.197	0	12:00					
10720	WELD	43,227.2	10720	0.0	41.0	48.29950429	-103.67156296	2060.589	0	12:00					
10730	WELD	43,268.3	10730	0.0	41.0	48.29950414	-103.67139356	2059.181	0	12:00					
10740	WELD	43,309.3	10740	0.0	41.0	48.29950374	-103.67122435	2058.238	0	12:00					
10750	WELD	43,350.2	10750	0.0	41.0	48.29950266	-103.67105535	2056.823	0	12:00					
10760	WELD	43,391.2	10760	0.0	40.9	48.29950210	-103.67088621	2055.986	0	12:00					
10770	WELD	43,432.1	10770	0.0	41.0	48.29950185	-103.67071738	2053.916	0	12:00					
10780	WELD	43,473.1	10780	0.0	41.0	48.29950214	-103.67054838	2052.238	0	12:00					
10790	WELD	43,514.1	10790	0.0	40.9	48.29950320	-103.67037929	2050.597	0	12:00					
10800	WELD	43,555.0	10800	0.0	41.0	48.29950421	-103.67021117	2046.912	0	12:00					
10810	WELD	43,596.0	10810	0.0	41.1	48.29950393	-103.67004195	2045.648	0	12:00					
10820	WELD	43,637.1	10820	0.0	41.0	48.29950273	-103.66987222	2046.330	0	12:00					
10830	WELD	43,678.0	10830	0.0	40.9	48.29950025	-103.66970304	2046.308	0	12:00					
10840	WELD	43,719.0	10840	0.0	40.9	48.29949582	-103.66953402	2046.141	0	12:00					
10850	WELD	43,759.9	10850	0.0	40.9	48.29948806	-103.66936545	2045.882	0	12:00					
10860	WELD	43,800.8	10860	0.0	40.9	48.29947443	-103.66919785	2044.874	0	12:00					
10870	WELD	43,841.7	10870	0.0	41.0	48.29945975	-103.66903054	2043.516	0	12:00					
10880	WELD	43,882.7	10880	0.0	41.0	48.29944528	-103.66886286	2042.131	0	12:00					
10890	WELD	43,923.6	10890	0.0	41.0	48.29943046	-103.66869547	2039.723	0	12:00					
10900	WELD	43,964.6	10900	0.0	41.0	48.29941565	-103.66852860	2036.142	0	12:00					
10910	WELD	44,005.6	10910	0.0	41.0	48.29940046	-103.66836105	2033.670	0	12:00					
10920	WELD	44,046.6	10920	0.0	41.0	48.29938478	-103.66819384	2030.851	0	12:00					
10930	WELD	44,087.6	10930	0.0	41.1	48.29936955	-103.66802686	2027.048	0	12:00					
10940	WELD	44,128.7	10940	0.0	41.0	48.29936006	-103.66785862	2024.148	0	12:00					
10950	WELD	44,169.7	10950	0.0	40.7	48.29935707	-103.66768942	2024.427	0	12:00					
10960	WELD	44,210.4	10960	0.0	37.1	48.29935577	-103.66752134	2026.383	0	12:00					
10970	WELD	44,247.5	10970	0.0	40.6	48.29935441	-103.66736797	2025.774	0	12:00					
10980	WELD	44,288.1	10980	0.0	40.8	48.29935244	-103.66720031	2026.736	0	12:00					
10990	WELD	44,328.9	10990	0.0	41.0	48.29935138	-103.66703198	2027.237	0	12:00					
11000	WELD	44,369.9	11000	0.0	40.9	48.29935098	-103.66686272	2029.540	0	12:00					

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)
11010	WELD	44,410.8	11010	0.0	40.9	48.29935020	-103.66669399	2031.666	0	12:00					
11020	WELD	44,451.7	11020	0.0	41.0	48.29934904	-103.66652500	2033.092	0	12:00					
11030	WELD	44,492.7	11030	0.0	41.0	48.29934790	-103.66635543	2033.568	0	12:00					
11040	WELD	44,533.7	11040	0.0	41.0	48.29934727	-103.66618614	2033.745	0	12:00					
11050	WELD	44,574.7	11050	0.0	40.9	48.29934600	-103.66601690	2032.654	0	12:00					
11060	WELD	44,615.6	11060	0.0	40.9	48.29934400	-103.66584823	2030.684	0	12:00					
11070	WELD	44,656.6	11070	0.0	40.9	48.29934230	-103.66567948	2028.803	0	12:00					
11080	WELD	44,697.5	11080	0.0	41.0	48.29934107	-103.66551109	2032.056	0	12:00					
11090	WELD	44,738.4	11090	0.0	41.0	48.29934035	-103.66534185	2033.283	0	12:00					
11100	WELD	44,779.4	11100	0.0	40.9	48.29934006	-103.66517274	2032.019	0	12:00					
11110	WELD	44,820.3	11110	0.0	41.0	48.29933997	-103.66500409	2029.640	0	12:00					
11120	WELD	44,861.3	11120	0.0	41.0	48.29933994	-103.66483479	2028.996	0	12:00					
11130	WELD	44,902.4	11130	0.0	41.0	48.29933943	-103.66466544	2028.168	0	12:00					
11140	WELD	44,943.4	11140	0.0	49.2	48.29933963	-103.66449634	2026.023	0	12:00					
11150	WELD	44,992.6	11150	0.0	49.1	48.29934019	-103.66429349	2023.784	0	12:00					
11160	WELD	45,041.7	11160	0.0	48.8	48.29934039	-103.66409077	2022.009	0	12:00					
11170	WELD	45,090.5	11170	0.0	12.1	48.29934173	-103.66388961	2019.417	0	12:00					
11180	WELD	45,102.5	11180	0.0	45.3	48.29934180	-103.66384003	2018.189	0	12:00					
10000054	AGM 080 -- Han #8607	45,145.1	11180	42.6	2.7	48.29933722	-103.66366246	2013.635	0	12:00					
11190	WELD	45,147.8	11190	0.0	49.1	48.29933687	-103.66365442	2013.465	0	12:00					
11200	WELD	45,196.9	11200	0.0	41.0	48.29932931	-103.66345316	2008.733	0	12:00					
11210	WELD	45,237.9	11210	0.0	40.9	48.29933006	-103.66328562	2003.408	0	12:00					
11220	WELD	45,278.8	11220	0.0	41.0	48.29933189	-103.66312222	1993.371	0	12:00					
11230	WELD	45,319.8	11230	0.0	41.0	48.29933144	-103.66296265	1979.964	0	12:00					
11240	WELD	45,360.8	11240	0.0	41.0	48.29933087	-103.66280169	1967.538	0	12:00					
11250	WELD	45,401.8	11250	0.0	40.9	48.29933103	-103.66263453	1962.270	0	12:00					
11260	WELD	45,442.8	11260	0.0	40.9	48.29933269	-103.66246568	1960.679	0	12:00					
11270	WELD	45,483.7	11270	0.0	40.8	48.29933335	-103.66229724	1958.638	0	12:00					
11280	WELD	45,524.5	11280	0.0	40.8	48.29933322	-103.66212885	1956.921	0	12:00					
11290	WELD	45,565.3	11290	0.0	30.2	48.29933184	-103.66196036	1956.306	0	12:00					
11300	WELD	45,595.6	11300	0.0	48.6	48.29933023	-103.66183549	1956.405	0	12:00					
11310	WELD	45,644.2	11310	0.0	49.3	48.29932948	-103.66163470	1956.086	0	12:00					
11320	WELD	45,693.5	11320	0.0	49.2	48.29933004	-103.66143118	1956.030	0	12:00					
11330	WELD	45,742.7	11330	0.0	49.2	48.29933049	-103.66122799	1956.216	0	12:00					
11340	WELD	45,791.9	11340	0.0	49.2	48.29933024	-103.66102480	1956.006	0	12:00					
11350	WELD	45,841.1	11350	0.0	49.0	48.29932962	-103.66082165	1956.250	0	12:00					
11360	WELD	45,890.1	11360	0.0	49.2	48.29932844	-103.66061938	1955.470	0	12:00					

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)
11370	WELD	45,939.3	11370	0.0	48.9	48.29932711	-103.66041621	1954.961	0	12:00					
11380	WELD	45,988.2	11380	0.0	49.3	48.29932561	-103.66021432	1954.767	0	12:00					
11390	WELD	46,037.5	11390	0.0	49.1	48.29932503	-103.66001085	1954.632	0	12:00					
11400	WELD	46,086.7	11400	0.0	48.7	48.29932526	-103.65980794	1955.031	0	12:00					
11410	WELD	46,135.4	11410	0.0	47.1	48.29932595	-103.65960680	1954.344	0	12:00					
40000016	Metal Loss - INTERNAL	46,146.4	11410	11.0	36.1	48.29932661	-103.65956146	1953.963	328	10:45	8%	0.64	0.57	1760	100%
11420	WELD	46,182.5	11420	0.0	28.6	48.29932910	-103.65941246	1953.072	0	12:00					
11430	WELD	46,211.1	11430	0.0	48.4	48.29933043	-103.65929442	1952.626	0	12:00					
11000032	WT CHANGE	46,259.5	11430	0.0	0.0	48.29932751	-103.65909514	1950.243	0	12:00		0.322	52000	0.72	
11440	WELD	46,259.5	11440	0.0	41.7	48.29932751	-103.65909506	1950.241	0	12:00					
11450	WELD	46,301.2	11450	0.0	41.9	48.29932568	-103.65892458	1944.553	0	12:00					
11460	WELD	46,343.1	11460	0.0	41.9	48.29932430	-103.65875299	1939.739	0	12:00					
11470	WELD	46,385.0	11470	0.0	41.9	48.29932355	-103.65858024	1938.518	0	12:00					
11480	WELD	46,426.9	11480	0.0	42.0	48.29932109	-103.65840759	1940.614	0	12:00					
11490	WELD	46,468.8	11490	0.0	42.0	48.29932114	-103.65823534	1945.422	0	12:00					
11500	WELD	46,510.8	11500	0.0	41.9	48.29932257	-103.65806329	1950.832	0	12:00					
11510	WELD	46,552.7	11510	0.0	42.0	48.29932332	-103.65789141	1956.178	0	12:00					
11520	WELD	46,594.7	11520	0.0	42.0	48.29932470	-103.65771931	1961.420	0	12:00					
11530	WELD	46,636.7	11530	0.0	15.2	48.29932421	-103.65754714	1966.383	0	12:00					
11000033	WT CHANGE	46,651.8	11530	0.0	0.0	48.29932326	-103.65748487	1967.911	0	12:00		0.188	52000	0.72	
11540	WELD	46,651.8	11540	0.0	49.0	48.29932326	-103.65748475	1967.913	0	12:00					
11550	WELD	46,700.9	11550	0.0	49.2	48.29932005	-103.65728252	1970.306	0	12:00					
11560	WELD	46,750.1	11560	0.0	49.2	48.29931978	-103.65707938	1971.248	0	12:00					
11570	WELD	46,799.3	11570	0.0	49.0	48.29931984	-103.65687618	1969.999	0	12:00					
11580	WELD	46,848.4	11580	0.0	49.0	48.29932122	-103.65667377	1969.229	0	12:00					
11590	WELD	46,897.4	11590	0.0	48.9	48.29933936	-103.65647389	1968.207	0	12:00					
20000022	Seam Variation	46,917.7	11590	20.3	28.6	48.29935105	-103.65639173	1967.445	240	8:00	-	0.82	0.57		
11600	WELD	46,946.3	11600	0.0	49.1	48.29936806	-103.65627671	1966.650	0	12:00					
11610	WELD	46,995.4	11610	0.0	49.2	48.29939913	-103.65607970	1964.017	0	12:00					
11620	WELD	47,044.6	11620	0.0	49.3	48.29943142	-103.65588463	1957.590	0	12:00					
11630	WELD	47,093.8	11630	0.0	49.1	48.29946394	-103.65568883	1951.845	0	12:00					
11640	WELD	47,142.9	11640	0.0	49.0	48.29949523	-103.65549210	1950.007	0	12:00					
11650	WELD	47,191.9	11650	0.0	48.9	48.29952614	-103.65529504	1949.938	0	12:00					
11660	WELD	47,240.9	11660	0.0	48.7	48.29955606	-103.65509805	1949.404	0	12:00					
11670	WELD	47,289.6	11670	0.0	49.1	48.29958604	-103.65490191	1949.649	0	12:00					
11680	WELD	47,338.7	11680	0.0	49.1	48.29961681	-103.65470448	1949.006	0	12:00					
10000055	Bend left - 14 deg., 99D	47,364.9	11680	18.1	31.0	48.29963636	-103.65460052	1948.350	0	12:00					

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)
11690	WELD	47,387.8	11690	0.0	49.1	48.29966606	-103.65451735	1948.164	0	12:00					
11700	WELD	47,436.9	11700	0.0	49.1	48.29974334	-103.65435100	1947.836	0	12:00					
11710	WELD	47,486.0	11710	0.0	49.3	48.29982286	-103.65418719	1949.602	0	12:00					
11720	WELD	47,535.3	11720	0.0	49.2	48.29990337	-103.65402473	1955.215	0	12:00					
11730	WELD	47,584.5	11730	0.0	49.3	48.29998435	-103.65386235	1958.403	0	12:00					
11740	WELD	47,633.8	11740	0.0	49.2	48.30006576	-103.65369958	1958.538	0	12:00					
11750	WELD	47,683.0	11750	0.0	49.2	48.30014757	-103.65353763	1957.626	0	12:00					
11760	WELD	47,732.2	11760	0.0	49.2	48.30022965	-103.65337580	1956.719	0	12:00					
11770	WELD	47,781.4	11770	0.0	49.3	48.30030957	-103.65321202	1957.149	0	12:00					
11780	WELD	47,830.7	11780	0.0	49.1	48.30038496	-103.65304283	1956.233	0	12:00					
11790	WELD	47,879.8	11790	0.0	48.9	48.30044822	-103.65286380	1955.866	0	12:00					
11800	WELD	47,928.6	11800	0.0	49.1	48.30050904	-103.65268388	1955.591	0	12:00					
11810	WELD	47,977.7	11810	0.0	49.2	48.30057112	-103.65250373	1954.572	0	12:00					
11820	WELD	48,027.0	11820	0.0	49.1	48.30063331	-103.65232343	1952.662	0	12:00					
11830	WELD	48,076.0	11830	0.0	44.3	48.30069519	-103.65214333	1951.757	0	12:00					
11840	WELD	48,120.4	11840	0.0	49.1	48.30075102	-103.65198053	1952.083	0	12:00					
11850	WELD	48,169.5	11850	0.0	49.0	48.30081328	-103.65180057	1951.701	0	12:00					
11860	WELD	48,218.5	11860	0.0	49.2	48.30087495	-103.65162070	1950.997	0	12:00					
11870	WELD	48,267.7	11870	0.0	49.2	48.30093596	-103.65143907	1951.369	0	12:00					
11880	WELD	48,316.9	11880	0.0	49.3	48.30099551	-103.65125656	1952.866	0	12:00					
11890	WELD	48,366.2	11890	0.0	49.1	48.30105605	-103.65107438	1953.342	0	12:00					
11900	WELD	48,415.4	11900	0.0	49.0	48.30111773	-103.65089412	1956.441	0	12:00					
11910	WELD	48,464.4	11910	0.0	49.1	48.30117987	-103.65071543	1961.569	0	12:00					
11920	WELD	48,513.5	11920	0.0	49.3	48.30124295	-103.65053626	1963.526	0	12:00					
11930	WELD	48,562.8	11930	0.0	49.3	48.30130632	-103.65035610	1964.571	0	12:00					
11940	WELD	48,612.2	11940	0.0	20.2	48.30137020	-103.65017627	1964.652	0	12:00					
11950	WELD	48,632.3	11950	0.0	1.0	48.30139629	-103.65010278	1965.411	0	12:00					
10000056	Bend right - 30 deg., 3D	48,632.8	11950	0.0	0.9	48.30139670	-103.65010093	1965.444	0	12:00					
11960	WELD	48,633.3	11960	0.0	23.8	48.30139690	-103.65009896	1965.479	0	12:00					
11970	WELD	48,657.1	11970	0.0	48.9	48.30139643	-103.65000113	1967.552	0	12:00					
11980	WELD	48,706.0	11980	0.0	49.2	48.30139464	-103.64979952	1969.735	0	12:00					
11990	WELD	48,755.1	11990	0.0	49.1	48.30139325	-103.64959656	1969.945	0	12:00					
12000	WELD	48,804.2	12000	0.0	49.3	48.30139144	-103.64939375	1970.655	0	12:00					
12010	WELD	48,853.5	12010	0.0	49.2	48.30138999	-103.64919044	1972.628	0	12:00					
12020	WELD	48,902.7	12020	0.0	49.2	48.30138998	-103.64898749	1975.147	0	12:00					
12030	WELD	48,951.9	12030	0.0	49.4	48.30139086	-103.64878452	1976.383	0	12:00					
12040	WELD	49,001.2	12040	0.0	49.3	48.30139228	-103.64858068	1977.181	0	12:00					

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)
12050	WELD	49,050.5	12050	0.0	22.7	48.30139513	-103.64837736	1975.823	0	12:00					
12060	WELD	49,073.2	12060	0.0	48.9	48.30139685	-103.64828367	1974.922	0	12:00					
12070	WELD	49,122.1	12070	0.0	49.0	48.30140095	-103.64808218	1973.356	0	12:00					
12080	WELD	49,171.1	12080	0.0	18.5	48.30140400	-103.64787991	1973.458	0	12:00					
12090	WELD	49,189.6	12090	0.0	49.0	48.30140514	-103.64780346	1973.034	0	12:00					
12100	WELD	49,238.6	12100	0.0	49.1	48.30140733	-103.64760144	1971.361	0	12:00					
12110	WELD	49,287.7	12110	0.0	49.3	48.30140903	-103.64739876	1969.894	0	12:00					
12120	WELD	49,337.0	12120	0.0	49.1	48.30141161	-103.64719554	1968.910	0	12:00					
12130	WELD	49,386.1	12130	0.0	49.3	48.30141565	-103.64699280	1968.099	0	12:00					
12140	WELD	49,435.4	12140	0.0	49.3	48.30141950	-103.64678953	1966.499	0	12:00					
12150	WELD	49,484.7	12150	0.0	49.3	48.30142477	-103.64658678	1962.568	0	12:00					
12160	WELD	49,534.0	12160	0.0	49.0	48.30142853	-103.64638344	1961.653	0	12:00					
12170	WELD	49,583.0	12170	0.0	49.2	48.30143181	-103.64618116	1961.943	0	12:00					
12180	WELD	49,632.3	12180	0.0	49.2	48.30143491	-103.64597789	1962.955	0	12:00					
12190	WELD	49,681.5	12190	0.0	49.2	48.30143741	-103.64577478	1963.660	0	12:00					
12200	WELD	49,730.7	12200	0.0	49.2	48.30143858	-103.64557166	1963.733	0	12:00					
12210	WELD	49,779.8	12210	0.0	48.9	48.30144036	-103.64536872	1964.749	0	12:00					
12220	WELD	49,828.7	12220	0.0	49.2	48.30144365	-103.64516695	1965.292	0	12:00					
12230	WELD	49,877.9	12230	0.0	48.9	48.30144753	-103.64496393	1966.555	0	12:00					
12240	WELD	49,926.8	12240	0.0	49.2	48.30145122	-103.64476191	1966.810	0	12:00					
12250	WELD	49,976.1	12250	0.0	49.0	48.30145437	-103.64455884	1965.978	0	12:00					
12260	WELD	50,025.1	12260	0.0	49.1	48.30145846	-103.64435643	1965.241	0	12:00					
12270	WELD	50,074.2	12270	0.0	49.0	48.30146326	-103.64415410	1963.398	0	12:00					
12280	WELD	50,123.2	12280	0.0	48.9	48.30146790	-103.64395170	1963.430	0	12:00					
12290	WELD	50,172.2	12290	0.0	49.3	48.30147258	-103.64374975	1963.452	0	12:00					
12300	WELD	50,221.4	12300	0.0	48.5	48.30147691	-103.64354653	1963.053	0	12:00					
12310	WELD	50,270.0	12310	0.0	40.7	48.30148064	-103.64334621	1962.767	0	12:00					
12320	WELD	50,310.7	12320	0.0	49.3	48.30148230	-103.64317812	1961.986	0	12:00					
12330	WELD	50,359.9	12330	0.0	49.3	48.30148555	-103.64297498	1960.435	0	12:00					
12340	WELD	50,409.2	12340	0.0	48.0	48.30148994	-103.64277156	1959.945	0	12:00					
12350	WELD	50,457.3	12350	0.0	48.2	48.30149344	-103.64257358	1962.144	0	12:00					
12360	WELD	50,505.5	12360	0.0	49.2	48.30149582	-103.64237464	1963.334	0	12:00					
12370	WELD	50,554.7	12370	0.0	49.2	48.30149894	-103.64217142	1962.552	0	12:00					
12380	WELD	50,603.9	12380	0.0	47.7	48.30150094	-103.64196829	1962.530	0	12:00					
12390	WELD	50,651.6	12390	0.0	49.0	48.30150367	-103.64177156	1962.632	0	12:00					
12400	WELD	50,700.5	12400	0.0	49.1	48.30150862	-103.64156958	1961.634	0	12:00					
12410	WELD	50,749.7	12410	0.0	48.9	48.30151296	-103.64136686	1962.356	0	12:00					

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)
12420	WELD	50,798.6	12420	0.0	49.0	48.30151734	-103.64116518	1964.002	0	12:00					
12430	WELD	50,847.6	12430	0.0	43.1	48.30151866	-103.64096288	1965.555	0	12:00					
10000057	Bend right - 16 deg., 120D	50,866.1	12430	7.0	36.1	48.30151538	-103.64088670	1966.273	0	12:00					
12440	WELD	50,890.6	12440	0.0	49.1	48.30149819	-103.64078884	1967.344	0	12:00					
12450	WELD	50,939.8	12450	0.0	49.1	48.30145884	-103.64059474	1966.783	0	12:00					
12460	WELD	50,988.9	12460	0.0	49.3	48.30141754	-103.64040169	1965.976	0	12:00					
12470	WELD	51,038.2	12470	0.0	49.3	48.30137794	-103.64020705	1965.236	0	12:00					
12480	WELD	51,087.5	12480	0.0	49.3	48.30133760	-103.64001277	1965.587	0	12:00					
12490	WELD	51,136.7	12490	0.0	49.0	48.30129700	-103.63981874	1965.283	0	12:00					
12500	WELD	51,185.7	12500	0.0	49.2	48.30125629	-103.63962589	1965.356	0	12:00					
12510	WELD	51,234.9	12510	0.0	49.1	48.30121506	-103.63943259	1965.789	0	12:00					
12520	WELD	51,284.0	12520	0.0	48.7	48.30117384	-103.63923943	1966.615	0	12:00					
12530	WELD	51,332.6	12530	0.0	49.0	48.30113295	-103.63904804	1968.001	0	12:00					
12540	WELD	51,381.6	12540	0.0	48.1	48.30109090	-103.63885581	1968.054	0	12:00					
12550	WELD	51,429.8	12550	0.0	49.2	48.30104977	-103.63866689	1967.496	0	12:00					
12560	WELD	51,479.0	12560	0.0	48.4	48.30100971	-103.63847270	1966.635	0	12:00					
10000058	Bend left - 12 deg., 116D	51,516.7	12560	29.5	18.9	48.30098423	-103.63832216	1965.934	0	12:00					
12570	WELD	51,527.5	12570	0.0	48.9	48.30098170	-103.63827780	1965.925	0	12:00					
12580	WELD	51,576.3	12580	0.0	49.2	48.30097315	-103.63807641	1965.092	0	12:00					
12590	WELD	51,625.5	12590	0.0	44.5	48.30096490	-103.63787366	1964.371	0	12:00					
12600	WELD	51,670.1	12600	0.0	49.3	48.30095660	-103.63769039	1963.765	0	12:00					
12610	WELD	51,719.4	12610	0.0	48.9	48.30094745	-103.63748731	1962.852	0	12:00					
12620	WELD	51,768.3	12620	0.0	49.2	48.30093896	-103.63728610	1959.932	0	12:00					
12630	WELD	51,817.5	12630	0.0	45.6	48.30093145	-103.63708378	1956.901	0	12:00					
40000017	Metal Loss - INTERNAL	51,825.5	12630	8.0	37.5	48.30093037	-103.63705065	1956.420	105	3:30	11%	0.60	0.45	1760	100%
12640	WELD	51,863.1	12640	0.0	48.7	48.30092465	-103.63689626	1954.521	0	12:00					
12650	WELD	51,911.8	12650	0.0	49.1	48.30091639	-103.63669571	1952.182	0	12:00					
12660	WELD	51,960.9	12660	0.0	49.3	48.30090791	-103.63649366	1950.459	0	12:00					
12670	WELD	52,010.2	12670	0.0	49.2	48.30089943	-103.63629075	1948.449	0	12:00					
12680	WELD	52,059.4	12680	0.0	49.1	48.30089108	-103.63608799	1947.981	0	12:00					
12690	WELD	52,108.4	12690	0.0	49.0	48.30088299	-103.63588584	1949.814	0	12:00					
12700	WELD	52,157.5	12700	0.0	49.0	48.30087452	-103.63568374	1950.778	0	12:00					
12710	WELD	52,206.5	12710	0.0	49.1	48.30086596	-103.63548188	1950.563	0	12:00					
12720	WELD	52,255.6	12720	0.0	49.4	48.30085848	-103.63527953	1949.935	0	12:00					
12730	WELD	52,304.9	12730	0.0	49.3	48.30085154	-103.63507600	1949.404	0	12:00					
12740	WELD	52,354.2	12740	0.0	49.1	48.30084626	-103.63487282	1948.997	0	12:00					

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)
12750	WELD	52,403.3	12750	0.0	37.6	48.30084019	-103.63467023	1949.054	0	12:00					
12760	WELD	52,440.9	12760	0.0	0.8	48.30083320	-103.63451539	1948.061	0	12:00					
10000059	Bend right - 25 deg., 3D	52,441.3	12760	0.0	0.8	48.30083299	-103.63451373	1948.059	0	12:00					
12770	WELD	52,441.8	12770	0.0	10.9	48.30083255	-103.63451214	1948.067	0	12:00					
12780	WELD	52,452.7	12780	0.0	39.6	48.30081911	-103.63447176	1948.191	0	12:00					
12790	WELD	52,492.3	12790	0.0	49.1	48.30077037	-103.63432566	1947.328	0	12:00					
12800	WELD	52,541.4	12800	0.0	49.1	48.30070830	-103.63414536	1947.950	0	12:00					
12810	WELD	52,590.5	12810	0.0	49.1	48.30064606	-103.63396535	1948.597	0	12:00					
12820	WELD	52,639.6	12820	0.0	47.8	48.30058377	-103.63378554	1949.526	0	12:00					
12830	WELD	52,687.4	12830	0.0	49.0	48.30052394	-103.63360951	1950.118	0	12:00					
12840	WELD	52,736.4	12840	0.0	48.9	48.30046223	-103.63342947	1949.948	0	12:00					
12850	WELD	52,785.3	12850	0.0	49.2	48.30039993	-103.63325075	1949.266	0	12:00					
12860	WELD	52,834.5	12860	0.0	49.2	48.30033726	-103.63307064	1948.058	0	12:00					
12870	WELD	52,883.7	12870	0.0	49.1	48.30027475	-103.63289057	1946.834	0	12:00					
12880	WELD	52,932.8	12880	0.0	49.1	48.30021185	-103.63271105	1945.931	0	12:00					
12890	WELD	52,981.9	12890	0.0	49.0	48.30014835	-103.63253196	1945.614	0	12:00					
12900	WELD	53,031.0	12900	0.0	49.0	48.30008487	-103.63235326	1944.454	0	12:00					
12910	WELD	53,080.0	12910	0.0	49.1	48.30002305	-103.63217370	1942.716	0	12:00					
12920	WELD	53,129.1	12920	0.0	49.2	48.29996118	-103.63199396	1939.571	0	12:00					
12930	WELD	53,178.3	12930	0.0	49.3	48.29989778	-103.63181472	1936.914	0	12:00					
12940	WELD	53,227.7	12940	0.0	49.2	48.29983568	-103.63163363	1935.877	0	12:00					
12950	WELD	53,276.9	12950	0.0	49.3	48.29977306	-103.63145333	1935.641	0	12:00					
13000000	GAIN	53,298.2	12950	21.2	28.1	48.29974522	-103.63137606	1934.761	159	5:15					
12960	WELD	53,326.2	12960	0.0	49.1	48.29970881	-103.63127411	1933.872	0	12:00					
12970	WELD	53,375.3	12970	0.0	46.1	48.29964590	-103.63109487	1932.810	0	12:00					
12980	WELD	53,421.4	12980	0.0	49.2	48.29958754	-103.63092596	1931.952	0	12:00					
12990	WELD	53,470.6	12990	0.0	49.2	48.29952519	-103.63074547	1931.427	0	12:00					
13000	WELD	53,519.8	13000	0.0	46.7	48.29946314	-103.63056507	1931.276	0	12:00					
40000018	Metal Loss - EXTERNAL	53,524.2	13000	4.4	42.3	48.29945745	-103.63054872	1931.193	74	2:15	8%	1.85	1.37	1760	100%
13010	WELD	53,566.5	13010	0.0	49.3	48.29940311	-103.63039456	1930.750	0	12:00					
13020	WELD	53,615.7	13020	0.0	49.3	48.29934057	-103.63021411	1930.625	0	12:00					
13030	WELD	53,665.0	13030	0.0	49.2	48.29927847	-103.63003311	1930.723	0	12:00					
13040	WELD	53,714.2	13040	0.0	49.2	48.29921701	-103.62985237	1929.290	0	12:00					
13050	WELD	53,763.4	13050	0.0	48.5	48.29915441	-103.62967232	1929.389	0	12:00					
10000060	AGM 090 -- Han #8776	53,796.2	13050	32.9	15.6	48.29911441	-103.62955046	1929.233	0	12:00					
13060	WELD	53,811.9	13060	0.0	47.9	48.29909559	-103.62949244	1928.757	0	12:00					
13070	WELD	53,859.8	13070	0.0	48.9	48.29903426	-103.62931737	1927.310	0	12:00					

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)
13080	WELD	53,908.8	13080	0.0	47.5	48.29897109	-103.62913925	1925.774	0	12:00					
13090	WELD	53,956.3	13090	0.0	48.9	48.29890983	-103.62896600	1924.843	0	12:00					
13100	WELD	54,005.2	13100	0.0	49.2	48.29884620	-103.62878808	1924.643	0	12:00					
13110	WELD	54,054.5	13110	0.0	48.6	48.29878361	-103.62860789	1923.897	0	12:00					
13120	WELD	54,103.1	13120	0.0	49.3	48.29872193	-103.62843002	1923.039	0	12:00					
13130	WELD	54,152.3	13130	0.0	48.3	48.29865922	-103.62824979	1922.190	0	12:00					
13140	WELD	54,200.7	13140	0.0	49.1	48.29859823	-103.62807260	1921.492	0	12:00					
13150	WELD	54,249.8	13150	0.0	49.3	48.29853604	-103.62789263	1921.430	0	12:00					
13160	WELD	54,299.1	13160	0.0	49.0	48.29847272	-103.62771248	1921.076	0	12:00					
13170	WELD	54,348.1	13170	0.0	48.9	48.29841029	-103.62753326	1920.666	0	12:00					
13180	WELD	54,397.0	13180	0.0	48.7	48.29834752	-103.62735472	1920.671	0	12:00					
13190	WELD	54,445.7	13190	0.0	25.3	48.29828321	-103.62717852	1920.505	0	12:00					
13200	WELD	54,471.0	13200	0.0	0.6	48.29824901	-103.62708784	1919.815	0	12:00					
10000061	Bend left - 24 deg., 1.5D	54,471.3	13200	0.0	0.6	48.29824875	-103.62708671	1919.805	0	12:00					
13210	WELD	54,471.6	13210	0.0	6.0	48.29824849	-103.62708555	1919.796	0	12:00					
11000034	WT CHANGE	54,477.5	13210	0.0	0.0	48.29824611	-103.62706114	1919.649	0	12:00		0.322	52000	0.72	
13220	WELD	54,477.6	13220	0.0	1.6	48.29824610	-103.62706106	1919.648	0	12:00					
10000062	Bend left - 45 deg., 3D	54,478.3	13220	0.0	1.5	48.29824634	-103.62705791	1919.618	0	12:00					
13230	WELD	54,479.1	13230	0.0	10.7	48.29824729	-103.62705503	1919.588	0	12:00					
13240	WELD	54,489.8	13240	0.0	42.0	48.29826487	-103.62701960	1919.250	0	12:00					
13250	WELD	54,531.9	13250	0.0	41.9	48.29833080	-103.62687729	1917.584	0	12:00					
13260	WELD	54,573.8	13260	0.0	41.9	48.29839804	-103.62673670	1917.103	0	12:00					
13270	WELD	54,615.7	13270	0.0	41.9	48.29846360	-103.62659456	1918.410	0	12:00					
13280	WELD	54,657.6	13280	0.0	42.0	48.29853116	-103.62645453	1920.453	0	12:00					
13290	WELD	54,699.6	13290	0.0	41.9	48.29859852	-103.62631396	1921.990	0	12:00					
13300	WELD	54,741.5	13300	0.0	42.0	48.29866409	-103.62617176	1923.944	0	12:00					
13310	WELD	54,783.5	13310	0.0	41.9	48.29872749	-103.62602707	1926.021	0	12:00					
13320	WELD	54,825.4	13320	0.0	42.0	48.29879093	-103.62588273	1928.039	0	12:00					
13330	WELD	54,867.3	13330	0.0	42.0	48.29885703	-103.62574100	1930.479	0	12:00					
13340	WELD	54,909.3	13340	0.0	42.0	48.29892340	-103.62559969	1933.634	0	12:00					
13350	WELD	54,951.3	13350	0.0	41.9	48.29898679	-103.62545537	1937.045	0	12:00					
13360	WELD	54,993.2	13360	0.0	41.9	48.29904736	-103.62530873	1940.461	0	12:00					
13370	WELD	55,035.2	13370	0.0	41.9	48.29910968	-103.62516363	1943.871	0	12:00					
13380	WELD	55,077.1	13380	0.0	31.5	48.29917335	-103.62502072	1948.789	0	12:00					
13390	WELD	55,108.6	13390	0.0	1.2	48.29922096	-103.62491306	1952.880	0	12:00					
10000063	Bend right - 35 deg., 3D	55,109.2	13390	0.1	1.2	48.29922167	-103.62491081	1952.931	0	12:00					
11000035	WT CHANGE	55,109.8	13390	0.0	0.0	48.29922197	-103.62490831	1952.959	0	12:00		0.188	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)
13400	WELD	55,109.8	13400	0.0	48.8	48.29922197	-103.62490823	1952.960	0	12:00					
13410	WELD	55,158.7	13410	0.0	29.3	48.29921936	-103.62470671	1954.100	0	12:00					
13420	WELD	55,188.0	13420	0.0	48.7	48.29921881	-103.62458588	1956.105	0	12:00					
13430	WELD	55,236.7	13430	0.0	49.3	48.29921931	-103.62438526	1959.694	0	12:00					
13440	WELD	55,286.0	13440	0.0	49.0	48.29921958	-103.62418193	1960.562	0	12:00					
13450	WELD	55,335.0	13450	0.0	49.2	48.29922075	-103.62397998	1962.197	0	12:00					
13460	WELD	55,384.2	13460	0.0	49.1	48.29922203	-103.62377777	1966.745	0	12:00					
13470	WELD	55,433.2	13470	0.0	47.2	48.29922358	-103.62357541	1967.019	0	12:00					
13480	WELD	55,480.4	13480	0.0	47.1	48.29922379	-103.62338091	1965.246	0	12:00					
11000036	WT CHANGE	55,527.5	13480	0.0	0.0	48.29922154	-103.62318694	1964.157	0	12:00		0.322	52000	0.72	
13490	WELD	55,527.5	13490	0.0	41.6	48.29922154	-103.62318681	1964.155	0	12:00					
13500	WELD	55,569.1	13500	0.0	41.9	48.29921999	-103.62301586	1960.853	0	12:00					
13510	WELD	55,611.0	13510	0.0	42.0	48.29922254	-103.62284550	1954.197	0	12:00					
13520	WELD	55,653.0	13520	0.0	42.0	48.29922363	-103.62267495	1947.043	0	12:00					
13530	WELD	55,695.0	13530	0.0	42.0	48.29922480	-103.62250407	1940.438	0	12:00					
13540	WELD	55,736.9	13540	0.0	42.0	48.29922690	-103.62233151	1937.332	0	12:00					
13550	WELD	55,778.9	13550	0.0	42.0	48.29922598	-103.62215831	1937.014	0	12:00					
13560	WELD	55,820.9	13560	0.0	42.0	48.29922991	-103.62198571	1940.117	0	12:00					
13570	WELD	55,862.9	13570	0.0	42.0	48.29922838	-103.62181492	1947.560	0	12:00					
13580	WELD	55,905.0	13580	0.0	42.0	48.29922745	-103.62164468	1955.870	0	12:00					
13590	WELD	55,946.9	13590	0.0	6.4	48.29923328	-103.62147285	1960.906	0	12:00					
11000037	WT CHANGE	55,953.3	13590	0.0	0.0	48.29923427	-103.62144653	1961.317	0	12:00		0.188	52000	0.72	
13600	WELD	55,953.4	13600	0.0	24.7	48.29923427	-103.62144645	1961.318	0	12:00					
13610	WELD	55,978.0	13610	0.0	48.9	48.29923682	-103.62134483	1961.716	0	12:00					
13620	WELD	56,026.9	13620	0.0	49.2	48.29923570	-103.62114299	1961.834	0	12:00					
13630	WELD	56,076.2	13630	0.0	49.2	48.29923560	-103.62093981	1962.496	0	12:00					
13640	WELD	56,125.4	13640	0.0	49.0	48.29923592	-103.62073672	1963.233	0	12:00					
13650	WELD	56,174.4	13650	0.0	49.1	48.29923606	-103.62053462	1963.169	0	12:00					
13660	WELD	56,223.5	13660	0.0	49.0	48.29923778	-103.62033213	1962.168	0	12:00					
13670	WELD	56,272.5	13670	0.0	49.3	48.29923939	-103.62013036	1959.368	0	12:00					
13680	WELD	56,321.8	13680	0.0	49.3	48.29924078	-103.61992737	1956.367	0	12:00					
13690	WELD	56,371.1	13690	0.0	47.4	48.29924175	-103.61972415	1954.161	0	12:00					
13700	WELD	56,418.4	13700	0.0	49.1	48.29924279	-103.61952889	1952.320	0	12:00					
13710	WELD	56,467.5	13710	0.0	49.2	48.29924383	-103.61932669	1950.099	0	12:00					
13720	WELD	56,516.8	13720	0.0	49.2	48.29924324	-103.61912379	1948.180	0	12:00					
13730	WELD	56,566.0	13730	0.0	49.2	48.29924112	-103.61892087	1946.864	0	12:00					
13740	WELD	56,615.2	13740	0.0	49.1	48.29924056	-103.61871794	1945.453	0	12:00					

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)
13750	WELD	56,664.3	13750	0.0	46.1	48.29924065	-103.61851533	1944.397	0	12:00					
20000025	Seam Variation	56,704.8	13750	40.5	5.6	48.29924012	-103.61834816	1943.509	242	8:00	-	0.59	0.84		
13760	WELD	56,710.4	13760	0.0	49.3	48.29924000	-103.61832498	1943.231	0	12:00					
13770	WELD	56,759.7	13770	0.0	49.2	48.29923900	-103.61812219	1940.214	0	12:00					
13780	WELD	56,808.9	13780	0.0	49.4	48.29923768	-103.61791959	1937.656	0	12:00					
13790	WELD	56,858.2	13790	0.0	49.1	48.29923810	-103.61771610	1935.638	0	12:00					
13800	WELD	56,907.3	13800	0.0	49.1	48.29923826	-103.61751370	1934.789	0	12:00					
13810	WELD	56,956.4	13810	0.0	49.1	48.29923886	-103.61731104	1934.288	0	12:00					
13820	WELD	57,005.5	13820	0.0	49.1	48.29923868	-103.61710845	1934.381	0	12:00					
13830	WELD	57,054.7	13830	0.0	49.0	48.29923710	-103.61690573	1934.525	0	12:00					
13840	WELD	57,103.7	13840	0.0	49.2	48.29923650	-103.61670342	1934.104	0	12:00					
13850	WELD	57,152.9	13850	0.0	49.2	48.29923642	-103.61650052	1933.911	0	12:00					
13860	WELD	57,202.1	13860	0.0	48.8	48.29923742	-103.61629746	1933.408	0	12:00					
13870	WELD	57,250.8	13870	0.0	49.1	48.29923850	-103.61609627	1932.980	0	12:00					
13880	WELD	57,299.9	13880	0.0	44.5	48.29923770	-103.61589382	1933.463	0	12:00					
13890	WELD	57,344.4	13890	0.0	46.6	48.29923726	-103.61571002	1933.793	0	12:00					
13900	WELD	57,391.0	13900	0.0	46.2	48.29923701	-103.61551794	1933.543	0	12:00					
13910	WELD	57,437.2	13910	0.0	49.1	48.29923670	-103.61532728	1933.344	0	12:00					
13920	WELD	57,486.3	13920	0.0	49.2	48.29923589	-103.61512469	1933.336	0	12:00					
13930	WELD	57,535.5	13930	0.0	49.2	48.29923652	-103.61492167	1933.462	0	12:00					
13940	WELD	57,584.7	13940	0.0	44.9	48.29923775	-103.61471864	1934.001	0	12:00					
13950	WELD	57,629.6	13950	0.0	49.2	48.29923802	-103.61453316	1934.518	0	12:00					
13960	WELD	57,678.8	13960	0.0	49.3	48.29923769	-103.61433029	1934.533	0	12:00					
13970	WELD	57,728.1	13970	0.0	49.3	48.29923743	-103.61412705	1935.104	0	12:00					
13980	WELD	57,777.4	13980	0.0	49.3	48.29923745	-103.61392360	1935.282	0	12:00					
13990	WELD	57,826.7	13990	0.0	49.3	48.29923760	-103.61372008	1935.268	0	12:00					
14000	WELD	57,876.0	14000	0.0	49.2	48.29923692	-103.61351670	1934.588	0	12:00					
14010	WELD	57,925.1	14010	0.0	49.3	48.29923531	-103.61331391	1933.905	0	12:00					
14020	WELD	57,974.4	14020	0.0	49.0	48.29923344	-103.61311067	1933.449	0	12:00					
14030	WELD	58,023.4	14030	0.0	49.2	48.29923163	-103.61290857	1933.883	0	12:00					
14040	WELD	58,072.5	14040	0.0	49.1	48.29923006	-103.61270568	1934.758	0	12:00					
14050	WELD	58,121.7	14050	0.0	49.1	48.29922970	-103.61250299	1936.053	0	12:00					
14060	WELD	58,170.8	14060	0.0	49.2	48.29923003	-103.61230055	1937.532	0	12:00					
14070	WELD	58,219.9	14070	0.0	49.1	48.29923016	-103.61209756	1937.635	0	12:00					
14080	WELD	58,269.0	14080	0.0	49.1	48.29922974	-103.61189497	1937.497	0	12:00					
14090	WELD	58,318.2	14090	0.0	49.1	48.29922919	-103.61169231	1937.165	0	12:00					
14100	WELD	58,367.2	14100	0.0	49.1	48.29922961	-103.61148989	1937.205	0	12:00					

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)
14110	WELD	58,416.3	14110	0.0	49.1	48.29922979	-103.61128735	1936.921	0	12:00					
14120	WELD	58,465.4	14120	0.0	49.1	48.29922936	-103.61108463	1936.798	0	12:00					
14130	WELD	58,514.5	14130	0.0	49.0	48.29922864	-103.61088221	1936.714	0	12:00					
14140	WELD	58,563.5	14140	0.0	49.1	48.29922797	-103.61067979	1936.535	0	12:00					
14150	WELD	58,612.6	14150	0.0	48.8	48.29922784	-103.61047733	1936.555	0	12:00					
14160	WELD	58,661.4	14160	0.0	49.0	48.29922907	-103.61027609	1936.406	0	12:00					
14170	WELD	58,710.4	14170	0.0	49.2	48.29923054	-103.61007378	1935.860	0	12:00					
14180	WELD	58,759.6	14180	0.0	49.2	48.29923099	-103.60987073	1934.734	0	12:00					
14190	WELD	58,808.8	14190	0.0	49.2	48.29923071	-103.60966794	1934.233	0	12:00					
14200	WELD	58,858.0	14200	0.0	49.2	48.29923096	-103.60946499	1933.876	0	12:00					
14210	WELD	58,907.2	14210	0.0	48.8	48.29923064	-103.60926199	1933.119	0	12:00					
14220	WELD	58,956.0	14220	0.0	49.1	48.29922942	-103.60906074	1932.203	0	12:00					
14230	WELD	59,005.1	14230	0.0	49.3	48.29922816	-103.60885810	1930.848	0	12:00					
14240	WELD	59,054.4	14240	0.0	49.2	48.29922697	-103.60865487	1929.268	0	12:00					
14250	WELD	59,103.6	14250	0.0	48.8	48.29922524	-103.60845212	1927.184	0	12:00					
40000019	Metal Loss - INTERNAL	59,107.9	14250	4.3	44.4	48.29922505	-103.60843433	1926.895	133	4:15	6%	0.40	0.37	1760	100%
40000020	Metal Loss - INTERNAL	59,108.0	14250	4.4	44.4	48.29922505	-103.60843402	1926.890	163	5:15	6%	0.53	0.54	1760	100%
14260	WELD	59,152.4	14260	0.0	24.4	48.29922465	-103.60825113	1926.374	0	12:00					
11000038	WT CHANGE	59,176.7	14260	0.0	0.0	48.29922564	-103.60815059	1925.353	0	12:00		0.322	52000	0.72	
14270	WELD	59,176.7	14270	0.0	41.9	48.29922564	-103.60815055	1925.353	0	12:00					
14280	WELD	59,218.6	14280	0.0	42.0	48.29922731	-103.60797787	1923.597	0	12:00					
14290	WELD	59,260.6	14290	0.0	41.7	48.29922718	-103.60780487	1921.970	0	12:00					
11000039	WT CHANGE	59,302.3	14290	0.0	0.0	48.29922587	-103.60763285	1921.646	0	12:00		0.188	52000	0.72	
14300	WELD	59,302.3	14300	0.0	48.3	48.29922587	-103.60763277	1921.645	0	12:00					
14310	WELD	59,350.6	14310	0.0	17.1	48.29922283	-103.60743362	1922.207	0	12:00					
14320	WELD	59,367.7	14320	0.0	48.3	48.29922312	-103.60736328	1921.834	0	12:00					
14330	WELD	59,416.0	14330	0.0	49.1	48.29922830	-103.60716431	1920.228	0	12:00					
14340	WELD	59,465.0	14340	0.0	49.2	48.29922940	-103.60696194	1918.612	0	12:00					
14350	WELD	59,514.3	14350	0.0	48.9	48.29922817	-103.60675897	1917.308	0	12:00					
14360	WELD	59,563.2	14360	0.0	49.1	48.29922653	-103.60655718	1915.766	0	12:00					
14370	WELD	59,612.3	14370	0.0	48.9	48.29922562	-103.60635481	1913.967	0	12:00					
14380	WELD	59,661.2	14380	0.0	49.1	48.29922522	-103.60615308	1913.399	0	12:00					
14390	WELD	59,710.3	14390	0.0	46.4	48.29922473	-103.60595048	1913.425	0	12:00					
11000040	WT CHANGE	59,756.7	14390	0.0	0.0	48.29922501	-103.60575905	1912.400	0	12:00		0.322	52000	0.72	
14400	WELD	59,756.7	14400	0.0	41.8	48.29922501	-103.60575897	1912.399	0	12:00					
14410	WELD	59,798.6	14410	0.0	41.9	48.29922464	-103.60558650	1910.576	0	12:00					
14420	WELD	59,840.5	14420	0.0	42.0	48.29922564	-103.60541377	1909.097	0	12:00					

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)
14430	WELD	59,882.4	14430	0.0	35.4	48.29922688	-103.60524063	1908.270	0	12:00					
14440	WELD	59,917.9	14440	0.0	4.2	48.29922598	-103.60509436	1908.508	0	12:00					
11000041	WT CHANGE	59,922.1	14440	0.0	0.0	48.29922573	-103.60507696	1908.383	0	12:00		0.188	52000	0.72	
14450	WELD	59,922.1	14450	0.0	30.6	48.29922573	-103.60507692	1908.382	0	12:00					
14460	WELD	59,952.7	14460	0.0	45.8	48.29922299	-103.60495072	1907.899	0	12:00					
14470	WELD	59,998.5	14470	0.0	48.6	48.29922118	-103.60476172	1907.677	0	12:00					
14480	WELD	60,047.2	14480	0.0	48.9	48.29922369	-103.60456110	1907.322	0	12:00					
14490	WELD	60,096.1	14490	0.0	48.6	48.29922604	-103.60435933	1907.137	0	12:00					
14500	WELD	60,144.7	14500	0.0	44.4	48.29922794	-103.60415874	1906.439	0	12:00					
14510	WELD	60,189.1	14510	0.0	1.6	48.29923147	-103.60397579	1905.574	0	12:00					
10000064	Bend right - 45 deg., 3D	60,189.9	14510	0.0	1.5	48.29923105	-103.60397269	1905.569	0	12:00					
14520	WELD	60,190.7	14520	0.0	11.1	48.29922992	-103.60396987	1905.556	0	12:00					
40000021	Metal Loss - EXTERNAL	60,196.8	14520	6.1	5.0	48.29921887	-103.60395091	1905.379	357	11:45	16%	0.64	0.48	1760	100%
14530	WELD	60,201.7	14530	0.0	23.7	48.29920999	-103.60393540	1905.237	0	12:00					
14540	WELD	60,225.4	14540	0.0	48.2	48.29916770	-103.60386126	1904.675	0	12:00					
14550	WELD	60,273.6	14550	0.0	1.6	48.29908239	-103.60370890	1904.157	0	12:00					
10000065	Bend right - 45 deg., 3D	60,274.3	14550	0.0	1.5	48.29908069	-103.60370714	1904.146	0	12:00					
14560	WELD	60,275.1	14560	0.0	45.0	48.29907863	-103.60370627	1904.125	0	12:00					
14570	WELD	60,320.2	14570	0.0	49.2	48.29895468	-103.60370380	1904.193	0	12:00					
14580	WELD	60,369.3	14580	0.0	27.9	48.29881934	-103.60370400	1904.372	0	12:00					
14590	WELD	60,397.2	14590	0.0	48.9	48.29874252	-103.60370450	1904.977	0	12:00					
14600	WELD	60,446.2	14600	0.0	49.2	48.29860777	-103.60370470	1904.739	0	12:00					
14610	WELD	60,495.4	14610	0.0	49.2	48.29847232	-103.60370490	1904.181	0	12:00					
14620	WELD	60,544.6	14620	0.0	49.3	48.29833684	-103.60370553	1902.594	0	12:00					
14630	WELD	60,593.9	14630	0.0	48.9	48.29820126	-103.60370796	1901.681	0	12:00					
14640	WELD	60,642.8	14640	0.0	48.9	48.29806661	-103.60370980	1900.917	0	12:00					
14650	WELD	60,691.7	14650	0.0	49.2	48.29793186	-103.60370900	1900.154	0	12:00					
14660	WELD	60,741.0	14660	0.0	49.2	48.29779637	-103.60370700	1900.096	0	12:00					
14670	WELD	60,790.1	14670	0.0	49.3	48.29766099	-103.60370560	1900.078	0	12:00					
14680	WELD	60,839.4	14680	0.0	48.5	48.29752533	-103.60370470	1899.836	0	12:00					
14690	WELD	60,887.9	14690	0.0	46.6	48.29739171	-103.60370470	1899.514	0	12:00					
14700	WELD	60,934.5	14700	0.0	49.1	48.29726351	-103.60370396	1899.359	0	12:00					
14710	WELD	60,983.6	14710	0.0	49.1	48.29712830	-103.60370350	1898.670	0	12:00					
14720	WELD	61,032.8	14720	0.0	49.1	48.29699305	-103.60370440	1898.413	0	12:00					
14730	WELD	61,081.8	14730	0.0	49.2	48.29685787	-103.60370444	1898.843	0	12:00					
14740	WELD	61,131.0	14740	0.0	48.2	48.29672248	-103.60370440	1897.862	0	12:00					
14750	WELD	61,179.2	14750	0.0	49.2	48.29658984	-103.60370410	1897.194	0	12:00					

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)
14760	WELD	61,228.4	14760	0.0	49.2	48.29645450	-103.60370430	1897.512	0	12:00					
14770	WELD	61,277.6	14770	0.0	49.3	48.29631893	-103.60370480	1897.486	0	12:00					
14780	WELD	61,326.9	14780	0.0	49.2	48.29618329	-103.60370510	1897.577	0	12:00					
14790	WELD	61,376.1	14790	0.0	49.4	48.29604770	-103.60370580	1897.968	0	12:00					
14800	WELD	61,425.5	14800	0.0	49.3	48.29591174	-103.60370570	1898.314	0	12:00					
14810	WELD	61,474.9	14810	0.0	49.3	48.29577590	-103.60370459	1898.061	0	12:00					
14820	WELD	61,524.2	14820	0.0	38.0	48.29564018	-103.60370360	1897.973	0	12:00					
14830	WELD	61,562.2	14830	0.0	1.2	48.29553545	-103.60370434	1898.403	0	12:00					
10000066	Bend left - 36 deg., 3D	61,562.8	14830	0.0	1.1	48.29553393	-103.60370387	1898.393	0	12:00					
14840	WELD	61,563.4	14840	0.0	21.6	48.29553245	-103.60370293	1898.372	0	12:00					
14850	WELD	61,584.9	14850	0.0	48.7	48.29548247	-103.60365503	1897.501	0	12:00					
10000067	AGM 100 -- Han #8666	61,629.9	14850	45.0	3.7	48.29537786	-103.60355547	1896.674	0	12:00					
14860	WELD	61,633.6	14860	0.0	12.7	48.29536937	-103.60354739	1896.600	0	12:00					
14870	WELD	61,646.3	14870	0.0	0.9	48.29534018	-103.60351906	1896.118	0	12:00					
10000068	Bend left - 25 deg., 3D	61,646.7	14870	0.0	0.8	48.29533931	-103.60351787	1896.112	0	12:00					
14880	WELD	61,647.1	14880	0.0	38.2	48.29533859	-103.60351647	1896.112	0	12:00					
14890	WELD	61,685.4	14890	0.0	49.1	48.29528197	-103.60338363	1895.447	0	12:00					
14900	WELD	61,734.5	14900	0.0	49.2	48.29520889	-103.60321314	1895.669	0	12:00					
40000022	Metal Loss - EXTERNAL	61,741.2	14900	6.6	42.6	48.29519897	-103.60319016	1895.606	31	1:00	6%	0.60	0.49	1760	100%
14910	WELD	61,783.7	14910	0.0	49.0	48.29513587	-103.60304228	1896.104	0	12:00					
14920	WELD	61,832.7	14920	0.0	49.3	48.29506359	-103.60287181	1896.608	0	12:00					
14930	WELD	61,882.1	14930	0.0	49.3	48.29499145	-103.60269955	1896.776	0	12:00					
14940	WELD	61,931.4	14940	0.0	49.3	48.29492017	-103.60252660	1897.939	0	12:00					
14950	WELD	61,980.6	14950	0.0	49.3	48.29484898	-103.60235365	1898.248	0	12:00					
14960	WELD	62,029.9	14960	0.0	49.3	48.29477806	-103.60218047	1899.080	0	12:00					
14970	WELD	62,079.3	14970	0.0	49.2	48.29470649	-103.60200778	1898.233	0	12:00					
14980	WELD	62,128.5	14980	0.0	49.2	48.29463475	-103.60183557	1897.513	0	12:00					
14990	WELD	62,177.7	14990	0.0	48.6	48.29456281	-103.60166375	1896.920	0	12:00					
15000	WELD	62,226.3	15000	0.0	48.4	48.29449125	-103.60149458	1897.005	0	12:00					
15010	WELD	62,274.7	15010	0.0	49.2	48.29441927	-103.60132662	1897.653	0	12:00					
15020	WELD	62,323.9	15020	0.0	49.1	48.29434674	-103.60115532	1899.265	0	12:00					
15030	WELD	62,373.0	15030	0.0	49.2	48.29427582	-103.60098315	1900.691	0	12:00					
15040	WELD	62,422.2	15040	0.0	49.2	48.29420589	-103.60080972	1900.249	0	12:00					
15050	WELD	62,471.4	15050	0.0	49.2	48.29413505	-103.60063670	1899.705	0	12:00					
15060	WELD	62,520.6	15060	0.0	49.3	48.29406324	-103.60046491	1899.385	0	12:00					
15070	WELD	62,569.9	15070	0.0	49.1	48.29399029	-103.60029357	1898.837	0	12:00					
15080	WELD	62,619.0	15080	0.0	49.0	48.29391778	-103.60012293	1899.657	0	12:00					

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)
15090	WELD	62,668.0	15090	0.0	49.4	48.29384538	-103.59995267	1900.201	0	12:00					
15100	WELD	62,717.3	15100	0.0	49.2	48.29378392	-103.59977227	1896.442	0	12:00					
15110	WELD	62,766.5	15110	0.0	49.2	48.29372621	-103.59958961	1892.716	0	12:00					
15120	WELD	62,815.7	15120	0.0	49.3	48.29366705	-103.59940792	1888.961	0	12:00					
15130	WELD	62,865.0	15130	0.0	49.0	48.29360728	-103.59922631	1885.257	0	12:00					
15140	WELD	62,914.0	15140	0.0	49.4	48.29354915	-103.59904428	1884.016	0	12:00					
15150	WELD	62,963.3	15150	0.0	49.3	48.29348976	-103.59886133	1884.924	0	12:00					
15160	WELD	63,012.7	15160	0.0	49.4	48.29342969	-103.59867904	1884.881	0	12:00					
15170	WELD	63,062.0	15170	0.0	49.3	48.29336974	-103.59849651	1885.325	0	12:00					
15180	WELD	63,111.3	15180	0.0	49.3	48.29330915	-103.59831484	1885.329	0	12:00					
15190	WELD	63,160.5	15190	0.0	49.0	48.29324771	-103.59813400	1887.635	0	12:00					
15200	WELD	63,209.5	15200	0.0	48.8	48.29318610	-103.59795440	1888.705	0	12:00					
15210	WELD	63,258.3	15210	0.0	48.5	48.29312402	-103.59777596	1888.610	0	12:00					
14000002	DENT	63,302.1	15210	43.7	4.9	48.29306690	-103.59761700	1888.177	169	5:30	2.5%				
15220	WELD	63,306.9	15220	0.0	48.9	48.29306063	-103.59759988	1888.003	0	12:00					
15230	WELD	63,355.8	15230	0.0	48.7	48.29299506	-103.59742383	1886.653	0	12:00					
15240	WELD	63,404.5	15240	0.0	49.2	48.29292910	-103.59724918	1885.327	0	12:00					
15250	WELD	63,453.7	15250	0.0	43.8	48.29286162	-103.59707369	1883.980	0	12:00					
15260	WELD	63,497.5	15260	0.0	1.5	48.29280324	-103.59691575	1883.787	0	12:00					
10000069	Bend left - 45 deg., 3D	63,498.2	15260	0.1	1.5	48.29280276	-103.59691280	1883.776	0	12:00					
15270	WELD	63,499.0	15270	0.0	31.2	48.29280296	-103.59690965	1883.755	0	12:00					
15280	WELD	63,530.3	15280	0.0	48.9	48.29282792	-103.59678643	1883.069	0	12:00					
15290	WELD	63,579.2	15290	0.0	49.3	48.29287114	-103.59659541	1883.045	0	12:00					
15300	WELD	63,628.5	15300	0.0	49.2	48.29291442	-103.59640288	1882.885	0	12:00					
15310	WELD	63,677.6	15310	0.0	49.0	48.29295669	-103.59621037	1882.664	0	12:00					
15320	WELD	63,726.7	15320	0.0	49.0	48.29299838	-103.59601816	1882.684	0	12:00					
15330	WELD	63,775.6	15330	0.0	49.2	48.29303887	-103.59582567	1882.661	0	12:00					
15340	WELD	63,824.8	15340	0.0	48.9	48.29307923	-103.59563196	1882.848	0	12:00					
15350	WELD	63,873.8	15350	0.0	49.1	48.29311915	-103.59543934	1882.791	0	12:00					
15360	WELD	63,922.9	15360	0.0	49.0	48.29315898	-103.59524578	1882.598	0	12:00					
15370	WELD	63,971.9	15370	0.0	49.3	48.29319959	-103.59505311	1882.487	0	12:00					
15380	WELD	64,021.2	15380	0.0	49.2	48.29324229	-103.59486047	1882.143	0	12:00					
10000070	Bend left - 14 deg., 100D	64,057.8	15380	28.3	20.9	48.29327733	-103.59471921	1881.139	0	12:00					
15390	WELD	64,070.4	15390	0.0	49.4	48.29329684	-103.59467610	1881.025	0	12:00					
15400	WELD	64,119.8	15400	0.0	49.3	48.29337473	-103.59450941	1882.271	0	12:00					
15410	WELD	64,169.0	15410	0.0	49.2	48.29345264	-103.59434323	1883.152	0	12:00					
15420	WELD	64,218.2	15420	0.0	49.3	48.29353037	-103.59417727	1883.022	0	12:00					

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)
15430	WELD	64,267.5	15430	0.0	49.2	48.29360828	-103.59401110	1883.234	0	12:00					
15440	WELD	64,316.7	15440	0.0	48.9	48.29368575	-103.59384459	1882.807	0	12:00					
15450	WELD	64,365.6	15450	0.0	49.3	48.29376257	-103.59367955	1880.157	0	12:00					
15460	WELD	64,414.9	15460	0.0	49.3	48.29384116	-103.59351400	1879.336	0	12:00					
15470	WELD	64,464.2	15470	0.0	49.1	48.29391960	-103.59334810	1879.257	0	12:00					
15480	WELD	64,513.4	15480	0.0	49.2	48.29399826	-103.59318343	1879.154	0	12:00					
15490	WELD	64,562.5	15490	0.0	49.3	48.29407677	-103.59301841	1879.213	0	12:00					
15500	WELD	64,611.9	15500	0.0	49.3	48.29415532	-103.59285251	1879.031	0	12:00					
15510	WELD	64,661.2	15510	0.0	49.0	48.29423409	-103.59268689	1878.626	0	12:00					
15520	WELD	64,710.2	15520	0.0	49.2	48.29431254	-103.59252277	1877.904	0	12:00					
15530	WELD	64,759.4	15530	0.0	49.3	48.29439099	-103.59235748	1877.561	0	12:00					
15540	WELD	64,808.7	15540	0.0	49.3	48.29446907	-103.59219137	1877.228	0	12:00					
15550	WELD	64,858.0	15550	0.0	49.4	48.29454768	-103.59202572	1877.139	0	12:00					
15560	WELD	64,907.3	15560	0.0	49.2	48.29462600	-103.59185950	1877.077	0	12:00					
15570	WELD	64,956.5	15570	0.0	49.2	48.29470361	-103.59169325	1877.000	0	12:00					
15580	WELD	65,005.7	15580	0.0	49.0	48.29478126	-103.59152721	1877.153	0	12:00					
15590	WELD	65,054.7	15590	0.0	49.3	48.29485934	-103.59136254	1877.799	0	12:00					
15600	WELD	65,104.1	15600	0.0	49.4	48.29493822	-103.59119700	1878.259	0	12:00					
15610	WELD	65,153.4	15610	0.0	42.6	48.29501749	-103.59103170	1878.214	0	12:00					
15620	WELD	65,196.0	15620	0.0	1.2	48.29508513	-103.59088844	1877.938	0	12:00					
10000071	Bend left - 36 deg., 3D	65,196.6	15620	0.0	1.1	48.29508624	-103.59088682	1877.947	0	12:00					
15630	WELD	65,197.2	15630	0.0	26.0	48.29508766	-103.59088566	1877.949	0	12:00					
15640	WELD	65,223.1	15640	0.0	48.7	48.29515436	-103.59084745	1877.632	0	12:00					
15650	WELD	65,271.8	15650	0.0	49.2	48.29527916	-103.59077473	1876.974	0	12:00					
15660	WELD	65,321.0	15660	0.0	41.8	48.29540527	-103.59070107	1876.430	0	12:00					
40000023	Metal Loss - EXTERNAL	65,358.2	15660	37.2	4.7	48.29550049	-103.59064526	1876.125	267	8:45	11%	0.45	0.33	1760	100%
15670	WELD	65,362.8	15670	0.0	49.2	48.29551239	-103.59063819	1876.150	0	12:00					
15680	WELD	65,412.1	15680	0.0	49.3	48.29563803	-103.59056264	1876.147	0	12:00					
15690	WELD	65,461.3	15690	0.0	50.6	48.29576417	-103.59048848	1876.348	0	12:00					
15700	WELD	65,511.9	15700	0.0	49.4	48.29589329	-103.59041079	1876.266	0	12:00					
15710	WELD	65,561.2	15710	0.0	49.2	48.29601939	-103.59033524	1876.158	0	12:00					
15720	WELD	65,610.4	15720	0.0	49.4	48.29614530	-103.59026103	1876.552	0	12:00					
15730	WELD	65,659.8	15730	0.0	49.4	48.29627212	-103.59018829	1876.979	0	12:00					
15740	WELD	65,709.1	15740	0.0	49.3	48.29639880	-103.59011515	1876.387	0	12:00					
15750	WELD	65,758.5	15750	0.0	49.3	48.29652522	-103.59004120	1875.781	0	12:00					
15760	WELD	65,807.8	15760	0.0	49.3	48.29665174	-103.58996817	1874.344	0	12:00					
15770	WELD	65,857.1	15770	0.0	49.2	48.29677894	-103.58989730	1873.806	0	12:00					

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)
15780	WELD	65,906.4	15780	0.0	49.1	48.29690779	-103.58983593	1872.790	0	12:00					
15790	WELD	65,955.5	15790	0.0	49.2	48.29704219	-103.58981658	1872.885	0	12:00					
15800	WELD	66,004.7	15800	0.0	49.3	48.29717733	-103.58980739	1872.808	0	12:00					
15810	WELD	66,053.9	15810	0.0	49.1	48.29731279	-103.58980112	1872.729	0	12:00					
15820	WELD	66,103.1	15820	0.0	49.3	48.29744769	-103.58979306	1872.013	0	12:00					
15830	WELD	66,152.3	15830	0.0	49.3	48.29758293	-103.58978188	1874.117	0	12:00					
15840	WELD	66,201.6	15840	0.0	49.0	48.29771830	-103.58977020	1875.728	0	12:00					
15850	WELD	66,250.7	15850	0.0	1.5	48.29785267	-103.58975208	1875.821	0	12:00					
10000072	Bend right - 45 deg., 3D	66,251.4	15850	0.1	1.5	48.29785460	-103.58975099	1875.824	0	12:00					
15860	WELD	66,252.2	15860	0.0	26.2	48.29785626	-103.58974905	1875.827	0	12:00					
15870	WELD	66,278.4	15870	0.0	46.6	48.29790131	-103.58966492	1875.342	0	12:00					
15880	WELD	66,325.0	15880	0.0	49.2	48.29797940	-103.58951263	1874.282	0	12:00					
15890	WELD	66,374.2	15890	0.0	49.1	48.29806193	-103.58935187	1873.503	0	12:00					
15900	WELD	66,423.3	15900	0.0	48.8	48.29814327	-103.58919026	1873.501	0	12:00					
15910	WELD	66,472.1	15910	0.0	49.2	48.29822270	-103.58902786	1873.474	0	12:00					
15920	WELD	66,521.3	15920	0.0	49.0	48.29830415	-103.58886574	1873.766	0	12:00					
15930	WELD	66,570.4	15930	0.0	49.0	48.29838606	-103.58870508	1873.684	0	12:00					
15940	WELD	66,619.4	15940	0.0	49.3	48.29846888	-103.58854578	1873.491	0	12:00					
15950	WELD	66,668.7	15950	0.0	49.4	48.29855211	-103.58838545	1873.678	0	12:00					
15960	WELD	66,718.0	15960	0.0	49.4	48.29863333	-103.58822229	1873.515	0	12:00					
15970	WELD	66,767.4	15970	0.0	46.3	48.29871343	-103.58805797	1873.060	0	12:00					
15980	WELD	66,813.7	15980	0.0	49.3	48.29878611	-103.58790097	1872.750	0	12:00					
15990	WELD	66,863.0	15990	0.0	49.2	48.29886276	-103.58773351	1873.159	0	12:00					
16000	WELD	66,912.2	16000	0.0	49.2	48.29893887	-103.58756588	1872.935	0	12:00					
16010	WELD	66,961.3	16010	0.0	49.1	48.29901383	-103.58739721	1872.101	0	12:00					
16020	WELD	67,010.4	16020	0.0	49.1	48.29908895	-103.58722890	1872.036	0	12:00					
10000073	Bend left - 10 deg., 91D	67,022.3	16020	6.5	42.6	48.29910800	-103.58718942	1872.090	0	12:00					
16030	WELD	67,059.6	16030	0.0	49.2	48.29917867	-103.58707783	1871.929	0	12:00					
16040	WELD	67,108.8	16040	0.0	49.2	48.29927262	-103.58693183	1872.675	0	12:00					
16050	WELD	67,158.0	16050	0.0	49.0	48.29936782	-103.58678771	1872.801	0	12:00					
16060	WELD	67,207.0	16060	0.0	49.3	48.29946319	-103.58664472	1872.606	0	12:00					
16070	WELD	67,256.3	16070	0.0	49.3	48.29955877	-103.58650059	1872.280	0	12:00					
16080	WELD	67,305.5	16080	0.0	49.3	48.29965411	-103.58635622	1872.316	0	12:00					
16090	WELD	67,354.8	16090	0.0	49.0	48.29974816	-103.58621004	1872.477	0	12:00					
16100	WELD	67,403.9	16100	0.0	48.9	48.29984155	-103.58606413	1872.069	0	12:00					
16110	WELD	67,452.7	16110	0.0	46.6	48.29993483	-103.58591894	1871.984	0	12:00					
16120	WELD	67,499.3	16120	0.0	48.8	48.30002432	-103.58578130	1871.757	0	12:00					

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)
16130	WELD	67,548.1	16130	0.0	49.0	48.30011768	-103.58563693	1871.940	0	12:00					
16140	WELD	67,597.1	16140	0.0	48.9	48.30021168	-103.58549190	1872.579	0	12:00					
16150	WELD	67,646.1	16150	0.0	49.1	48.30030583	-103.58534785	1872.556	0	12:00					
16160	WELD	67,695.2	16160	0.0	49.2	48.30039944	-103.58520173	1872.510	0	12:00					
16170	WELD	67,744.3	16170	0.0	49.2	48.30049362	-103.58505631	1872.710	0	12:00					
16180	WELD	67,793.6	16180	0.0	41.2	48.30059004	-103.58491367	1872.992	0	12:00					
16190	WELD	67,834.8	16190	0.0	1.0	48.30067129	-103.58479528	1873.592	0	12:00					
10000074	Bend right - 36 deg., 1.5D	67,835.3	16190	0.0	1.0	48.30067206	-103.58479360	1873.592	0	12:00					
16200	WELD	67,835.8	16200	0.0	21.6	48.30067260	-103.58479157	1873.572	0	12:00					
11000042	WT CHANGE	67,857.4	16200	0.0	0.0	48.30068672	-103.58470543	1872.030	0	12:00		0.322	52000	0.72	
16210	WELD	67,857.4	16210	0.0	41.9	48.30068672	-103.58470539	1872.030	0	12:00					
16220	WELD	67,899.3	16220	0.0	42.0	48.30071349	-103.58453843	1867.679	0	12:00					
16230	WELD	67,941.4	16230	0.0	42.0	48.30074286	-103.58437436	1859.571	0	12:00					
16240	WELD	67,983.3	16240	0.0	41.9	48.30077135	-103.58420890	1853.550	0	12:00					
16250	WELD	68,025.3	16250	0.0	42.0	48.30079954	-103.58404174	1850.712	0	12:00					
16260	WELD	68,067.3	16260	0.0	42.0	48.30082881	-103.58387433	1849.823	0	12:00					
16270	WELD	68,109.2	16270	0.0	42.0	48.30085963	-103.58370751	1849.818	0	12:00					
16280	WELD	68,151.2	16280	0.0	42.0	48.30088842	-103.58353986	1850.538	0	12:00					
16290	WELD	68,193.2	16290	0.0	42.0	48.30091513	-103.58337132	1851.060	0	12:00					
16300	WELD	68,235.2	16300	0.0	42.0	48.30094274	-103.58320322	1851.232	0	12:00					
16310	WELD	68,277.2	16310	0.0	10.9	48.30097304	-103.58303614	1851.882	0	12:00					
16320	WELD	68,288.1	16320	0.0	41.9	48.30098142	-103.58299300	1852.221	0	12:00					
16330	WELD	68,330.1	16330	0.0	32.8	48.30101339	-103.58282681	1853.231	0	12:00					
16340	WELD	68,362.9	16340	0.0	33.6	48.30103649	-103.58269586	1853.744	0	12:00					
16350	WELD	68,396.5	16350	0.0	42.0	48.30105955	-103.58256179	1853.967	0	12:00					
16360	WELD	68,438.5	16360	0.0	42.0	48.30108909	-103.58239428	1854.299	0	12:00					
16370	WELD	68,480.5	16370	0.0	42.0	48.30111821	-103.58222669	1854.968	0	12:00					
16380	WELD	68,522.6	16380	0.0	42.0	48.30114768	-103.58205902	1855.625	0	12:00					
16390	WELD	68,564.6	16390	0.0	42.0	48.30117598	-103.58189100	1856.440	0	12:00					
16400	WELD	68,606.5	16400	0.0	42.0	48.30120281	-103.58172285	1857.689	0	12:00					
16410	WELD	68,648.5	16410	0.0	42.0	48.30123048	-103.58155476	1858.345	0	12:00					
16420	WELD	68,690.5	16420	0.0	42.0	48.30125867	-103.58138697	1859.490	0	12:00					
16430	WELD	68,732.5	16430	0.0	42.0	48.30128706	-103.58121922	1860.644	0	12:00					
16440	WELD	68,774.5	16440	0.0	42.0	48.30131590	-103.58105150	1861.527	0	12:00					
16450	WELD	68,816.5	16450	0.0	42.0	48.30134467	-103.58088363	1862.707	0	12:00					
16460	WELD	68,858.6	16460	0.0	42.0	48.30137406	-103.58071612	1865.222	0	12:00					
16470	WELD	68,900.6	16470	0.0	42.0	48.30140331	-103.58054882	1868.369	0	12:00					

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)
16480	WELD	68,942.6	16480	0.0	42.0	48.30143286	-103.58038192	1872.169	0	12:00					
16490	WELD	68,984.6	16490	0.0	42.0	48.30146140	-103.58021484	1876.034	0	12:00					
16500	WELD	69,026.6	16500	0.0	41.9	48.30149098	-103.58004803	1879.803	0	12:00					
16510	WELD	69,068.5	16510	0.0	33.4	48.30150745	-103.57987835	1884.500	0	12:00					
11000043	WT CHANGE	69,101.9	16510	0.0	0.0	48.30150180	-103.57974160	1887.850	0	12:00		0.188	52000	0.72	
16520	WELD	69,102.0	16520	0.0	31.2	48.30150179	-103.57974152	1887.851	0	12:00					
16530	WELD	69,133.2	16530	0.0	48.7	48.30148745	-103.57961464	1888.161	0	12:00					
16540	WELD	69,181.8	16540	0.0	37.5	48.30145174	-103.57942132	1887.825	0	12:00					
16550	WELD	69,219.3	16550	0.0	48.6	48.30142411	-103.57927260	1889.021	0	12:00					
16560	WELD	69,267.9	16560	0.0	49.3	48.30139307	-103.57907768	1889.108	0	12:00					
16570	WELD	69,317.2	16570	0.0	49.0	48.30136209	-103.57887967	1889.092	0	12:00					
16580	WELD	69,366.2	16580	0.0	49.3	48.30133186	-103.57868272	1888.904	0	12:00					
16590	WELD	69,415.5	16590	0.0	48.8	48.30130235	-103.57848446	1888.579	0	12:00					
16600	WELD	69,464.3	16600	0.0	49.3	48.30127201	-103.57828829	1888.677	0	12:00					
16610	WELD	69,513.7	16610	0.0	49.3	48.30124065	-103.57809035	1888.704	0	12:00					
16620	WELD	69,563.0	16620	0.0	49.3	48.30120906	-103.57789256	1888.307	0	12:00					
16630	WELD	69,612.3	16630	0.0	49.2	48.30117647	-103.57769517	1887.729	0	12:00					
16640	WELD	69,661.5	16640	0.0	49.2	48.30114406	-103.57749825	1887.345	0	12:00					
16650	WELD	69,710.7	16650	0.0	48.9	48.30111256	-103.57730094	1887.343	0	12:00					
16660	WELD	69,759.6	16660	0.0	49.3	48.30108119	-103.57710509	1887.273	0	12:00					
16670	WELD	69,808.9	16670	0.0	49.0	48.30105005	-103.57690704	1887.277	0	12:00					
16680	WELD	69,857.9	16680	0.0	49.2	48.30101992	-103.57671027	1886.944	0	12:00					
40000024	Metal Loss - EXTERNAL	69,887.0	16680	29.1	20.1	48.30100170	-103.57659343	1886.713	152	5:00	15%	0.70	0.62	1760	100%
12000006	Dig#21-Verification Digs were performed in 2014 to validate the MFL tool run. Actual 3.7%D x .25"L x .25"W (repaired w/Res-Q wrap)	69,887.0	16680	29.1	20.1	0.00000000	0.00000000	0.000	0	12:00					
16690	WELD	69,907.1	16690	0.0	49.3	48.30098927	-103.57651258	1886.517	0	12:00					
16700	WELD	69,956.4	16700	0.0	49.0	48.30095903	-103.57631461	1885.663	0	12:00					
40000025	Metal Loss - EXTERNAL	69,977.6	16700	21.2	27.8	48.30094604	-103.57622945	1884.883	333	11:00	6%	0.67	0.57	1760	100%
16710	WELD	70,005.4	16710	0.0	48.9	48.30092933	-103.57611758	1884.013	0	12:00					
16720	WELD	70,054.4	16720	0.0	49.4	48.30089944	-103.57592087	1883.389	0	12:00					
16730	WELD	70,103.7	16730	0.0	48.9	48.30086898	-103.57572259	1883.395	0	12:00					
16740	WELD	70,152.6	16740	0.0	49.2	48.30083771	-103.57552639	1882.895	0	12:00					
16750	WELD	70,201.8	16750	0.0	49.2	48.30080612	-103.57532929	1882.920	0	12:00					
16760	WELD	70,251.0	16760	0.0	49.3	48.30077442	-103.57513213	1883.629	0	12:00					

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)
16770	WELD	70,300.3	16770	0.0	49.3	48.30074249	-103.57493468	1884.876	0	12:00					
10000075	AGM 110 -- Han #8776	70,327.7	16770	27.4	21.8	48.30072520	-103.57482458	1885.158	0	12:00					
16780	WELD	70,349.5	16780	0.0	47.7	48.30071173	-103.57473690	1885.253	0	12:00					
16790	WELD	70,397.2	16790	0.0	49.3	48.30068237	-103.57454548	1884.165	0	12:00					
16800	WELD	70,446.6	16800	0.0	49.3	48.30065103	-103.57434793	1883.280	0	12:00					
16810	WELD	70,495.9	16810	0.0	49.3	48.30061953	-103.57415033	1883.030	0	12:00					
16820	WELD	70,545.2	16820	0.0	49.3	48.30058824	-103.57395275	1882.812	0	12:00					
16830	WELD	70,594.5	16830	0.0	48.9	48.30055623	-103.57375554	1883.461	0	12:00					
16840	WELD	70,643.4	16840	0.0	49.2	48.30052439	-103.57355963	1883.793	0	12:00					
16850	WELD	70,692.6	16850	0.0	49.3	48.30049271	-103.57336280	1884.444	0	12:00					
16860	WELD	70,741.9	16860	0.0	49.3	48.30046173	-103.57316522	1885.640	0	12:00					
16870	WELD	70,791.2	16870	0.0	49.2	48.30043139	-103.57296728	1886.752	0	12:00					
16880	WELD	70,840.4	16880	0.0	47.1	48.30040065	-103.57276988	1887.590	0	12:00					
16890	WELD	70,887.5	16890	0.0	49.3	48.30037196	-103.57258061	1888.013	0	12:00					
16900	WELD	70,936.8	16900	0.0	49.4	48.30034082	-103.57238294	1889.870	0	12:00					
16910	WELD	70,986.2	16910	0.0	49.3	48.30031049	-103.57218469	1891.030	0	12:00					
16920	WELD	71,035.5	16920	0.0	49.0	48.30028034	-103.57198677	1891.340	0	12:00					
16930	WELD	71,084.5	16930	0.0	49.1	48.30024897	-103.57179063	1892.349	0	12:00					
16940	WELD	71,133.6	16940	0.0	49.3	48.30021699	-103.57159422	1893.115	0	12:00					
16950	WELD	71,182.8	16950	0.0	48.8	48.30018541	-103.57139693	1894.529	0	12:00					
16960	WELD	71,231.6	16960	0.0	49.3	48.30015443	-103.57120139	1896.891	0	12:00					
16970	WELD	71,281.0	16970	0.0	49.3	48.30012254	-103.57100403	1898.447	0	12:00					
16980	WELD	71,330.2	16980	0.0	48.9	48.30009150	-103.57080653	1898.789	0	12:00					
16990	WELD	71,379.2	16990	0.0	49.2	48.30006087	-103.57061027	1898.884	0	12:00					
17000	WELD	71,428.4	17000	0.0	49.2	48.30003105	-103.57041250	1898.307	0	12:00					
20000033	Seam Variation	71,454.6	17000	26.2	23.0	48.30001526	-103.57030711	1897.458	127	4:00	-	1.06	0.63		
17010	WELD	71,477.6	17010	0.0	49.1	48.30000115	-103.57021519	1896.663	0	12:00					
17020	WELD	71,526.7	17020	0.0	44.5	48.29996951	-103.57001874	1894.550	0	12:00					
17030	WELD	71,571.2	17030	0.0	48.8	48.29994037	-103.56984092	1893.651	0	12:00					
17040	WELD	71,619.9	17040	0.0	49.1	48.29990908	-103.56964568	1892.538	0	12:00					
17050	WELD	71,669.0	17050	0.0	49.3	48.29987821	-103.56944877	1891.617	0	12:00					
17060	WELD	71,718.3	17060	0.0	49.2	48.29984794	-103.56925095	1891.512	0	12:00					
17070	WELD	71,767.6	17070	0.0	49.2	48.29981760	-103.56905324	1892.186	0	12:00					
17080	WELD	71,816.8	17080	0.0	49.2	48.29978879	-103.56885506	1893.340	0	12:00					
17090	WELD	71,866.0	17090	0.0	49.3	48.29976459	-103.56865581	1894.949	0	12:00					
17100	WELD	71,915.3	17100	0.0	49.2	48.29975422	-103.56845366	1897.297	0	12:00					
17110	WELD	71,964.5	17110	0.0	49.2	48.29974664	-103.56825155	1899.995	0	12:00					

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)
17120	WELD	72,013.7	17120	0.0	49.3	48.29974245	-103.56804917	1901.073	0	12:00					
17130	WELD	72,062.9	17130	0.0	49.3	48.29973832	-103.56784637	1900.508	0	12:00					
17140	WELD	72,112.2	17140	0.0	49.2	48.29973242	-103.56764373	1898.392	0	12:00					
17150	WELD	72,161.5	17150	0.0	49.1	48.29972654	-103.56744130	1897.798	0	12:00					
17160	WELD	72,210.5	17160	0.0	49.3	48.29972082	-103.56723941	1898.829	0	12:00					
17170	WELD	72,259.8	17170	0.0	49.0	48.29971535	-103.56703659	1900.531	0	12:00					
17180	WELD	72,308.8	17180	0.0	48.8	48.29970965	-103.56683483	1901.793	0	12:00					
17190	WELD	72,357.7	17190	0.0	49.0	48.29970362	-103.56663397	1902.454	0	12:00					
17200	WELD	72,406.6	17200	0.0	49.0	48.29969810	-103.56643238	1902.529	0	12:00					
20000034	Seam Variation	72,422.5	17200	15.8	33.1	48.29969653	-103.56636706	1902.382	44	1:15	-	0.82	0.75		
17210	WELD	72,455.6	17210	0.0	49.1	48.29969310	-103.56623076	1902.155	0	12:00					
17220	WELD	72,504.7	17220	0.0	47.4	48.29968732	-103.56602859	1902.134	0	12:00					
17230	WELD	72,552.2	17230	0.0	46.4	48.29968232	-103.56583339	1902.227	0	12:00					
17240	WELD	72,598.6	17240	0.0	49.2	48.29967762	-103.56564241	1901.933	0	12:00					
17250	WELD	72,647.7	17250	0.0	49.2	48.29967257	-103.56544021	1900.538	0	12:00					
17260	WELD	72,696.9	17260	0.0	48.8	48.29966732	-103.56523781	1899.883	0	12:00					
17270	WELD	72,745.7	17270	0.0	49.0	48.29966073	-103.56503721	1899.970	0	12:00					
17280	WELD	72,794.7	17280	0.0	49.1	48.29964684	-103.56483654	1899.622	0	12:00					
17290	WELD	72,843.8	17290	0.0	49.0	48.29961724	-103.56463931	1899.620	0	12:00					
17300	WELD	72,892.9	17300	0.0	49.1	48.29958540	-103.56444307	1900.732	0	12:00					
17310	WELD	72,942.0	17310	0.0	49.1	48.29955359	-103.56424643	1902.034	0	12:00					
17320	WELD	72,991.1	17320	0.0	49.3	48.29952215	-103.56404949	1902.996	0	12:00					
17330	WELD	73,040.4	17330	0.0	49.2	48.29949093	-103.56385191	1903.829	0	12:00					
17340	WELD	73,089.6	17340	0.0	49.2	48.29945975	-103.56365481	1904.383	0	12:00					
17350	WELD	73,138.9	17350	0.0	49.2	48.29942779	-103.56345773	1904.287	0	12:00					
17360	WELD	73,188.0	17360	0.0	49.3	48.29939564	-103.56326103	1904.687	0	12:00					
17370	WELD	73,237.3	17370	0.0	49.2	48.29936320	-103.56306399	1904.870	0	12:00					
17380	WELD	73,286.5	17380	0.0	40.8	48.29932999	-103.56286748	1905.588	0	12:00					
17390	WELD	73,327.3	17390	0.0	47.0	48.29930207	-103.56270485	1906.941	0	12:00					
17400	WELD	73,374.3	17400	0.0	15.8	48.29926987	-103.56251755	1908.793	0	12:00					
17410	WELD	73,390.1	17410	0.0	43.6	48.29925954	-103.56245431	1909.236	0	12:00					
11000044	WT CHANGE	73,433.7	17410	0.0	0.0	48.29923322	-103.56227920	1910.991	0	12:00		0.322	52000	0.72	
17420	WELD	73,433.7	17420	0.0	32.4	48.29923320	-103.56227908	1910.992	0	12:00					
17430	WELD	73,466.1	17430	0.0	42.0	48.29921405	-103.56214882	1911.769	0	12:00					
10000076	AGM 120 -- Han #8592	73,508.0	17430	41.9	0.1	48.29918377	-103.56198258	1912.525	0	12:00					
17440	WELD	73,508.1	17440	0.0	42.0	48.29918363	-103.56198198	1912.521	0	12:00					
17450	WELD	73,550.1	17450	0.0	42.0	48.29914585	-103.56181843	1911.491	0	12:00					

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)
17460	WELD	73,592.1	17460	0.0	42.0	48.29910841	-103.56165496	1909.907	0	12:00					
17470	WELD	73,634.1	17470	0.0	42.0	48.29907148	-103.56149080	1908.688	0	12:00					
17480	WELD	73,676.1	17480	0.0	42.0	48.29903346	-103.56132751	1908.114	0	12:00					
17490	WELD	73,718.1	17490	0.0	42.0	48.29899301	-103.56116532	1908.111	0	12:00					
17500	WELD	73,760.0	17500	0.0	41.9	48.29895304	-103.56100295	1908.402	0	12:00					
17510	WELD	73,801.9	17510	0.0	41.9	48.29891471	-103.56084004	1908.673	0	12:00					
17520	WELD	73,843.8	17520	0.0	42.0	48.29887753	-103.56067652	1909.408	0	12:00					
17530	WELD	73,885.9	17530	0.0	42.0	48.29883889	-103.56051353	1912.284	0	12:00					
17540	WELD	73,927.9	17540	0.0	40.6	48.29880095	-103.56035032	1915.585	0	12:00					
11000045	WT CHANGE	73,968.5	17540	0.0	0.0	48.29876649	-103.56019133	1917.080	0	12:00		0.188	52000	0.72	
17550	WELD	73,968.5	17550	0.0	41.0	48.29876647	-103.56019125	1917.080	0	12:00					
17560	WELD	74,009.5	17560	0.0	49.2	48.29872673	-103.56003299	1917.110	0	12:00					
17570	WELD	74,058.7	17570	0.0	49.3	48.29867746	-103.55984415	1917.113	0	12:00					
17580	WELD	74,108.0	17580	0.0	49.1	48.29863194	-103.55965259	1916.500	0	12:00					
17590	WELD	74,157.1	17590	0.0	48.9	48.29859569	-103.55945819	1917.314	0	12:00					
17600	WELD	74,206.0	17600	0.0	48.9	48.29859635	-103.55925687	1917.681	0	12:00					
17610	WELD	74,254.9	17610	0.0	49.1	48.29860336	-103.55905548	1918.238	0	12:00					
17620	WELD	74,304.0	17620	0.0	49.3	48.29861062	-103.55885340	1919.334	0	12:00					
17630	WELD	74,353.3	17630	0.0	49.4	48.29861864	-103.55865060	1919.318	0	12:00					
17640	WELD	74,402.6	17640	0.0	49.0	48.29862656	-103.55844746	1918.753	0	12:00					
17650	WELD	74,451.7	17650	0.0	49.3	48.29863428	-103.55824565	1918.103	0	12:00					
17660	WELD	74,500.9	17660	0.0	49.1	48.29864202	-103.55804290	1917.346	0	12:00					
17670	WELD	74,550.0	17670	0.0	49.3	48.29864948	-103.55784087	1916.985	0	12:00					
17680	WELD	74,599.3	17680	0.0	49.1	48.29865649	-103.55763795	1916.690	0	12:00					
17690	WELD	74,648.4	17690	0.0	49.2	48.29866372	-103.55743566	1916.585	0	12:00					
17700	WELD	74,697.6	17700	0.0	49.3	48.29867370	-103.55723358	1917.190	0	12:00					
17710	WELD	74,746.9	17710	0.0	49.3	48.29868731	-103.55703143	1918.091	0	12:00					
17720	WELD	74,796.2	17720	0.0	49.4	48.29870359	-103.55682949	1918.387	0	12:00					
17730	WELD	74,845.6	17730	0.0	49.3	48.29871991	-103.55662749	1918.720	0	12:00					
17740	WELD	74,894.8	17740	0.0	48.9	48.29873537	-103.55642566	1919.397	0	12:00					
17750	WELD	74,943.7	17750	0.0	49.0	48.29874945	-103.55622513	1919.514	0	12:00					
17760	WELD	74,992.7	17760	0.0	47.0	48.29876525	-103.55602460	1919.728	0	12:00					
17770	WELD	75,039.7	17770	0.0	1.2	48.29878269	-103.55583268	1918.291	0	12:00					
10000077	Bend left - 45 deg., 1.5D	75,040.3	17770	0.0	1.1	48.29878332	-103.55583047	1918.271	0	12:00					
17780	WELD	75,040.9	17780	0.0	13.9	48.29878425	-103.55582847	1918.259	0	12:00					
11000046	WT CHANGE	75,054.8	17780	0.0	0.0	48.29881190	-103.55578901	1918.115	0	12:00		0.322	52000	0.72	
17790	WELD	75,054.8	17790	0.0	41.9	48.29881194	-103.55578896	1918.115	0	12:00					

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)
17800	WELD	75,096.7	17800	0.0	41.9	48.29889786	-103.55567404	1917.556	0	12:00					
17810	WELD	75,138.6	17810	0.0	42.0	48.29898610	-103.55556295	1917.690	0	12:00					
17820	WELD	75,180.5	17820	0.0	42.0	48.29907720	-103.55545681	1918.814	0	12:00					
17830	WELD	75,222.5	17830	0.0	42.0	48.29917068	-103.55535519	1919.928	0	12:00					
17840	WELD	75,264.5	17840	0.0	42.0	48.29926227	-103.55524954	1919.854	0	12:00					
17850	WELD	75,306.5	17850	0.0	42.0	48.29934742	-103.55513244	1919.454	0	12:00					
17860	WELD	75,348.6	17860	0.0	42.0	48.29943301	-103.55501657	1922.448	0	12:00					
17870	WELD	75,390.5	17870	0.0	6.5	48.29952196	-103.55490710	1925.907	0	12:00					
11000047	WT CHANGE	75,397.0	17870	0.0	0.0	48.29953579	-103.55489020	1926.222	0	12:00		0.188	52000	0.72	
17880	WELD	75,397.0	17880	0.0	43.8	48.29953583	-103.55489015	1926.222	0	12:00					
17890	WELD	75,440.8	17890	0.0	49.3	48.29962763	-103.55477346	1926.649	0	12:00					
17900	WELD	75,490.1	17900	0.0	49.2	48.29973127	-103.55464254	1926.702	0	12:00					
17910	WELD	75,539.3	17910	0.0	49.0	48.29983413	-103.55451081	1927.720	0	12:00					
17920	WELD	75,588.2	17920	0.0	49.2	48.29993601	-103.55437869	1928.499	0	12:00					
17930	WELD	75,637.4	17930	0.0	49.3	48.30003870	-103.55424678	1929.528	0	12:00					
17940	WELD	75,686.7	17940	0.0	49.2	48.30014250	-103.55411571	1930.770	0	12:00					
17950	WELD	75,736.0	17950	0.0	49.3	48.30024646	-103.55398557	1931.579	0	12:00					
40000026	Metal Loss - EXTERNAL	75,760.5	17950	24.5	24.8	48.30029816	-103.55392086	1931.674	224	7:15	8%	0.43	0.51	1760	100%
12000007	Debris	75,761.1	17950	25.2	24.1	48.30029962	-103.55391901	1931.683	0	12:00					
17960	WELD	75,785.2	17960	0.0	49.3	48.30035057	-103.55385550	1932.282	0	12:00					
17970	WELD	75,834.5	17970	0.0	49.4	48.30045520	-103.55372614	1932.783	0	12:00					
17980	WELD	75,883.9	17980	0.0	49.3	48.30055901	-103.55359484	1932.488	0	12:00					
17990	WELD	75,933.3	17990	0.0	49.0	48.30066232	-103.55346293	1933.458	0	12:00					
18000	WELD	75,982.2	18000	0.0	48.8	48.30076495	-103.55333215	1934.685	0	12:00					
18010	WELD	76,031.0	18010	0.0	49.3	48.30086748	-103.55320255	1935.615	0	12:00					
18020	WELD	76,080.3	18020	0.0	49.1	48.30097246	-103.55307355	1936.831	0	12:00					
18030	WELD	76,129.4	18030	0.0	49.3	48.30107675	-103.55294500	1937.047	0	12:00					
18040	WELD	76,178.7	18040	0.0	49.1	48.30118066	-103.55281425	1937.597	0	12:00					
18050	WELD	76,227.8	18050	0.0	49.3	48.30128367	-103.55268350	1938.718	0	12:00					
18060	WELD	76,277.1	18060	0.0	49.1	48.30138759	-103.55255275	1939.134	0	12:00					
18070	WELD	76,326.2	18070	0.0	49.0	48.30149141	-103.55242338	1939.441	0	12:00					
18080	WELD	76,375.2	18080	0.0	49.3	48.30159456	-103.55229308	1940.661	0	12:00					
18090	WELD	76,424.5	18090	0.0	49.3	48.30169750	-103.55216081	1942.448	0	12:00					
18100	WELD	76,473.8	18100	0.0	49.1	48.30180100	-103.55202961	1942.833	0	12:00					
20000036	Seam Variation	76,486.4	18100	12.5	36.6	48.30182747	-103.55199637	1942.939	152	5:00	-	0.59	0.53		
18110	WELD	76,523.0	18110	0.0	49.2	48.30190481	-103.55189976	1942.923	0	12:00					
18120	WELD	76,572.2	18120	0.0	49.2	48.30200924	-103.55177064	1943.390	0	12:00					

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)
18130	WELD	76,621.4	18130	0.0	48.9	48.30211365	-103.55164139	1943.962	0	12:00					
18140	WELD	76,670.3	18140	0.0	49.2	48.30221663	-103.55151185	1944.413	0	12:00					
18150	WELD	76,719.4	18150	0.0	49.2	48.30231987	-103.55138098	1943.531	0	12:00					
18160	WELD	76,768.6	18160	0.0	48.9	48.30242367	-103.55125110	1943.468	0	12:00					
18170	WELD	76,817.5	18170	0.0	49.2	48.30252690	-103.55112167	1942.873	0	12:00					
18180	WELD	76,866.7	18180	0.0	42.8	48.30263046	-103.55099111	1943.552	0	12:00					
18190	WELD	76,909.5	18190	0.0	31.6	48.30271980	-103.55087647	1944.963	0	12:00					
18200	WELD	76,941.1	18200	0.0	1.6	48.30278520	-103.55079098	1947.117	0	12:00					
10000078	Bend right - 45 deg., 3D	76,941.8	18200	0.1	1.5	48.30278647	-103.55078845	1947.193	0	12:00					
18210	WELD	76,942.6	18210	0.0	46.1	48.30278704	-103.55078532	1947.267	0	12:00					
18220	WELD	76,988.7	18220	0.0	49.4	48.30279359	-103.55059584	1949.455	0	12:00					
18230	WELD	77,038.1	18230	0.0	48.9	48.30279326	-103.55039232	1951.152	0	12:00					
18240	WELD	77,087.0	18240	0.0	48.7	48.30279077	-103.55019067	1952.563	0	12:00					
18250	WELD	77,135.7	18250	0.0	48.9	48.30278812	-103.54999002	1953.629	0	12:00					
18260	WELD	77,184.6	18260	0.0	48.0	48.30278600	-103.54978820	1954.372	0	12:00					
18270	WELD	77,232.6	18270	0.0	49.2	48.30278345	-103.54959035	1954.762	0	12:00					
18280	WELD	77,281.8	18280	0.0	49.2	48.30278042	-103.54938760	1956.224	0	12:00					
18290	WELD	77,331.0	18290	0.0	49.1	48.30277766	-103.54918482	1957.663	0	12:00					
18300	WELD	77,380.1	18300	0.0	49.5	48.30277587	-103.54898215	1957.770	0	12:00					
18310	WELD	77,429.7	18310	0.0	49.3	48.30277525	-103.54877803	1957.470	0	12:00					
18320	WELD	77,479.0	18320	0.0	49.2	48.30277417	-103.54857471	1958.081	0	12:00					
18330	WELD	77,528.1	18330	0.0	49.3	48.30277216	-103.54837190	1958.650	0	12:00					
18340	WELD	77,577.5	18340	0.0	49.4	48.30276984	-103.54816854	1958.779	0	12:00					
18350	WELD	77,626.8	18350	0.0	49.4	48.30276863	-103.54796504	1958.695	0	12:00					
18360	WELD	77,676.2	18360	0.0	48.8	48.30276927	-103.54776155	1958.287	0	12:00					
18370	WELD	77,725.0	18370	0.0	49.1	48.30276849	-103.54756046	1958.458	0	12:00					
18380	WELD	77,774.0	18380	0.0	49.1	48.30276644	-103.54735811	1959.034	0	12:00					
18390	WELD	77,823.1	18390	0.0	49.4	48.30276410	-103.54715568	1960.321	0	12:00					
18400	WELD	77,872.5	18400	0.0	49.3	48.30276196	-103.54695225	1961.712	0	12:00					
18410	WELD	77,921.8	18410	0.0	49.3	48.30276074	-103.54674910	1962.655	0	12:00					
18420	WELD	77,971.0	18420	0.0	49.4	48.30276040	-103.54654593	1962.916	0	12:00					
18430	WELD	78,020.4	18430	0.0	49.3	48.30275869	-103.54634227	1963.070	0	12:00					
18440	WELD	78,069.7	18440	0.0	49.3	48.30275702	-103.54613913	1963.588	0	12:00					
18450	WELD	78,119.0	18450	0.0	48.8	48.30275584	-103.54593595	1963.605	0	12:00					
18460	WELD	78,167.8	18460	0.0	48.9	48.30275519	-103.54573467	1963.463	0	12:00					
18470	WELD	78,216.6	18470	0.0	48.8	48.30275295	-103.54553338	1964.881	0	12:00					
18480	WELD	78,265.4	18480	0.0	49.1	48.30275078	-103.54533220	1966.533	0	12:00					

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)
18490	WELD	78,314.6	18490	0.0	49.2	48.30274860	-103.54512970	1967.999	0	12:00					
18500	WELD	78,363.7	18500	0.0	49.1	48.30274754	-103.54492691	1968.130	0	12:00					
18510	WELD	78,412.9	18510	0.0	49.1	48.30274702	-103.54472436	1967.455	0	12:00					
18520	WELD	78,462.0	18520	0.0	45.2	48.30274656	-103.54452246	1964.634	0	12:00					
18530	WELD	78,507.2	18530	0.0	49.2	48.30274547	-103.54433647	1968.158	0	12:00					
18540	WELD	78,556.5	18540	0.0	49.0	48.30274395	-103.54413386	1971.411	0	12:00					
18550	WELD	78,605.5	18550	0.0	49.4	48.30274255	-103.54393177	1972.901	0	12:00					
18560	WELD	78,654.8	18560	0.0	49.1	48.30274017	-103.54372836	1974.142	0	12:00					
18570	WELD	78,704.0	18570	0.0	49.1	48.30273707	-103.54352572	1974.721	0	12:00					
18580	WELD	78,753.1	18580	0.0	49.2	48.30273402	-103.54332333	1975.818	0	12:00					
18590	WELD	78,802.3	18590	0.0	29.5	48.30273232	-103.54312048	1976.680	0	12:00					
18600	WELD	78,831.8	18600	0.0	1.5	48.30273110	-103.54299891	1976.958	0	12:00					
10000079	Bend right - 45 deg., 3D	78,832.6	18600	0.1	1.5	48.30273051	-103.54299590	1976.975	0	12:00					
18610	WELD	78,833.3	18610	0.0	43.8	48.30272930	-103.54299332	1976.978	0	12:00					
18620	WELD	78,877.1	18620	0.0	49.3	48.30264210	-103.54286886	1976.635	0	12:00					
18630	WELD	78,926.4	18630	0.0	49.0	48.30254252	-103.54273106	1977.680	0	12:00					
18640	WELD	78,975.4	18640	0.0	49.2	48.30244322	-103.54259420	1978.112	0	12:00					
18650	WELD	79,024.6	18650	0.0	49.2	48.30234373	-103.54245688	1977.828	0	12:00					
18660	WELD	79,073.8	18660	0.0	49.0	48.30224409	-103.54231954	1978.255	0	12:00					
18670	WELD	79,122.8	18670	0.0	48.9	48.30214486	-103.54218265	1980.005	0	12:00					
18680	WELD	79,171.7	18680	0.0	49.0	48.30204645	-103.54204545	1981.973	0	12:00					
18690	WELD	79,220.8	18690	0.0	49.3	48.30194816	-103.54190729	1984.833	0	12:00					
18700	WELD	79,270.1	18700	0.0	49.3	48.30185004	-103.54176693	1987.435	0	12:00					
18710	WELD	79,319.4	18710	0.0	49.2	48.30175202	-103.54162656	1989.241	0	12:00					
18720	WELD	79,368.6	18720	0.0	49.0	48.30165374	-103.54148718	1991.751	0	12:00					
18730	WELD	79,417.6	18730	0.0	49.1	48.30155633	-103.54134810	1995.009	0	12:00					
18740	WELD	79,466.7	18740	0.0	49.2	48.30145812	-103.54120921	1996.654	0	12:00					
18750	WELD	79,515.9	18750	0.0	49.2	48.30135864	-103.54107204	1995.751	0	12:00					
18760	WELD	79,565.1	18760	0.0	49.1	48.30125896	-103.54093541	1999.213	0	12:00					
18770	WELD	79,614.2	18770	0.0	49.1	48.30116072	-103.54079705	2002.141	0	12:00					
18780	WELD	79,663.3	18780	0.0	49.1	48.30106252	-103.54065786	2002.346	0	12:00					
18790	WELD	79,712.4	18790	0.0	49.3	48.30096456	-103.54051912	2000.507	0	12:00					
40000027	Metal Loss - EXTERNAL	79,729.0	18790	16.6	32.7	48.30093160	-103.54047198	2001.561	113	3:45	10%	0.83	0.50	1760	100%
18800	WELD	79,761.7	18800	0.0	49.3	48.30086699	-103.54037878	2004.462	0	12:00					
18810	WELD	79,811.0	18810	0.0	49.0	48.30077018	-103.54023709	2007.840	0	12:00					
18820	WELD	79,859.9	18820	0.0	14.7	48.30067370	-103.54009639	2009.632	0	12:00					
18830	WELD	79,874.7	18830	0.0	0.8	48.30064429	-103.54005458	2010.052	0	12:00					

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)
10000080	Bend right - 24 deg., 3D	79,875.1	18830	0.0	0.7	48.30064344	-103.54005358	2010.068	0	12:00					
18840	WELD	79,875.5	18840	0.0	30.5	48.30064245	-103.54005284	2010.060	0	12:00					
18850	WELD	79,905.9	18850	0.0	49.0	48.30056489	-103.54000567	2008.595	0	12:00					
18860	WELD	79,955.0	18860	0.0	49.3	48.30043847	-103.53993604	2005.936	0	12:00					
18870	WELD	80,004.3	18870	0.0	49.2	48.30031166	-103.53986840	2000.370	0	12:00					
18880	WELD	80,053.4	18880	0.0	46.5	48.30018546	-103.53979914	1995.250	0	12:00					
18890	WELD	80,099.9	18890	0.0	48.4	48.30006590	-103.53973284	1992.380	0	12:00					
11000048	WT CHANGE	80,148.3	18890	0.0	0.0	48.29994126	-103.53966283	1994.366	0	12:00		0.322	52000	0.72	
18900	WELD	80,148.4	18900	0.0	41.5	48.29994121	-103.53966280	1994.367	0	12:00					
18910	WELD	80,189.9	18910	0.0	42.0	48.29983505	-103.53959981	1994.816	0	12:00					
18920	WELD	80,231.9	18920	0.0	42.0	48.29972746	-103.53953921	1991.153	0	12:00					
18930	WELD	80,273.9	18930	0.0	42.0	48.29962083	-103.53947417	1987.671	0	12:00					
18940	WELD	80,315.9	18940	0.0	42.0	48.29951607	-103.53940194	1984.762	0	12:00					
18950	WELD	80,358.0	18950	0.0	42.0	48.29941118	-103.53932978	1982.667	0	12:00					
18960	WELD	80,400.0	18960	0.0	42.0	48.29930620	-103.53925804	1980.166	0	12:00					
18970	WELD	80,442.0	18970	0.0	42.0	48.29920120	-103.53918657	1977.440	0	12:00					
18980	WELD	80,484.0	18980	0.0	42.0	48.29909667	-103.53911310	1975.980	0	12:00					
18990	WELD	80,526.0	18990	0.0	41.9	48.29899195	-103.53904010	1975.963	0	12:00					
19000	WELD	80,567.9	19000	0.0	41.8	48.29888766	-103.53896668	1977.663	0	12:00					
19010	WELD	80,609.7	19010	0.0	42.0	48.29878425	-103.53889212	1981.233	0	12:00					
19020	WELD	80,651.7	19020	0.0	42.0	48.29867999	-103.53882000	1985.850	0	12:00					
19030	WELD	80,693.7	19030	0.0	13.0	48.29857586	-103.53874493	1986.785	0	12:00					
11000049	WT CHANGE	80,706.7	19030	0.0	0.0	48.29854362	-103.53872242	1986.687	0	12:00		0.188	52000	0.72	
19040	WELD	80,706.7	19040	0.0	47.4	48.29854357	-103.53872238	1986.686	0	12:00					
10000081	AGM 130 -- Han #8777	80,712.7	19040	6.0	41.4	48.29852854	-103.53871209	1986.545	0	12:00					
19050	WELD	80,754.0	19050	0.0	49.5	48.29842464	-103.53864317	1985.633	0	12:00					
19060	WELD	80,803.5	19060	0.0	49.4	48.29830015	-103.53856150	1984.623	0	12:00					
19070	WELD	80,852.8	19070	0.0	49.2	48.29817618	-103.53847889	1984.656	0	12:00					
19080	WELD	80,902.0	19080	0.0	49.4	48.29805291	-103.53839654	1986.911	0	12:00					
19090	WELD	80,951.4	19090	0.0	49.4	48.29792932	-103.53831313	1989.343	0	12:00					
19100	WELD	81,000.8	19100	0.0	48.7	48.29780550	-103.53822962	1989.354	0	12:00					
19110	WELD	81,049.5	19110	0.0	48.6	48.29768321	-103.53814814	1988.103	0	12:00					
19120	WELD	81,098.0	19120	0.0	49.2	48.29756110	-103.53806789	1988.167	0	12:00					
19130	WELD	81,147.3	19130	0.0	36.4	48.29743743	-103.53798729	1992.666	0	12:00					
19140	WELD	81,183.7	19140	0.0	49.1	48.29734639	-103.53792754	1997.264	0	12:00					
19150	WELD	81,232.8	19150	0.0	49.4	48.29722328	-103.53784573	2001.585	0	12:00					
19160	WELD	81,282.2	19160	0.0	49.0	48.29709979	-103.53776202	2004.983	0	12:00					

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)
19170	WELD	81,331.3	19170	0.0	49.3	48.29697709	-103.53768012	2009.381	0	12:00					
19180	WELD	81,380.6	19180	0.0	49.0	48.29685354	-103.53759857	2014.246	0	12:00					
19190	WELD	81,429.6	19190	0.0	49.0	48.29673087	-103.53751617	2017.869	0	12:00					
19200	WELD	81,478.6	19200	0.0	49.2	48.29660789	-103.53743398	2020.377	0	12:00					
19210	WELD	81,527.8	19210	0.0	49.0	48.29648402	-103.53735260	2022.263	0	12:00					
19220	WELD	81,576.9	19220	0.0	49.0	48.29636060	-103.53727199	2024.650	0	12:00					
19230	WELD	81,625.8	19230	0.0	49.3	48.29623743	-103.53719052	2024.686	0	12:00					
19240	WELD	81,675.2	19240	0.0	49.1	48.29611372	-103.53710733	2023.791	0	12:00					
19250	WELD	81,724.3	19250	0.0	49.4	48.29599066	-103.53702400	2024.135	0	12:00					
19260	WELD	81,773.7	19260	0.0	49.3	48.29586726	-103.53693997	2026.744	0	12:00					
19270	WELD	81,823.0	19270	0.0	49.1	48.29574385	-103.53685700	2030.148	0	12:00					
19280	WELD	81,872.1	19280	0.0	49.0	48.29562084	-103.53677388	2031.996	0	12:00					
19290	WELD	81,921.1	19290	0.0	49.1	48.29549783	-103.53669168	2031.385	0	12:00					
19300	WELD	81,970.2	19300	0.0	49.4	48.29537452	-103.53660966	2030.068	0	12:00					
19310	WELD	82,019.5	19310	0.0	49.3	48.29525048	-103.53652742	2031.054	0	12:00					
19320	WELD	82,068.8	19320	0.0	49.3	48.29512683	-103.53644556	2034.389	0	12:00					
19330	WELD	82,118.1	19330	0.0	49.3	48.29500308	-103.53636426	2038.233	0	12:00					
19340	WELD	82,167.4	19340	0.0	49.3	48.29487924	-103.53628255	2041.551	0	12:00					
19350	WELD	82,216.7	19350	0.0	49.4	48.29475597	-103.53619937	2045.156	0	12:00					
19360	WELD	82,266.0	19360	0.0	49.3	48.29463265	-103.53611522	2047.954	0	12:00					
19370	WELD	82,315.3	19370	0.0	49.3	48.29450946	-103.53603067	2049.634	0	12:00					
19380	WELD	82,364.7	19380	0.0	49.4	48.29438596	-103.53594673	2049.888	0	12:00					
19390	WELD	82,414.1	19390	0.0	48.8	48.29426195	-103.53586375	2049.369	0	12:00					
19400	WELD	82,462.9	19400	0.0	49.3	48.29413917	-103.53578250	2048.624	0	12:00					
19410	WELD	82,512.2	19410	0.0	49.1	48.29401488	-103.53570215	2047.032	0	12:00					
19420	WELD	82,561.3	19420	0.0	49.2	48.29389151	-103.53562043	2049.834	0	12:00					
19430	WELD	82,610.6	19430	0.0	49.4	48.29376823	-103.53553824	2054.177	0	12:00					
19440	WELD	82,660.0	19440	0.0	49.3	48.29364483	-103.53545497	2058.254	0	12:00					
19450	WELD	82,709.3	19450	0.0	49.0	48.29352172	-103.53537088	2061.822	0	12:00					
19460	WELD	82,758.3	19460	0.0	49.2	48.29339917	-103.53528712	2063.795	0	12:00					
19470	WELD	82,807.6	19470	0.0	49.3	48.29327573	-103.53520395	2063.893	0	12:00					
19480	WELD	82,856.8	19480	0.0	49.2	48.29315230	-103.53512053	2062.629	0	12:00					
19490	WELD	82,906.0	19490	0.0	49.3	48.29302871	-103.53503870	2062.100	0	12:00					
19500	WELD	82,955.3	19500	0.0	49.3	48.29290463	-103.53495680	2062.149	0	12:00					
19510	WELD	83,004.6	19510	0.0	49.2	48.29278065	-103.53487484	2062.888	0	12:00					
19520	WELD	83,053.8	19520	0.0	49.3	48.29265675	-103.53479409	2064.220	0	12:00					
19530	WELD	83,103.1	19530	0.0	49.1	48.29253302	-103.53471157	2066.203	0	12:00					

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)
19540	WELD	83,152.2	19540	0.0	49.4	48.29240991	-103.53462900	2067.949	0	12:00					
19550	WELD	83,201.5	19550	0.0	49.0	48.29228608	-103.53454635	2070.274	0	12:00					
19560	WELD	83,250.5	19560	0.0	49.2	48.29216325	-103.53446414	2072.910	0	12:00					
19570	WELD	83,299.7	19570	0.0	49.4	48.29203920	-103.53438312	2074.355	0	12:00					
19580	WELD	83,349.2	19580	0.0	49.0	48.29191475	-103.53430147	2074.625	0	12:00					
19590	WELD	83,398.2	19590	0.0	48.8	48.29179211	-103.53421872	2071.930	0	12:00					
19600	WELD	83,447.0	19600	0.0	49.2	48.29167015	-103.53413809	2067.142	0	12:00					
19610	WELD	83,496.2	19610	0.0	49.0	48.29154621	-103.53405812	2068.940	0	12:00					
19620	WELD	83,545.3	19620	0.0	42.0	48.29142382	-103.53397878	2076.516	0	12:00					
19630	WELD	83,587.3	19630	0.0	49.2	48.29131898	-103.53390793	2081.064	0	12:00					
19640	WELD	83,636.5	19640	0.0	49.5	48.29119623	-103.53382355	2082.408	0	12:00					
19650	WELD	83,685.9	19650	0.0	49.2	48.29107380	-103.53374061	2076.076	0	12:00					
19660	WELD	83,735.1	19660	0.0	49.2	48.29095471	-103.53366062	2063.607	0	12:00					
19670	WELD	83,784.3	19670	0.0	49.3	48.29083262	-103.53357785	2060.236	0	12:00					
19680	WELD	83,833.6	19680	0.0	49.4	48.29071092	-103.53349482	2068.488	0	12:00					
19690	WELD	83,883.0	19690	0.0	49.3	48.29058922	-103.53341329	2078.072	0	12:00					
19700	WELD	83,932.3	19700	0.0	49.3	48.29046538	-103.53333170	2079.888	0	12:00					
19710	WELD	83,981.6	19710	0.0	49.2	48.29034131	-103.53325004	2080.528	0	12:00					
19720	WELD	84,030.8	19720	0.0	49.3	48.29021791	-103.53316794	2083.705	0	12:00					
19730	WELD	84,080.1	19730	0.0	49.3	48.29009428	-103.53308581	2087.811	0	12:00					
19740	WELD	84,129.4	19740	0.0	49.1	48.28997088	-103.53300336	2091.962	0	12:00					
19750	WELD	84,178.5	19750	0.0	49.3	48.28984799	-103.53292119	2096.343	0	12:00					
19760	WELD	84,227.9	19760	0.0	49.1	48.28972436	-103.53283863	2099.386	0	12:00					
19770	WELD	84,277.0	19770	0.0	49.1	48.28960102	-103.53275640	2101.406	0	12:00					
19780	WELD	84,326.1	19780	0.0	49.0	48.28947766	-103.53267412	2102.726	0	12:00					
19790	WELD	84,375.2	19790	0.0	49.5	48.28935449	-103.53259193	2103.423	0	12:00					
19800	WELD	84,424.6	19800	0.0	49.2	48.28923022	-103.53250937	2104.241	0	12:00					
19810	WELD	84,473.8	19810	0.0	49.0	48.28910671	-103.53242660	2104.482	0	12:00					
19820	WELD	84,522.8	19820	0.0	49.3	48.28898363	-103.53234491	2105.436	0	12:00					
40000028	Metal Loss - EXTERNAL	84,531.0	19820	8.2	41.2	48.28896296	-103.53233129	2105.678	97	3:00	9%	1.05	0.61	1760	100%
19830	WELD	84,572.1	19830	0.0	49.4	48.28885974	-103.53226241	2107.054	0	12:00					
19840	WELD	84,621.5	19840	0.0	49.2	48.28873632	-103.53217779	2107.819	0	12:00					
19850	WELD	84,670.7	19850	0.0	49.3	48.28861357	-103.53209262	2108.418	0	12:00					
19860	WELD	84,720.0	19860	0.0	46.7	48.28849044	-103.53200825	2109.813	0	12:00					
19870	WELD	84,766.7	19870	0.0	49.4	48.28837329	-103.53192954	2111.555	0	12:00					
19880	WELD	84,816.1	19880	0.0	49.4	48.28824928	-103.53184663	2113.741	0	12:00					
19890	WELD	84,865.5	19890	0.0	49.3	48.28812509	-103.53176479	2115.604	0	12:00					

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)
19900	WELD	84,914.8	19900	0.0	49.3	48.28800054	-103.53168556	2118.123	0	12:00					
19910	WELD	84,964.1	19910	0.0	49.3	48.28787609	-103.53160637	2121.241	0	12:00					
19920	WELD	85,013.3	19920	0.0	49.3	48.28775261	-103.53152369	2124.303	0	12:00					
19930	WELD	85,062.7	19930	0.0	49.0	48.28762946	-103.53143941	2127.457	0	12:00					
19940	WELD	85,111.7	19940	0.0	49.4	48.28750680	-103.53135605	2129.584	0	12:00					
19950	WELD	85,161.1	19950	0.0	49.3	48.28738322	-103.53127216	2130.833	0	12:00					
19960	WELD	85,210.4	19960	0.0	48.9	48.28725935	-103.53118934	2131.598	0	12:00					
19970	WELD	85,259.3	19970	0.0	49.4	48.28713666	-103.53110721	2132.149	0	12:00					
19980	WELD	85,308.7	19980	0.0	49.3	48.28701238	-103.53102493	2132.973	0	12:00					
19990	WELD	85,358.0	19990	0.0	49.4	48.28688823	-103.53094331	2133.736	0	12:00					
20000	WELD	85,407.4	20000	0.0	49.3	48.28676454	-103.53085977	2133.972	0	12:00					
20010	WELD	85,456.7	20010	0.0	47.8	48.28664076	-103.53077707	2134.604	0	12:00					
20020	WELD	85,504.5	20020	0.0	49.3	48.28652026	-103.53069852	2135.615	0	12:00					
20030	WELD	85,553.8	20030	0.0	49.4	48.28639646	-103.53061556	2136.875	0	12:00					
20040	WELD	85,603.2	20040	0.0	49.4	48.28627302	-103.53053086	2137.224	0	12:00					
20050	WELD	85,652.6	20050	0.0	49.2	48.28614965	-103.53044609	2136.684	0	12:00					
20060	WELD	85,701.9	20060	0.0	49.3	48.28602648	-103.53036220	2135.341	0	12:00					
20070	WELD	85,751.2	20070	0.0	49.4	48.28590296	-103.53027902	2132.961	0	12:00					
20080	WELD	85,800.6	20080	0.0	49.0	48.28577896	-103.53019632	2130.849	0	12:00					
20090	WELD	85,849.6	20090	0.0	49.0	48.28565585	-103.53011446	2130.616	0	12:00					
40000029	Metal Loss - EXTERNAL	85,856.1	20090	6.5	42.5	48.28563953	-103.53010364	2130.708	290	9:30	6%	0.88	0.66	1760	100%
20100	WELD	85,898.7	20100	0.0	49.3	48.28553264	-103.53003288	2131.711	0	12:00					
20110	WELD	85,947.9	20110	0.0	49.3	48.28540877	-103.52995153	2134.367	0	12:00					
20120	WELD	85,997.2	20120	0.0	49.4	48.28528606	-103.52986706	2138.581	0	12:00					
10000082	AGM 140 -- Han #8208	86,029.3	20120	32.1	17.2	48.28520915	-103.52980259	2140.957	0	12:00					
20130	WELD	86,046.6	20130	0.0	45.3	48.28516892	-103.52976560	2142.357	0	12:00					
20140	WELD	86,091.8	20140	0.0	8.2	48.28506362	-103.52966707	2145.628	0	12:00					
10000083	Fitting on top of pipe	86,099.3	20140	7.4	0.7	48.28504611	-103.52965107	2145.963	338	11:15					
11000050	WT CHANGE	86,099.9	20140	0.0	0.0	48.28504460	-103.52964972	2145.992	0	12:00		0.322	52000	0.72	
20150	WELD	86,100.0	20150	0.0	12.0	48.28504448	-103.52964962	2145.994	0	12:00					
11000051	WT CHANGE	86,111.9	20150	0.0	0.0	48.28501624	-103.52962445	2146.482	0	12:00		0.188	52000	0.72	
20160	WELD	86,112.0	20160	0.0	3.1	48.28501617	-103.52962438	2146.483	0	12:00					
20170	WELD	86,115.1	20170	0.0	0.8	48.28500877	-103.52961801	2146.620	0	12:00					
10000084	Bend right - 24 deg., 1.5D	86,115.4	20170	0.1	0.7	48.28500782	-103.52961746	2146.622	0	12:00					
11000052	WT CHANGE	86,115.8	20170	0.0	0.0	48.28500680	-103.52961717	2146.591	0	12:00		0.322	52000	0.72	
20180	WELD	86,115.8	20180	0.0	37.5	48.28500675	-103.52961716	2146.589	0	12:00					
20190	WELD	86,153.3	20190	0.0	42.0	48.28490608	-103.52959146	2141.808	0	12:00					

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)
20200	WELD	86,195.4	20200	0.0	42.0	48.28479267	-103.52956720	2136.881	0	12:00					
20210	WELD	86,237.4	20210	0.0	42.0	48.28467835	-103.52954491	2134.850	0	12:00					
20220	WELD	86,279.3	20220	0.0	42.0	48.28456332	-103.52953471	2135.204	0	12:00					
20230	WELD	86,321.4	20230	0.0	15.5	48.28444832	-103.52952119	2137.697	0	12:00					
20240	WELD	86,336.9	20240	0.0	43.8	48.28440608	-103.52951441	2138.762	0	12:00					
20250	WELD	86,380.7	20250	0.0	16.2	48.28428653	-103.52949941	2143.014	0	12:00					
20260	WELD	86,396.9	20260	0.0	42.3	48.28424234	-103.52949446	2144.656	0	12:00					
11000053	WT CHANGE	86,439.2	20260	0.0	0.0	48.28412667	-103.52948190	2147.985	0	12:00		0.188	52000	0.72	
20270	WELD	86,439.2	20270	0.0	49.1	48.28412661	-103.52948190	2147.986	0	12:00					
20280	WELD	86,488.3	20280	0.0	49.2	48.28399201	-103.52946788	2150.460	0	12:00					
20290	WELD	86,537.5	20290	0.0	49.3	48.28385710	-103.52945385	2152.183	0	12:00					
20300	WELD	86,586.9	20300	0.0	49.4	48.28372194	-103.52943796	2152.664	0	12:00					
20310	WELD	86,636.3	20310	0.0	49.4	48.28358647	-103.52942352	2152.043	0	12:00					
20320	WELD	86,685.7	20320	0.0	49.4	48.28345101	-103.52941083	2152.088	0	12:00					
20330	WELD	86,735.0	20330	0.0	48.9	48.28331562	-103.52939842	2151.999	0	12:00					
20340	WELD	86,783.9	20340	0.0	49.4	48.28318148	-103.52938525	2152.241	0	12:00					
20350	WELD	86,833.4	20350	0.0	49.0	48.28304590	-103.52937339	2153.077	0	12:00					
20360	WELD	86,882.3	20360	0.0	48.5	48.28291152	-103.52936142	2154.585	0	12:00					
20370	WELD	86,930.8	20370	0.0	49.1	48.28277862	-103.52934927	2156.531	0	12:00					
20380	WELD	86,979.9	20380	0.0	49.3	48.28264411	-103.52933481	2158.809	0	12:00					
20390	WELD	87,029.2	20390	0.0	49.4	48.28250910	-103.52932041	2161.849	0	12:00					
20400	WELD	87,078.6	20400	0.0	36.1	48.28237377	-103.52930822	2164.374	0	12:00					
20410	WELD	87,114.7	20410	0.0	1.6	48.28227503	-103.52929492	2165.838	0	12:00					
10000085	Bend left - 45 deg., 3D	87,115.5	20410	0.0	1.5	48.28227308	-103.52929384	2165.870	0	12:00					
20420	WELD	87,116.3	20420	0.0	27.9	48.28227136	-103.52929177	2165.894	0	12:00					
20430	WELD	87,144.2	20430	0.0	48.9	48.28222636	-103.52919886	2166.921	0	12:00					
20440	WELD	87,193.1	20440	0.0	49.0	48.28215303	-103.52903014	2167.917	0	12:00					
20450	WELD	87,242.1	20450	0.0	49.3	48.28207972	-103.52886074	2168.027	0	12:00					
20460	WELD	87,291.4	20460	0.0	49.2	48.28200621	-103.52869041	2168.271	0	12:00					
20470	WELD	87,340.5	20470	0.0	49.2	48.28193270	-103.52852083	2166.743	0	12:00					
20480	WELD	87,389.7	20480	0.0	48.9	48.28185916	-103.52835202	2162.296	0	12:00					
20490	WELD	87,438.6	20490	0.0	48.3	48.28178628	-103.52818443	2156.940	0	12:00					
20500	WELD	87,486.9	20500	0.0	49.3	48.28171514	-103.52801821	2151.598	0	12:00					
20510	WELD	87,536.2	20510	0.0	49.0	48.28164345	-103.52784756	2146.453	0	12:00					
20520	WELD	87,585.2	20520	0.0	49.0	48.28157137	-103.52767836	2141.960	0	12:00					
20530	WELD	87,634.3	20530	0.0	49.0	48.28149829	-103.52750926	2138.870	0	12:00					
20540	WELD	87,683.3	20540	0.0	49.4	48.28142464	-103.52734124	2134.637	0	12:00					

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)
20550	WELD	87,732.7	20550	0.0	49.2	48.28135027	-103.52717340	2128.333	0	12:00					
20560	WELD	87,781.8	20560	0.0	49.3	48.28127691	-103.52700619	2121.328	0	12:00					
20570	WELD	87,831.1	20570	0.0	49.2	48.28120291	-103.52683784	2116.264	0	12:00					
20580	WELD	87,880.3	20580	0.0	49.4	48.28112917	-103.52667081	2109.228	0	12:00					
20590	WELD	87,929.7	20590	0.0	49.4	48.28105460	-103.52650367	2102.083	0	12:00					
20600	WELD	87,979.1	20600	0.0	48.6	48.28097999	-103.52633760	2093.896	0	12:00					
20610	WELD	88,027.7	20610	0.0	49.3	48.28090772	-103.52617288	2085.979	0	12:00					
20620	WELD	88,076.9	20620	0.0	49.1	48.28083502	-103.52600338	2080.623	0	12:00					
20630	WELD	88,126.1	20630	0.0	42.2	48.28076530	-103.52583069	2077.426	0	12:00					
20640	WELD	88,168.3	20640	0.0	0.7	48.28071047	-103.52567805	2074.432	0	12:00					
10000086	Bend left - 18 deg., 3D	88,168.7	20640	0.0	0.7	48.28071013	-103.52567674	2074.411	0	12:00					
20650	WELD	88,169.0	20650	0.0	10.8	48.28070985	-103.52567533	2074.390	0	12:00					
20660	WELD	88,179.9	20660	0.0	0.4	48.28070447	-103.52563155	2073.889	0	12:00					
10000087	Bend up - 18 deg., 1.5D	88,180.1	20660	0.0	0.4	48.28070437	-103.52563069	2073.907	0	12:00					
20670	WELD	88,180.3	20670	0.0	36.6	48.28070426	-103.52562979	2073.930	0	12:00					
20680	WELD	88,216.9	20680	0.0	49.1	48.28068484	-103.52548652	2082.976	0	12:00					
20690	WELD	88,265.9	20690	0.0	49.3	48.28065913	-103.52529519	2096.060	0	12:00					
20700	WELD	88,315.2	20700	0.0	48.9	48.28063274	-103.52509918	2104.816	0	12:00					
20710	WELD	88,364.1	20710	0.0	48.9	48.28060550	-103.52490350	2110.969	0	12:00					
20720	WELD	88,413.0	20720	0.0	49.4	48.28057806	-103.52470703	2115.491	0	12:00					
20730	WELD	88,462.4	20730	0.0	49.4	48.28055114	-103.52450779	2115.523	0	12:00					
20740	WELD	88,511.8	20740	0.0	49.0	48.28052479	-103.52430910	2111.483	0	12:00					
20750	WELD	88,560.8	20750	0.0	50.4	48.28049841	-103.52411136	2110.984	0	12:00					
20760	WELD	88,611.2	20760	0.0	49.0	48.28047177	-103.52390800	2113.524	0	12:00					
20770	WELD	88,660.2	20770	0.0	49.3	48.28044494	-103.52371022	2113.349	0	12:00					
20780	WELD	88,709.5	20780	0.0	49.4	48.28041631	-103.52351266	2109.297	0	12:00					
20790	WELD	88,758.9	20790	0.0	49.2	48.28038633	-103.52331474	2106.646	0	12:00					
20800	WELD	88,808.1	20800	0.0	49.2	48.28035551	-103.52311730	2107.304	0	12:00					
20810	WELD	88,857.3	20810	0.0	49.1	48.28032396	-103.52292062	2109.670	0	12:00					
20820	WELD	88,906.4	20820	0.0	44.0	48.28029271	-103.52272391	2111.891	0	12:00					
20830	WELD	88,950.4	20830	0.0	46.9	48.28026647	-103.52254727	2113.762	0	12:00					
20840	WELD	88,997.3	20840	0.0	49.3	48.28024167	-103.52235791	2114.457	0	12:00					
20850	WELD	89,046.6	20850	0.0	49.4	48.28021690	-103.52215954	2109.968	0	12:00					
20860	WELD	89,096.0	20860	0.0	49.2	48.28019181	-103.52196238	2102.397	0	12:00					
20870	WELD	89,145.1	20870	0.0	49.5	48.28016690	-103.52176602	2094.984	0	12:00					
20880	WELD	89,194.6	20880	0.0	49.4	48.28014059	-103.52156710	2090.982	0	12:00					
20890	WELD	89,244.0	20890	0.0	49.3	48.28011331	-103.52136798	2089.114	0	12:00					

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)
20900	WELD	89,293.3	20900	0.0	47.7	48.28008506	-103.52116959	2087.115	0	12:00					
20910	WELD	89,341.1	20910	0.0	49.3	48.28005835	-103.52097736	2085.525	0	12:00					
20920	WELD	89,390.4	20920	0.0	49.3	48.28003163	-103.52077834	2083.914	0	12:00					
20930	WELD	89,439.7	20930	0.0	49.0	48.28000484	-103.52057943	2082.791	0	12:00					
20940	WELD	89,488.7	20940	0.0	49.2	48.27997918	-103.52038136	2081.276	0	12:00					
20950	WELD	89,537.9	20950	0.0	47.4	48.27995324	-103.52018276	2079.235	0	12:00					
20960	WELD	89,585.3	20960	0.0	49.2	48.27992673	-103.51999191	2077.415	0	12:00					
20970	WELD	89,634.5	20970	0.0	49.3	48.27989832	-103.51979409	2075.589	0	12:00					
20980	WELD	89,683.8	20980	0.0	49.4	48.27987069	-103.51959539	2074.356	0	12:00					
20990	WELD	89,733.3	20990	0.0	49.4	48.27984390	-103.51939625	2072.025	0	12:00					
21000	WELD	89,782.7	21000	0.0	49.3	48.27981611	-103.51919816	2067.585	0	12:00					
21010	WELD	89,831.9	21010	0.0	49.3	48.27978606	-103.51900062	2065.876	0	12:00					
21020	WELD	89,881.2	21020	0.0	48.2	48.27975611	-103.51880285	2067.947	0	12:00					
21030	WELD	89,929.4	21030	0.0	49.0	48.27972631	-103.51860969	2071.415	0	12:00					
21040	WELD	89,978.5	21040	0.0	49.3	48.27969686	-103.51841269	2073.061	0	12:00					
21050	WELD	90,027.8	21050	0.0	49.4	48.27966689	-103.51821473	2074.555	0	12:00					
10000088	Bend right - 15 deg., 115D	90,047.2	21050	9.1	40.3	48.27965193	-103.51813815	2075.054	0	12:00					
21060	WELD	90,077.2	21060	0.0	49.2	48.27961394	-103.51802843	2075.756	0	12:00					
21070	WELD	90,126.5	21070	0.0	48.2	48.27954665	-103.51785271	2077.736	0	12:00					
21080	WELD	90,174.7	21080	0.0	49.3	48.27947746	-103.51768361	2079.798	0	12:00					
21090	WELD	90,224.0	21090	0.0	48.6	48.27940716	-103.51751030	2083.148	0	12:00					
21100	WELD	90,272.6	21100	0.0	49.2	48.27933820	-103.51733911	2085.755	0	12:00					
21110	WELD	90,321.8	21110	0.0	49.2	48.27926892	-103.51716525	2087.645	0	12:00					
21120	WELD	90,371.0	21120	0.0	49.1	48.27919949	-103.51699137	2088.179	0	12:00					
21130	WELD	90,420.1	21130	0.0	49.3	48.27913014	-103.51681798	2086.290	0	12:00					
21140	WELD	90,469.5	21140	0.0	49.4	48.27905927	-103.51664507	2084.388	0	12:00					
21150	WELD	90,518.9	21150	0.0	49.4	48.27898640	-103.51647327	2083.646	0	12:00					
21160	WELD	90,568.3	21160	0.0	49.3	48.27891050	-103.51630515	2081.272	0	12:00					
21170	WELD	90,617.6	21170	0.0	49.3	48.27883135	-103.51614156	2076.890	0	12:00					
21180	WELD	90,666.9	21180	0.0	49.5	48.27875115	-103.51598114	2069.646	0	12:00					
21190	WELD	90,716.4	21190	0.0	49.0	48.27867013	-103.51581877	2065.892	0	12:00					
21200	WELD	90,765.4	21200	0.0	49.3	48.27858892	-103.51565840	2069.629	0	12:00					
21210	WELD	90,814.7	21210	0.0	49.3	48.27850584	-103.51549876	2073.093	0	12:00					
21220	WELD	90,863.9	21220	0.0	49.3	48.27842288	-103.51533874	2076.456	0	12:00					
21230	WELD	90,913.2	21230	0.0	49.4	48.27834080	-103.51517808	2080.474	0	12:00					
21240	WELD	90,962.6	21240	0.0	49.3	48.27826016	-103.51501479	2080.378	0	12:00					

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)
21250	WELD	91,011.8	21250	0.0	49.4	48.27818092	-103.51485035	2079.771	0	12:00					
10000089	AGM 150 -- Han #8777	91,012.4	21250	0.6	48.8	48.27817998	-103.51484840	2079.778	0	12:00					
21260	WELD	91,061.2	21260	0.0	49.3	48.27810103	-103.51468587	2081.270	0	12:00					
21270	WELD	91,110.6	21270	0.0	49.4	48.27802023	-103.51452270	2082.645	0	12:00					
21280	WELD	91,160.0	21280	0.0	49.3	48.27793955	-103.51435894	2082.209	0	12:00					
21290	WELD	91,209.3	21290	0.0	49.4	48.27785879	-103.51419608	2081.929	0	12:00					
21300	WELD	91,258.7	21300	0.0	49.0	48.27777714	-103.51403342	2083.234	0	12:00					
21310	WELD	91,307.6	21310	0.0	47.5	48.27769621	-103.51387228	2085.118	0	12:00					
21320	WELD	91,355.2	21320	0.0	49.2	48.27761829	-103.51371517	2086.097	0	12:00					
21330	WELD	91,404.4	21330	0.0	49.4	48.27753753	-103.51355251	2087.455	0	12:00					
21340	WELD	91,453.8	21340	0.0	49.3	48.27745725	-103.51338837	2088.103	0	12:00					
21350	WELD	91,503.1	21350	0.0	49.4	48.27737773	-103.51322401	2088.149	0	12:00					
21360	WELD	91,552.5	21360	0.0	49.3	48.27729693	-103.51306060	2088.006	0	12:00					
21370	WELD	91,601.8	21370	0.0	49.3	48.27721611	-103.51289754	2088.491	0	12:00					
21380	WELD	91,651.1	21380	0.0	49.4	48.27713502	-103.51273475	2088.597	0	12:00					
21390	WELD	91,700.4	21390	0.0	49.0	48.27705397	-103.51257167	2089.021	0	12:00					
21400	WELD	91,749.5	21400	0.0	49.3	48.27697398	-103.51240916	2089.324	0	12:00					
21410	WELD	91,798.8	21410	0.0	48.9	48.27689374	-103.51224547	2089.147	0	12:00					
21420	WELD	91,847.7	21420	0.0	49.3	48.27681379	-103.51208354	2088.869	0	12:00					
21430	WELD	91,896.9	21430	0.0	49.4	48.27673270	-103.51192114	2087.706	0	12:00					
21440	WELD	91,946.4	21440	0.0	49.2	48.27665193	-103.51175863	2083.340	0	12:00					
21450	WELD	91,995.6	21450	0.0	49.5	48.27657160	-103.51159607	2080.345	0	12:00					
21460	WELD	92,045.1	21460	0.0	47.1	48.27649062	-103.51143243	2079.991	0	12:00					
21470	WELD	92,092.1	21470	0.0	49.5	48.27641298	-103.51127771	2081.802	0	12:00					
21480	WELD	92,141.6	21480	0.0	49.3	48.27633163	-103.51111732	2089.505	0	12:00					
21490	WELD	92,190.9	21490	0.0	49.3	48.27625076	-103.51095722	2097.372	0	12:00					
21500	WELD	92,240.2	21500	0.0	49.4	48.27617073	-103.51079416	2101.789	0	12:00					
21510	WELD	92,289.6	21510	0.0	48.9	48.27609166	-103.51062921	2104.691	0	12:00					
21520	WELD	92,338.5	21520	0.0	49.4	48.27601301	-103.51046597	2107.148	0	12:00					
21530	WELD	92,387.9	21530	0.0	49.3	48.27593260	-103.51030244	2109.357	0	12:00					
21540	WELD	92,437.2	21540	0.0	49.3	48.27585313	-103.51013861	2113.495	0	12:00					
21550	WELD	92,486.5	21550	0.0	49.1	48.27577393	-103.50997407	2116.194	0	12:00					
21560	WELD	92,535.5	21560	0.0	49.3	48.27569468	-103.50981070	2118.007	0	12:00					
21570	WELD	92,584.8	21570	0.0	49.4	48.27561441	-103.50964711	2119.659	0	12:00					
21580	WELD	92,634.2	21580	0.0	49.0	48.27553298	-103.50948436	2121.201	0	12:00					
21590	WELD	92,683.3	21590	0.0	49.2	48.27545136	-103.50932372	2122.565	0	12:00					
21600	WELD	92,732.5	21600	0.0	49.1	48.27536826	-103.50916382	2123.624	0	12:00					

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)
21610	WELD	92,781.6	21610	0.0	49.0	48.27528713	-103.50900208	2125.043	0	12:00					
21620	WELD	92,830.6	21620	0.0	49.3	48.27521853	-103.50882863	2126.389	0	12:00					
21630	WELD	92,879.9	21630	0.0	49.3	48.27515381	-103.50865036	2127.749	0	12:00					
21640	WELD	92,929.2	21640	0.0	49.4	48.27509046	-103.50847095	2128.863	0	12:00					
21650	WELD	92,978.6	21650	0.0	49.3	48.27502765	-103.50829059	2128.969	0	12:00					
21660	WELD	93,027.9	21660	0.0	49.0	48.27496461	-103.50811075	2129.708	0	12:00					
21670	WELD	93,076.9	21670	0.0	49.3	48.27490090	-103.50793280	2130.516	0	12:00					
21680	WELD	93,126.2	21680	0.0	49.4	48.27483610	-103.50775469	2131.359	0	12:00					
21690	WELD	93,175.6	21690	0.0	49.1	48.27477175	-103.50757556	2132.158	0	12:00					
21700	WELD	93,224.7	21700	0.0	49.2	48.27470728	-103.50739783	2132.620	0	12:00					
21710	WELD	93,273.9	21710	0.0	49.2	48.27464189	-103.50722026	2133.124	0	12:00					
21720	WELD	93,323.1	21720	0.0	49.3	48.27457621	-103.50704331	2134.915	0	12:00					
21730	WELD	93,372.3	21730	0.0	49.3	48.27451054	-103.50686610	2137.606	0	12:00					
21740	WELD	93,421.6	21740	0.0	49.4	48.27444615	-103.50668778	2140.321	0	12:00					
21750	WELD	93,471.1	21750	0.0	49.2	48.27438304	-103.50650782	2143.369	0	12:00					
21760	WELD	93,520.2	21760	0.0	49.3	48.27432102	-103.50632807	2145.324	0	12:00					
21770	WELD	93,569.5	21770	0.0	49.1	48.27425798	-103.50614839	2146.501	0	12:00					
21780	WELD	93,618.6	21780	0.0	48.9	48.27419394	-103.50597023	2147.847	0	12:00					
21790	WELD	93,667.5	21790	0.0	49.2	48.27412953	-103.50579349	2149.441	0	12:00					
21800	WELD	93,716.7	21800	0.0	49.4	48.27406488	-103.50561567	2150.676	0	12:00					
21810	WELD	93,766.1	21810	0.0	49.3	48.27399992	-103.50543706	2152.122	0	12:00					
21820	WELD	93,815.4	21820	0.0	49.3	48.27393503	-103.50525873	2153.900	0	12:00					
21830	WELD	93,864.7	21830	0.0	49.0	48.27386986	-103.50508088	2156.186	0	12:00					
21840	WELD	93,913.7	21840	0.0	49.5	48.27380489	-103.50490439	2158.710	0	12:00					
21850	WELD	93,963.2	21850	0.0	49.2	48.27373970	-103.50472599	2161.631	0	12:00					
21860	WELD	94,012.4	21860	0.0	49.2	48.27367548	-103.50454767	2164.199	0	12:00					
21870	WELD	94,061.6	21870	0.0	49.0	48.27361178	-103.50436912	2166.965	0	12:00					
21880	WELD	94,110.6	21880	0.0	49.4	48.27354805	-103.50419142	2169.485	0	12:00					
21890	WELD	94,160.1	21890	0.0	49.3	48.27348336	-103.50401274	2172.291	0	12:00					
21900	WELD	94,209.4	21900	0.0	49.1	48.27341906	-103.50383407	2175.053	0	12:00					
21910	WELD	94,258.5	21910	0.0	49.2	48.27335498	-103.50365624	2177.660	0	12:00					
21920	WELD	94,307.7	21920	0.0	49.2	48.27329048	-103.50347838	2179.665	0	12:00					
21930	WELD	94,356.9	21930	0.0	49.0	48.27322701	-103.50329936	2180.298	0	12:00					
21940	WELD	94,405.9	21940	0.0	49.1	48.27316548	-103.50312019	2178.158	0	12:00					
21950	WELD	94,455.0	21950	0.0	49.3	48.27310406	-103.50294144	2173.598	0	12:00					
21960	WELD	94,504.2	21960	0.0	49.3	48.27304283	-103.50276110	2170.294	0	12:00					
21970	WELD	94,553.6	21970	0.0	49.2	48.27298161	-103.50258003	2169.004	0	12:00					

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)
21980	WELD	94,602.7	21980	0.0	49.1	48.27292074	-103.50239911	2170.213	0	12:00					
21990	WELD	94,651.8	21990	0.0	48.8	48.27286066	-103.50221834	2171.932	0	12:00					
22000	WELD	94,700.6	22000	0.0	44.5	48.27280078	-103.50203870	2174.227	0	12:00					
22010	WELD	94,745.1	22010	0.0	47.5	48.27274655	-103.50187433	2176.120	0	12:00					
22020	WELD	94,792.6	22020	0.0	48.9	48.27268833	-103.50169951	2179.176	0	12:00					
22030	WELD	94,841.5	22030	0.0	49.2	48.27262833	-103.50152011	2183.310	0	12:00					
22040	WELD	94,890.7	22040	0.0	49.0	48.27256726	-103.50134024	2188.104	0	12:00					
22050	WELD	94,939.7	22050	0.0	49.1	48.27250655	-103.50116094	2192.641	0	12:00					
22060	WELD	94,988.8	22060	0.0	49.1	48.27244511	-103.50098180	2197.368	0	12:00					
22070	WELD	95,037.9	22070	0.0	48.9	48.27238413	-103.50080224	2201.582	0	12:00					
22080	WELD	95,086.7	22080	0.0	48.9	48.27232396	-103.50062256	2204.812	0	12:00					
22090	WELD	95,135.6	22090	0.0	49.1	48.27226356	-103.50044308	2207.907	0	12:00					
22100	WELD	95,184.7	22100	0.0	49.2	48.27220220	-103.50026323	2210.726	0	12:00					
22110	WELD	95,233.9	22110	0.0	49.3	48.27214083	-103.50008274	2212.928	0	12:00					
22120	WELD	95,283.3	22120	0.0	49.1	48.27207842	-103.49990256	2214.843	0	12:00					
22130	WELD	95,332.4	22130	0.0	49.0	48.27201509	-103.49972395	2215.874	0	12:00					
22140	WELD	95,381.4	22140	0.0	49.0	48.27195361	-103.49954445	2217.722	0	12:00					
22150	WELD	95,430.4	22150	0.0	45.6	48.27189259	-103.49936483	2220.178	0	12:00					
22160	WELD	95,476.0	22160	0.0	49.1	48.27183580	-103.49919752	2222.314	0	12:00					
22170	WELD	95,525.1	22170	0.0	49.0	48.27177446	-103.49901758	2224.991	0	12:00					
22180	WELD	95,574.1	22180	0.0	49.4	48.27171362	-103.49883763	2227.302	0	12:00					
22190	WELD	95,623.5	22190	0.0	49.1	48.27165287	-103.49865585	2228.971	0	12:00					
22200	WELD	95,672.6	22200	0.0	49.2	48.27159155	-103.49847565	2228.579	0	12:00					
22210	WELD	95,721.7	22210	0.0	49.3	48.27152965	-103.49829572	2229.419	0	12:00					
22220	WELD	95,771.0	22220	0.0	49.2	48.27146825	-103.49811468	2230.534	0	12:00					
22230	WELD	95,820.2	22230	0.0	42.3	48.27140745	-103.49793393	2228.949	0	12:00					
22240	WELD	95,862.6	22240	0.0	49.0	48.27135430	-103.49777904	2227.146	0	12:00					
22250	WELD	95,911.6	22250	0.0	41.0	48.27129244	-103.49759968	2225.908	0	12:00					
22260	WELD	95,952.6	22260	0.0	40.9	48.27124030	-103.49745034	2224.646	0	12:00					
22270	WELD	95,993.5	22270	0.0	41.0	48.27118823	-103.49730123	2222.723	0	12:00					
22280	WELD	96,034.5	22280	0.0	41.1	48.27113624	-103.49715159	2220.940	0	12:00					
22290	WELD	96,075.6	22290	0.0	41.0	48.27108457	-103.49700135	2219.641	0	12:00					
22300	WELD	96,116.6	22300	0.0	41.0	48.27103369	-103.49685095	2217.880	0	12:00					
22310	WELD	96,157.6	22310	0.0	41.1	48.27098238	-103.49670069	2216.234	0	12:00					
22320	WELD	96,198.7	22320	0.0	41.0	48.27093117	-103.49654997	2215.101	0	12:00					
22330	WELD	96,239.7	22330	0.0	28.1	48.27088147	-103.49639836	2214.806	0	12:00					
22340	WELD	96,267.8	22340	0.0	0.8	48.27084888	-103.49629345	2214.826	0	12:00					

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)
10000090	Bend left - 24 deg., 3D	96,268.2	22340	0.0	0.8	48.27084858	-103.49629187	2214.826	0	12:00					
22350	WELD	96,268.6	22350	0.0	7.1	48.27084844	-103.49629020	2214.826	0	12:00					
22360	WELD	96,275.7	22360	0.0	36.8	48.27084760	-103.49626110	2214.787	0	12:00					
22370	WELD	96,312.5	22370	0.0	40.9	48.27084405	-103.49610978	2214.864	0	12:00					
22380	WELD	96,353.4	22380	0.0	41.0	48.27084164	-103.49594119	2214.967	0	12:00					
22390	WELD	96,394.4	22390	0.0	40.9	48.27084022	-103.49577251	2215.454	0	12:00					
22400	WELD	96,435.3	22400	0.0	39.9	48.27083870	-103.49560388	2215.641	0	12:00					
22410	WELD	96,475.3	22410	0.0	40.7	48.27083723	-103.49543941	2215.898	0	12:00					
22420	WELD	96,516.0	22420	0.0	41.0	48.27083629	-103.49527162	2215.364	0	12:00					
22430	WELD	96,557.0	22430	0.0	40.1	48.27083524	-103.49510311	2217.325	0	12:00					
22440	WELD	96,597.0	22440	0.0	40.7	48.27083488	-103.49493857	2220.744	0	12:00					
22450	WELD	96,637.7	22450	0.0	41.0	48.27083532	-103.49477159	2223.934	0	12:00					
22460	WELD	96,678.7	22460	0.0	41.0	48.27083584	-103.49460297	2225.758	0	12:00					
22470	WELD	96,719.7	22470	0.0	41.1	48.27083539	-103.49443407	2227.603	0	12:00					
22480	WELD	96,760.8	22480	0.0	41.1	48.27083467	-103.49426519	2230.406	0	12:00					
22490	WELD	96,801.9	22490	0.0	41.0	48.27083315	-103.49409668	2234.170	0	12:00					
22500	WELD	96,842.9	22500	0.0	41.0	48.27083088	-103.49392802	2237.180	0	12:00					
22510	WELD	96,883.9	22510	0.0	40.9	48.27082965	-103.49375909	2238.139	0	12:00					
22520	WELD	96,924.9	22520	0.0	40.9	48.27082915	-103.49359083	2236.177	0	12:00					
22530	WELD	96,965.8	22530	0.0	40.9	48.27082879	-103.49342282	2233.297	0	12:00					
22540	WELD	97,006.7	22540	0.0	40.9	48.27082770	-103.49325442	2231.463	0	12:00					
10000091	AGM 160 -- Han #8656	97,011.1	22540	4.4	36.5	48.27082755	-103.49323641	2231.258	0	12:00					
22550	WELD	97,047.7	22550	0.0	41.0	48.27082663	-103.49308589	2230.518	0	12:00					
22560	WELD	97,088.7	22560	0.0	41.1	48.27082529	-103.49291698	2230.473	0	12:00					
22570	WELD	97,129.7	22570	0.0	41.0	48.27082397	-103.49274780	2230.962	0	12:00					
22580	WELD	97,170.8	22580	0.0	40.9	48.27082330	-103.49257875	2230.857	0	12:00					
22590	WELD	97,211.7	22590	0.0	41.1	48.27082318	-103.49241008	2230.426	0	12:00					
22600	WELD	97,252.8	22600	0.0	41.0	48.27082321	-103.49224091	2229.562	0	12:00					
22610	WELD	97,293.8	22610	0.0	41.1	48.27082292	-103.49207209	2228.571	0	12:00					
22620	WELD	97,334.8	22620	0.0	41.0	48.27082170	-103.49190310	2227.394	0	12:00					
22630	WELD	97,375.8	22630	0.0	41.0	48.27082008	-103.49173411	2226.431	0	12:00					
22640	WELD	97,416.8	22640	0.0	41.0	48.27081881	-103.49156526	2225.546	0	12:00					
22650	WELD	97,457.8	22650	0.0	41.0	48.27081728	-103.49139658	2224.180	0	12:00					
22660	WELD	97,498.8	22660	0.0	41.0	48.27081560	-103.49122783	2223.213	0	12:00					
22670	WELD	97,539.8	22670	0.0	48.8	48.27081419	-103.49105909	2222.368	0	12:00					
22680	WELD	97,588.6	22680	0.0	49.3	48.27081236	-103.49085797	2221.884	0	12:00					
22690	WELD	97,637.9	22690	0.0	48.9	48.27081133	-103.49065507	2221.368	0	12:00					

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)
22700	WELD	97,686.7	22700	0.0	49.2	48.27081247	-103.49045384	2220.318	0	12:00					
22710	WELD	97,735.9	22710	0.0	49.3	48.27081339	-103.49025128	2219.497	0	12:00					
40000030	Metal Loss - EXTERNAL	97,781.5	22710	45.6	3.7	48.27081330	-103.49006326	2218.743	7	12:00	19%	0.83	0.54	1760	100%
22720	WELD	97,785.2	22720	0.0	49.3	48.27081327	-103.49004828	2218.774	0	12:00					
22730	WELD	97,834.5	22730	0.0	48.9	48.27081273	-103.48984518	2218.943	0	12:00					
22740	WELD	97,883.4	22740	0.0	49.3	48.27081253	-103.48964371	2218.710	0	12:00					
22750	WELD	97,932.6	22750	0.0	49.0	48.27081174	-103.48944076	2218.094	0	12:00					
22760	WELD	97,981.6	22760	0.0	49.0	48.27080998	-103.48923893	2217.896	0	12:00					
22770	WELD	98,030.7	22770	0.0	49.0	48.27080821	-103.48903689	2217.772	0	12:00					
22780	WELD	98,079.6	22780	0.0	49.0	48.27080594	-103.48883516	2217.759	0	12:00					
22790	WELD	98,128.6	22790	0.0	49.4	48.27080327	-103.48863332	2218.268	0	12:00					
22800	WELD	98,178.0	22800	0.0	49.3	48.27080294	-103.48842989	2218.545	0	12:00					
22810	WELD	98,227.3	22810	0.0	49.3	48.27080329	-103.48822672	2218.093	0	12:00					
22820	WELD	98,276.6	22820	0.0	49.3	48.27080291	-103.48802352	2218.342	0	12:00					
22830	WELD	98,325.9	22830	0.0	49.2	48.27080241	-103.48782057	2219.062	0	12:00					
22840	WELD	98,375.0	22840	0.0	49.0	48.27080123	-103.48761802	2219.013	0	12:00					
22850	WELD	98,424.1	22850	0.0	49.1	48.27079907	-103.48741602	2218.897	0	12:00					
22860	WELD	98,473.2	22860	0.0	49.2	48.27079605	-103.48721385	2219.970	0	12:00					
22870	WELD	98,522.4	22870	0.0	49.1	48.27079392	-103.48701110	2221.101	0	12:00					
22880	WELD	98,571.5	22880	0.0	49.3	48.27079339	-103.48680862	2221.301	0	12:00					
22890	WELD	98,620.8	22890	0.0	49.3	48.27079285	-103.48660562	2221.208	0	12:00					
22900	WELD	98,670.1	22900	0.0	49.1	48.27079165	-103.48640251	2220.141	0	12:00					
22910	WELD	98,719.2	22910	0.0	49.3	48.27079072	-103.48620042	2221.288	0	12:00					
22920	WELD	98,768.5	22920	0.0	49.3	48.27078975	-103.48599746	2222.099	0	12:00					
22930	WELD	98,817.7	22930	0.0	49.0	48.27078966	-103.48579434	2222.394	0	12:00					
22940	WELD	98,866.7	22940	0.0	49.1	48.27078923	-103.48559247	2222.746	0	12:00					
22950	WELD	98,915.8	22950	0.0	44.6	48.27078843	-103.48539026	2223.503	0	12:00					
22960	WELD	98,960.4	22960	0.0	47.7	48.27078817	-103.48520690	2226.455	0	12:00					
22970	WELD	99,008.1	22970	0.0	49.2	48.27078879	-103.48501065	2229.391	0	12:00					
22980	WELD	99,057.3	22980	0.0	49.3	48.27078874	-103.48480868	2233.574	0	12:00					
22990	WELD	99,106.5	22990	0.0	49.2	48.27078977	-103.48460614	2237.276	0	12:00					
23000	WELD	99,155.7	23000	0.0	49.3	48.27078993	-103.48440352	2239.320	0	12:00					
23010	WELD	99,205.0	23010	0.0	49.2	48.27078951	-103.48420054	2239.763	0	12:00					
23020	WELD	99,254.2	23020	0.0	49.2	48.27078910	-103.48399775	2239.247	0	12:00					
23030	WELD	99,303.4	23030	0.0	49.3	48.27078896	-103.48379510	2238.364	0	12:00					
23040	WELD	99,352.7	23040	0.0	49.3	48.27078900	-103.48359198	2238.908	0	12:00					
23050	WELD	99,402.0	23050	0.0	49.3	48.27078888	-103.48338913	2241.084	0	12:00					

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)
23060	WELD	99,451.2	23060	0.0	49.3	48.27078854	-103.48318618	2241.053	0	12:00					
23070	WELD	99,500.5	23070	0.0	49.2	48.27078773	-103.48298336	2240.057	0	12:00					
23080	WELD	99,549.7	23080	0.0	49.3	48.27078680	-103.48278054	2239.195	0	12:00					
23090	WELD	99,599.0	23090	0.0	49.0	48.27078558	-103.48257777	2237.004	0	12:00					
23100	WELD	99,648.0	23100	0.0	49.2	48.27078464	-103.48237615	2234.487	0	12:00					
23110	WELD	99,697.2	23110	0.0	49.4	48.27078345	-103.48217370	2234.173	0	12:00					
23120	WELD	99,746.6	23120	0.0	49.0	48.27078313	-103.48197016	2234.181	0	12:00					
23130	WELD	99,795.6	23130	0.0	49.4	48.27078407	-103.48176829	2233.873	0	12:00					
20000041	Seam Variation	99,806.1	23130	10.5	38.9	48.27078424	-103.48172483	2233.739	221	7:15	-	0.59	0.51		
23140	WELD	99,845.0	23140	0.0	49.4	48.27078421	-103.48156481	2233.375	0	12:00					
23150	WELD	99,894.4	23150	0.0	49.4	48.27078323	-103.48136142	2233.610	0	12:00					
23160	WELD	99,943.7	23160	0.0	49.3	48.27078284	-103.48115792	2234.693	0	12:00					
23170	WELD	99,993.1	23170	0.0	49.1	48.27078360	-103.48095473	2234.834	0	12:00					
23180	WELD	100,042.2	23180	0.0	49.0	48.27078466	-103.48075249	2233.084	0	12:00					
23190	WELD	100,091.2	23190	0.0	49.3	48.27078482	-103.48055098	2230.412	0	12:00					
23200	WELD	100,140.5	23200	0.0	49.3	48.27078456	-103.48034824	2228.416	0	12:00					
23210	WELD	100,189.8	23210	0.0	49.2	48.27078436	-103.48014511	2227.246	0	12:00					
23220	WELD	100,239.0	23220	0.0	49.3	48.27078393	-103.47994246	2225.570	0	12:00					
23230	WELD	100,288.3	23230	0.0	49.3	48.27078359	-103.47973950	2223.778	0	12:00					
23240	WELD	100,337.6	23240	0.0	49.3	48.27078326	-103.47953655	2222.531	0	12:00					
23250	WELD	100,386.9	23250	0.0	49.2	48.27078207	-103.47933360	2221.742	0	12:00					
23260	WELD	100,436.1	23260	0.0	49.1	48.27078067	-103.47913073	2221.397	0	12:00					
23270	WELD	100,485.2	23270	0.0	49.2	48.27077952	-103.47892855	2220.925	0	12:00					
23280	WELD	100,534.4	23280	0.0	49.0	48.27077910	-103.47872570	2220.218	0	12:00					
23290	WELD	100,583.5	23290	0.0	49.2	48.27077887	-103.47852379	2219.310	0	12:00					
23300	WELD	100,632.7	23300	0.0	48.8	48.27077770	-103.47832094	2219.193	0	12:00					
23310	WELD	100,681.5	23310	0.0	49.3	48.27077676	-103.47811971	2218.753	0	12:00					
23320	WELD	100,730.9	23320	0.0	49.4	48.27077617	-103.47791662	2217.597	0	12:00					
23330	WELD	100,780.3	23330	0.0	49.4	48.27077639	-103.47771309	2217.362	0	12:00					
23340	WELD	100,829.6	23340	0.0	49.2	48.27077799	-103.47750973	2216.502	0	12:00					
23350	WELD	100,878.8	23350	0.0	49.3	48.27078017	-103.47730730	2214.139	0	12:00					
23360	WELD	100,928.2	23360	0.0	49.1	48.27078081	-103.47710429	2212.373	0	12:00					
23370	WELD	100,977.3	23370	0.0	48.7	48.27078122	-103.47690207	2211.003	0	12:00					
23380	WELD	101,026.0	23380	0.0	49.0	48.27078110	-103.47670135	2210.070	0	12:00					
23390	WELD	101,075.0	23390	0.0	49.2	48.27078058	-103.47649945	2209.789	0	12:00					
23400	WELD	101,124.2	23400	0.0	49.3	48.27078057	-103.47629681	2209.004	0	12:00					
23410	WELD	101,173.5	23410	0.0	48.2	48.27078030	-103.47609382	2208.311	0	12:00					

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)
23420	WELD	101,221.7	23420	0.0	49.4	48.27078083	-103.47589514	2208.338	0	12:00					
23430	WELD	101,271.1	23430	0.0	48.8	48.27078130	-103.47569177	2208.660	0	12:00					
23440	WELD	101,319.9	23440	0.0	48.8	48.27078072	-103.47549068	2208.670	0	12:00					
23450	WELD	101,368.7	23450	0.0	37.6	48.27078145	-103.47528969	2208.428	0	12:00					
11000054	WT CHANGE	101,406.3	23450	0.0	0.0	48.27078207	-103.47513464	2208.416	0	12:00		0.322	52000	0.72	
23460	WELD	101,406.3	23460	0.0	41.7	48.27078207	-103.47513460	2208.416	0	12:00					
23470	WELD	101,448.0	23470	0.0	42.0	48.27078127	-103.47496261	2207.992	0	12:00					
10000092	AGM 170 -- Han #8777	101,473.3	23470	25.2	16.7	48.27078138	-103.47485871	2207.796	0	12:00					
23480	WELD	101,490.0	23480	0.0	42.0	48.27078199	-103.47478966	2207.650	0	12:00					
23490	WELD	101,532.0	23490	0.0	42.0	48.27078352	-103.47461647	2207.134	0	12:00					
23500	WELD	101,574.1	23500	0.0	42.0	48.27078554	-103.47444330	2207.164	0	12:00					
11000055	WT CHANGE	101,616.1	23500	0.0	0.0	48.27079540	-103.47427080	2208.245	0	12:00		0.188	52000	0.72	
23510	WELD	101,616.1	23510	0.0	16.2	48.27079541	-103.47427068	2208.245	0	12:00					
23520	WELD	101,632.3	23520	0.0	47.9	48.27079925	-103.47420404	2208.148	0	12:00					
23530	WELD	101,680.2	23530	0.0	49.3	48.27080503	-103.47400683	2207.861	0	12:00					
23540	WELD	101,729.5	23540	0.0	49.3	48.27081043	-103.47380395	2208.011	0	12:00					
23550	WELD	101,778.8	23550	0.0	49.4	48.27081806	-103.47360104	2208.543	0	12:00					
23560	WELD	101,828.1	23560	0.0	49.3	48.27082627	-103.47339790	2208.745	0	12:00					
23570	WELD	101,877.5	23570	0.0	49.4	48.27083508	-103.47319514	2207.972	0	12:00					
23580	WELD	101,926.8	23580	0.0	49.3	48.27084304	-103.47299203	2207.657	0	12:00					
23590	WELD	101,976.1	23590	0.0	49.3	48.27085147	-103.47278911	2207.752	0	12:00					
23600	WELD	102,025.5	23600	0.0	49.4	48.27086008	-103.47258624	2206.745	0	12:00					
23610	WELD	102,074.9	23610	0.0	49.4	48.27086799	-103.47238320	2204.425	0	12:00					
23620	WELD	102,124.3	23620	0.0	49.1	48.27087564	-103.47218021	2202.914	0	12:00					
23630	WELD	102,173.4	23630	0.0	49.3	48.27088285	-103.47197819	2201.557	0	12:00					
23640	WELD	102,222.6	23640	0.0	49.4	48.27088983	-103.47177553	2200.666	0	12:00					
23650	WELD	102,272.0	23650	0.0	49.1	48.27089624	-103.47157231	2201.353	0	12:00					
23660	WELD	102,321.0	23660	0.0	49.4	48.27090328	-103.47137039	2203.010	0	12:00					
23670	WELD	102,370.4	23670	0.0	49.3	48.27091050	-103.47116713	2202.815	0	12:00					
23680	WELD	102,419.7	23680	0.0	41.0	48.27091877	-103.47096421	2202.420	0	12:00					
23690	WELD	102,460.8	23690	0.0	41.0	48.27092642	-103.47079543	2201.792	0	12:00					
23700	WELD	102,501.8	23700	0.0	41.0	48.27093386	-103.47062684	2201.084	0	12:00					
23710	WELD	102,542.8	23710	0.0	41.0	48.27094035	-103.47045806	2200.955	0	12:00					
23720	WELD	102,583.8	23720	0.0	40.9	48.27094606	-103.47028927	2200.900	0	12:00					
23730	WELD	102,624.7	23730	0.0	41.0	48.27095113	-103.47012076	2200.694	0	12:00					
23740	WELD	102,665.7	23740	0.0	41.0	48.27095420	-103.46995198	2200.461	0	12:00					
23750	WELD	102,706.7	23750	0.0	41.1	48.27094842	-103.46978357	2200.770	0	12:00					

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC
Bethel to Catwalk

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)
23760	WELD	102,747.8	23760	0.0	41.1	48.27093067	-103.46961636	2201.358	0	12:00					
23770	WELD	102,788.8	23770	0.0	41.0	48.27091107	-103.46944961	2201.634	0	12:00					
23780	WELD	102,829.9	23780	0.0	41.1	48.27089078	-103.46928329	2201.150	0	12:00					
23790	WELD	102,870.9	23790	0.0	41.0	48.27087082	-103.46911683	2199.913	0	12:00					
23800	WELD	102,912.0	23800	0.0	41.1	48.27085013	-103.46895061	2198.489	0	12:00					
40000031	Metal Loss - EXTERNAL	102,934.6	23800	22.6	18.4	48.27083833	-103.46885891	2197.856	280	9:15	6%	0.47	0.57	1760	100%
23810	WELD	102,953.0	23810	0.0	41.0	48.27082907	-103.46878443	2197.438	0	12:00					
23820	WELD	102,994.0	23820	0.0	41.0	48.27080874	-103.46861827	2196.369	0	12:00					
23830	WELD	103,035.0	23830	0.0	41.0	48.27078783	-103.46845241	2195.020	0	12:00					
23840	WELD	103,076.0	23840	0.0	41.0	48.27076687	-103.46828654	2194.087	0	12:00					
23850	WELD	103,116.9	23850	0.0	40.9	48.27074631	-103.46812062	2193.059	0	12:00					
23860	WELD	103,157.9	23860	0.0	40.9	48.27072658	-103.46795457	2192.581	0	12:00					
23870	WELD	103,198.8	23870	0.0	41.0	48.27071898	-103.46778659	2191.857	0	12:00					
23880	WELD	103,239.9	23880	0.0	41.0	48.27071847	-103.46761733	2191.890	0	12:00					
23890	WELD	103,280.9	23890	0.0	41.0	48.27071992	-103.46744840	2191.620	0	12:00					
23900	WELD	103,321.9	23900	0.0	41.1	48.27072208	-103.46727940	2191.260	0	12:00					
23910	WELD	103,363.0	23910	0.0	31.4	48.27072426	-103.46710989	2191.191	0	12:00					
23920	WELD	103,394.4	23920	0.0	14.0	48.27072684	-103.46698050	2191.365	0	12:00					
23930	WELD	103,408.4	23930	0.0	40.7	48.27072704	-103.46692290	2191.256	0	12:00					
23940	WELD	103,449.1	23940	0.0	6.1	48.27072578	-103.46675511	2190.532	0	12:00					
23950	WELD	103,455.2	23950	0.0	34.8	48.27072538	-103.46673002	2190.366	0	12:00					
23960	WELD	103,490.0	23960	0.0	41.0	48.27072246	-103.46658660	2189.346	0	12:00					
23970	WELD	103,531.0	23970	0.0	41.0	48.27072146	-103.46641775	2187.286	0	12:00					
23980	WELD	103,572.0	23980	0.0	41.0	48.27072044	-103.46624901	2185.270	0	12:00					
23990	WELD	103,613.1	23990	0.0	41.0	48.27071953	-103.46608022	2183.410	0	12:00					
24000	WELD	103,654.1	24000	0.0	41.0	48.27071845	-103.46591118	2183.041	0	12:00					
24010	WELD	103,695.1	24010	0.0	41.0	48.27071743	-103.46574234	2184.794	0	12:00					
24020	WELD	103,736.1	24020	0.0	41.0	48.27071719	-103.46557322	2185.511	0	12:00					
24030	WELD	103,777.1	24030	0.0	41.0	48.27071823	-103.46540414	2185.508	0	12:00					
24040	WELD	103,818.1	24040	0.0	41.1	48.27071931	-103.46523510	2185.571	0	12:00					
24050	WELD	103,859.2	24050	0.0	41.0	48.27072033	-103.46506578	2185.596	0	12:00					
24060	WELD	103,900.2	24060	0.0	41.0	48.27072066	-103.46489660	2186.214	0	12:00					
24070	WELD	103,941.3	24070	0.0	41.0	48.27072026	-103.46472751	2187.137	0	12:00					
24080	WELD	103,982.3	24080	0.0	40.9	48.27071986	-103.46455837	2187.321	0	12:00					
24090	WELD	104,023.2	24090	0.0	41.0	48.27072024	-103.46438971	2186.854	0	12:00					
24100	WELD	104,064.2	24100	0.0	40.9	48.27072025	-103.46422084	2185.234	0	12:00					
24110	WELD	104,105.2	24110	0.0	41.0	48.27071938	-103.46405224	2183.637	0	12:00					

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)
24120 WELD		104,146.1	24120	0.0	41.0	48.27071834	-103.46388352	2182.225	0	12:00					
24130 WELD		104,187.1	24130	0.0	41.0	48.27071729	-103.46371479	2181.203	0	12:00					
24140 WELD		104,228.1	24140	0.0	41.1	48.27071634	-103.46354587	2180.697	0	12:00					
24150 WELD		104,269.2	24150	0.0	41.0	48.27071610	-103.46337655	2180.073	0	12:00					
24160 WELD		104,310.2	24160	0.0	41.0	48.27071676	-103.46320746	2179.845	0	12:00					
24170 WELD		104,351.2	24170	0.0	41.0	48.27071774	-103.46303836	2179.205	0	12:00					
24180 WELD		104,392.3	24180	0.0	41.1	48.27071907	-103.46286925	2178.173	0	12:00					
24190 WELD		104,433.3	24190	0.0	41.1	48.27072007	-103.46270012	2176.842	0	12:00					
24200 WELD		104,474.4	24200	0.0	41.0	48.27072096	-103.46253079	2175.959	0	12:00					
24210 WELD		104,515.5	24210	0.0	41.0	48.27072167	-103.46236173	2174.934	0	12:00					
24220 WELD		104,556.4	24220	0.0	41.0	48.27072185	-103.46219287	2174.290	0	12:00					
24230 WELD		104,597.5	24230	0.0	41.0	48.27072128	-103.46202378	2173.750	0	12:00					
24240 WELD		104,638.4	24240	0.0	41.0	48.27072064	-103.46185500	2173.388	0	12:00					
24250 WELD		104,679.4	24250	0.0	41.0	48.27071992	-103.46168623	2172.631	0	12:00					
24260 WELD		104,720.4	24260	0.0	41.0	48.27071924	-103.46151729	2172.224	0	12:00					
24270 WELD		104,761.4	24270	0.0	41.1	48.27071879	-103.46134813	2171.982	0	12:00					
24280 WELD		104,802.5	24280	0.0	41.0	48.27071862	-103.46117887	2171.644	0	12:00					
24290 WELD		104,843.5	24290	0.0	41.1	48.27071879	-103.46100976	2171.260	0	12:00					
24300 WELD		104,884.6	24300	0.0	41.1	48.27071911	-103.46084052	2171.286	0	12:00					
24310 WELD		104,925.6	24310	0.0	41.1	48.27071948	-103.46067123	2170.969	0	12:00					
24320 WELD		104,966.7	24320	0.0	41.1	48.27071982	-103.46050177	2170.692	0	12:00					
24330 WELD		105,007.9	24330	0.0	41.0	48.27071994	-103.46033221	2170.701	0	12:00					
24340 WELD		105,048.9	24340	0.0	41.0	48.27071992	-103.46016309	2170.933	0	12:00					
24350 WELD		105,089.9	24350	0.0	41.0	48.27071940	-103.45999406	2170.584	0	12:00					
24360 WELD		105,130.9	24360	0.0	41.0	48.27071850	-103.45982503	2169.865	0	12:00					
24370 WELD		105,171.9	24370	0.0	41.0	48.27071759	-103.45965600	2169.092	0	12:00					
24380 WELD		105,213.0	24380	0.0	41.0	48.27071626	-103.45948708	2167.901	0	12:00					
24390 WELD		105,254.0	24390	0.0	41.0	48.27071474	-103.45931826	2165.987	0	12:00					
24400 WELD		105,295.0	24400	0.0	41.1	48.27071330	-103.45914948	2163.539	0	12:00					
24410 WELD		105,336.1	24410	0.0	41.0	48.27071239	-103.45898045	2161.387	0	12:00					
24420 WELD		105,377.1	24420	0.0	41.1	48.27071163	-103.45881155	2159.271	0	12:00					
24430 WELD		105,418.2	24430	0.0	41.1	48.27071084	-103.45864284	2156.606	0	12:00					
24440 WELD		105,459.3	24440	0.0	41.1	48.27071118	-103.45847424	2152.830	0	12:00					
24450 WELD		105,500.4	24450	0.0	41.1	48.27071199	-103.45830551	2149.328	0	12:00					
24460 WELD		105,541.5	24460	0.0	41.1	48.27071367	-103.45813693	2145.545	0	12:00					
24470 WELD		105,582.6	24470	0.0	41.1	48.27071473	-103.45796828	2142.164	0	12:00					
24480 WELD		105,623.6	24480	0.0	39.7	48.27071628	-103.45779960	2139.279	0	12:00					

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)
24490	WELD	105,663.3	24490	0.0	9.9	48.27071656	-103.45763617	2137.434	0	12:00					
11000056	WT CHANGE	105,673.2	24490	0.0	0.0	48.27071629	-103.45759557	2136.987	0	12:00		0.322	52000	0.72	
24500	WELD	105,673.2	24500	0.0	41.9	48.27071629	-103.45759549	2136.986	0	12:00					
24510	WELD	105,715.1	24510	0.0	42.0	48.27071347	-103.45742346	2134.103	0	12:00					
24520	WELD	105,757.1	24520	0.0	41.9	48.27070920	-103.45725144	2130.734	0	12:00					
24530	WELD	105,799.0	24530	0.0	42.0	48.27071235	-103.45707883	2131.431	0	12:00					
24540	WELD	105,841.0	24540	0.0	42.0	48.27071220	-103.45690581	2129.836	0	12:00					
24550	WELD	105,883.0	24550	0.0	42.0	48.27071418	-103.45673292	2128.622	0	12:00					
24560	WELD	105,925.0	24560	0.0	42.0	48.27071367	-103.45655975	2127.982	0	12:00					
24570	WELD	105,967.0	24570	0.0	42.0	48.27071318	-103.45638662	2128.725	0	12:00					
24580	WELD	106,009.0	24580	0.0	41.7	48.27071581	-103.45621377	2130.380	0	12:00					
11000057	WT CHANGE	106,050.7	24580	0.0	0.0	48.27071422	-103.45604272	2134.645	0	12:00		0.188	52000	0.72	
24590	WELD	106,050.7	24590	0.0	8.7	48.27071422	-103.45604260	2134.648	0	12:00					
24600	WELD	106,059.4	24600	0.0	46.2	48.27071392	-103.45600692	2135.354	0	12:00					
24610	WELD	106,105.6	24610	0.0	49.1	48.27071305	-103.45581740	2140.155	0	12:00					
24620	WELD	106,154.7	24620	0.0	49.2	48.27071193	-103.45561529	2142.825	0	12:00					
24630	WELD	106,203.8	24630	0.0	49.3	48.27071006	-103.45541284	2145.600	0	12:00					
24640	WELD	106,253.1	24640	0.0	49.0	48.27071028	-103.45521004	2148.321	0	12:00					
24650	WELD	106,302.1	24650	0.0	49.2	48.27071006	-103.45500845	2152.116	0	12:00					
24660	WELD	106,351.3	24660	0.0	49.3	48.27070864	-103.45480583	2155.365	0	12:00					
24670	WELD	106,400.6	24670	0.0	49.0	48.27070982	-103.45460286	2157.847	0	12:00					
24680	WELD	106,449.6	24680	0.0	49.0	48.27071185	-103.45440089	2157.782	0	12:00					
24690	WELD	106,498.6	24690	0.0	49.2	48.27071330	-103.45419905	2157.375	0	12:00					
24700	WELD	106,547.8	24700	0.0	46.5	48.27071424	-103.45399630	2157.156	0	12:00					
11000058	WT CHANGE	106,594.3	24700	0.0	0.0	48.27071392	-103.45380471	2155.419	0	12:00		0.322	52000	0.72	
24710	WELD	106,594.3	24710	0.0	41.9	48.27071392	-103.45380463	2155.418	0	12:00					
24720	WELD	106,636.2	24720	0.0	41.9	48.27071284	-103.45363346	2150.060	0	12:00					
24730	WELD	106,678.2	24730	0.0	42.0	48.27071181	-103.45346179	2145.733	0	12:00					
24740	WELD	106,720.1	24740	0.0	31.2	48.27071341	-103.45328885	2144.972	0	12:00					
24750	WELD	106,751.4	24750	0.0	4.8	48.27071364	-103.45316019	2145.710	0	12:00					
24760	WELD	106,756.1	24760	0.0	1.5	48.27071373	-103.45314053	2145.770	0	12:00					
10000093	Bend up - 45 deg., 3D	106,756.9	24760	0.1	1.4	48.27071374	-103.45313773	2146.022	2	12:00					
24770	WELD	106,757.7	24770	0.0	5.9	48.27071374	-103.45313516	2146.502	0	12:00					
24780	WELD	106,763.6	24780	0.0	5.9	48.27071376	-103.45311828	2150.799	0	12:00					
10000094	Pipe Exiting Ground, Catwalk -- Survey Point	106,764.2	24780	0.7	5.2	48.27071376	-103.45311632	2151.302	0	12:00					
24790	WELD	106,769.4	24790	0.0	1.6	48.27071432	-103.45310129	2155.025	0	12:00					

Pipeline Listing

TDW Services, Inc.

Hiland Crude, LLC
Bethel to Catwalk

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)
10000095	Bend down - 45 deg., 3D	106,770.2	24790	0.1	1.4	48.27071444	-103.45309857	2155.396	0	12:00					
24800	WELD	106,771.0	24800	0.0	3.1	48.27071461	-103.45309524	2155.552	0	12:00					
10000096	Flange	106,771.4	24800	0.5	2.6	48.27071468	-103.45309333	2155.559	0	12:00					
10000097	Valve	106,772.5	24800	1.5	1.6	48.27071486	-103.45308882	2155.549	0	12:00					
10000098	Flange	106,773.6	24800	2.6	0.5	48.27071492	-103.45308447	2155.591	0	12:00					
24810	WELD	106,774.1	24810	0.0	1.1	48.27071493	-103.45308261	2155.611	0	12:00					
10000099	Tee at 270 deg.	106,774.6	24810	0.1	1.1	48.27071494	-103.45308037	2155.635	273	9:00					
24820	WELD	106,775.2	24820	0.0	1.1	48.27071494	-103.45307807	2155.656	0	12:00					
10000100	Pipe Support	106,775.8	24820	0.4	0.7	48.27071496	-103.45307596	2155.674	0	12:00					
24830	WELD	106,776.3	24830	0.0	3.3	48.27071497	-103.45307377	2155.692	0	12:00					
10000101	Flange	106,776.8	24830	0.5	2.7	48.27071499	-103.45307176	2155.710	0	12:00					
10000102	Valve (Receiver), Catwalk	106,778.0	24830	1.6	1.6	48.27071502	-103.45306732	2155.752	0	12:00					
10000103	Flange	106,779.0	24830	2.7	0.5	48.27071503	-103.45306731	2155.752	0	12:00					
24840	WELD	106,779.6	24840	0.0	-	48.27071503	-103.45306731	2155.752	0	12:00					
12000008	End Run Tickle	106,816.2	24840	36.6	-	48.27071503	-103.45306731	2155.752	0	12:00					

Type	Number
DEFORMATION	3
GAINS	1
GROUPED PITS	32
LOCATIONS	104
MILL ANOMALY	1
MISC	9
SEAM VARIATION	10
WT CHANGES	59
WELDS	2474

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

GLOSSARY PART 2

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.

Appendix A

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.

Appendix B

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
  - 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.

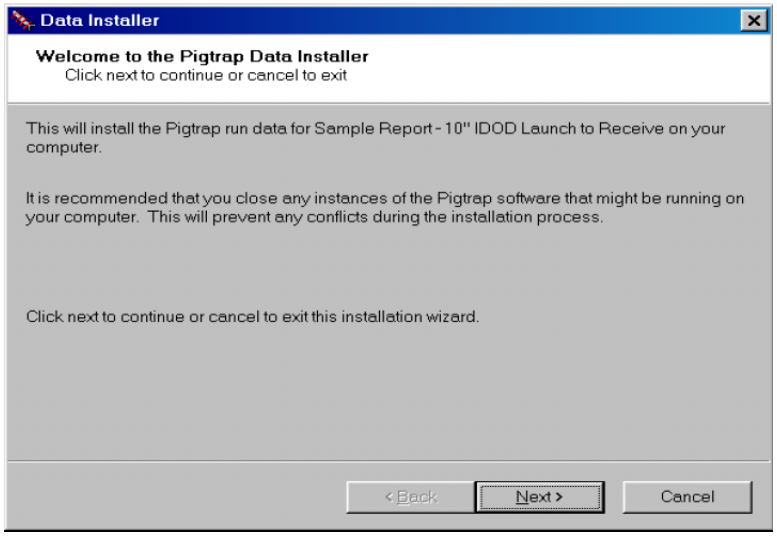
- Database – .MBD (Microsoft Data Base) Files of this type may be viewed through Microsoft Access. This file contains the analysis of the inspection.
- .rsf – This is a PigTrap™ reference file which holds specific settings for the run to be viewed.
- Spreadsheet – .XLS (Microsoft Excel) A Pipeline Listing 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.

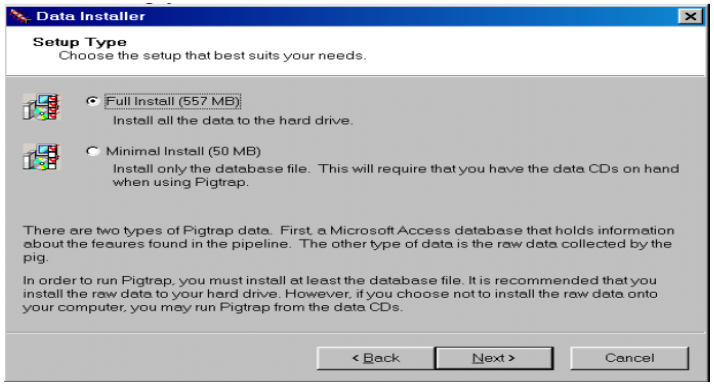


Note: If you want to install only the Pigtrap™ software and not the run data (advanced users only), choose Cancel and go to the Pigtrap™ Installation steps on page 3.

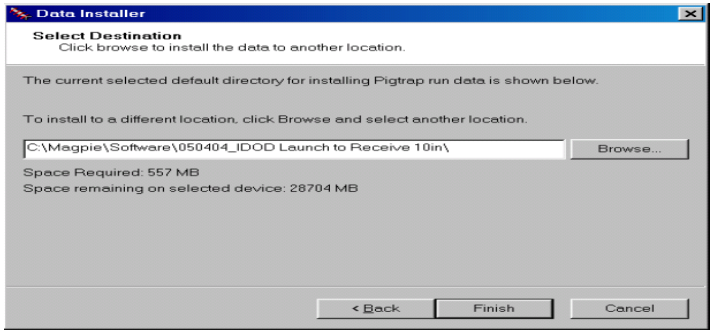
3. Click Next to continue installing the run data.

Appendix B

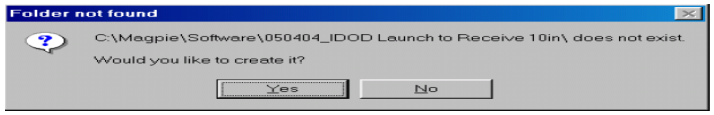
4. Choose the type of install you would like to perform: Full Install (recommended) or Minimal Install. The size of the installation is shown next to each type of installation. The database file must be installed for PigTrap™ to operate properly, but you may choose to not install the raw data. If you 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.



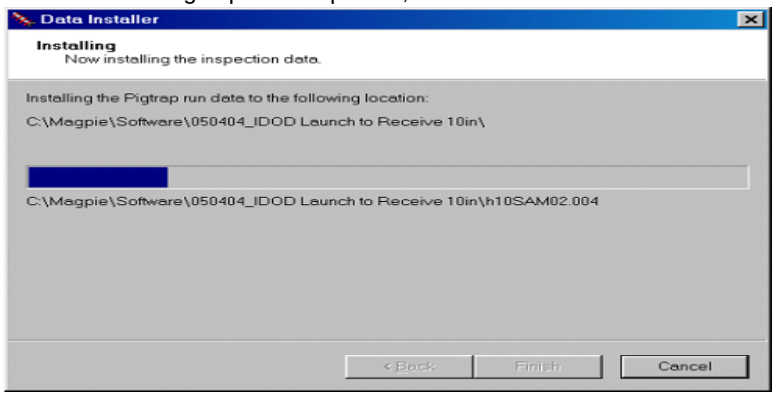
5. Choose the installation location on your computer for the data files. The default and recommended location is C:\Magpie\Software. The location inside this folder is based on the trap date, name, and size of the run. If you would like to specify another location, click the Browse... button. Click Finish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



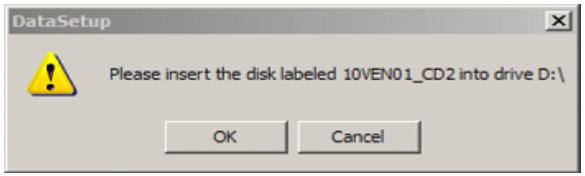
6. If the installation folder does not already exist, then you will be prompted to create it. Click Yes to create the new folder.



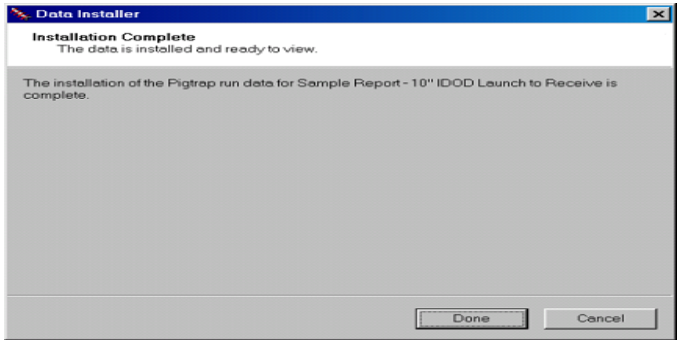
7. The following progress bar will appear. There may be a short delay while the database is being copied. Be patient, this is normal.



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.



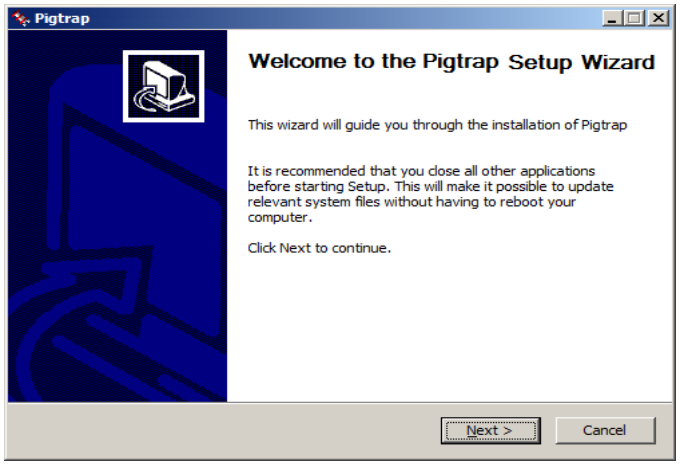
10. After clicking Done in the Data Installer PigTrap™ Installation will automatically launch.

Appendix B

PigTrap™ Installation

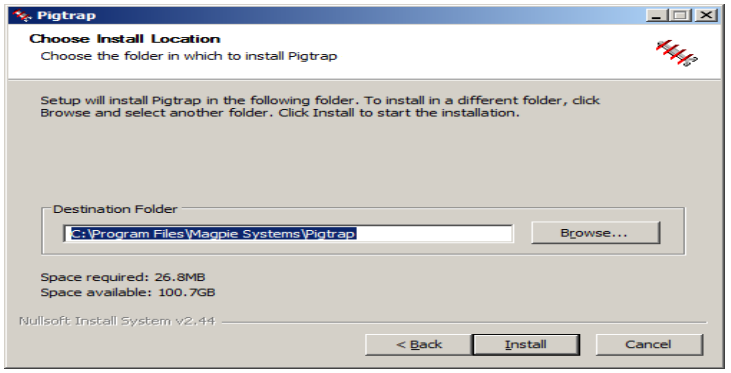
Note: CD and DVDs follow a slightly different installation process. Steps 1 and 2 are for external drives, if you are installing from CDs or DVDs please skip to step 3.

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.

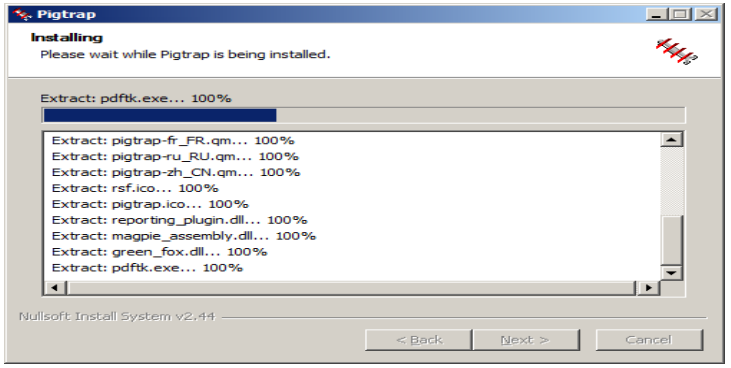


4. The Software License Agreement will appear. Read the agreement select I Agree to continue. You must accept the agreement to install PigTrap™.

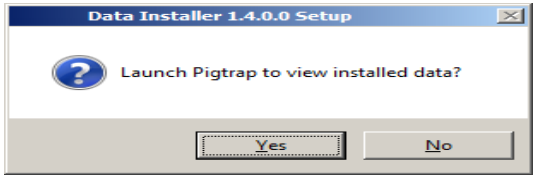
5. Choose the installation location on your computer for the PigTrap™ software. The default and recommended location is C:\Magpie\Software. Click Install to continue.



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.



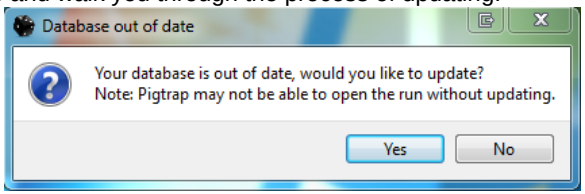
Appendix B

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.

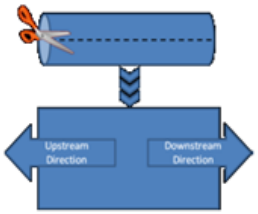
PigTrap™ was designed so you would have the ability to review previous TDW/Magpie inspection data when needed. However, you may need to acquire an updated Microsoft Access Data-base from one of our TDW representatives. When opening previous data in PigTrap™ you may encounter the message, "Your database 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.

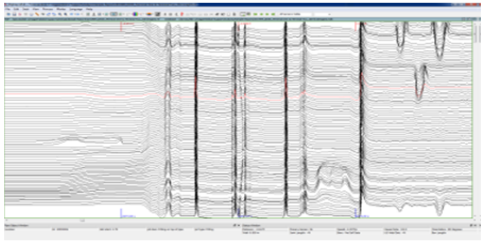


We packed so much into the new PigTrap™ the older reference files just couldn't hold it all so a new one may need to be created. Once the new reference file finishes, you will be able to freely navigate around in PigTrap™.

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

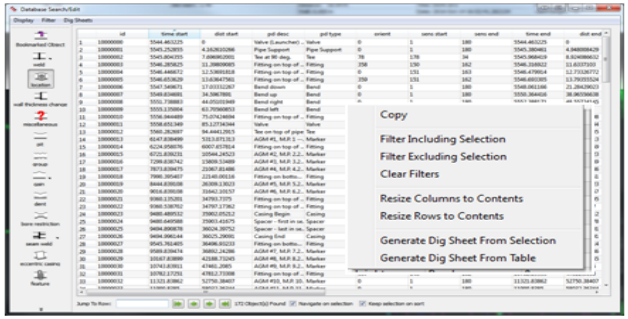
The horizontal scrollbar at the bottom of the main view moves the view upstream or downstream. Clicking on the left arrow moves upstream while clicking on the right arrow moves downstream.

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

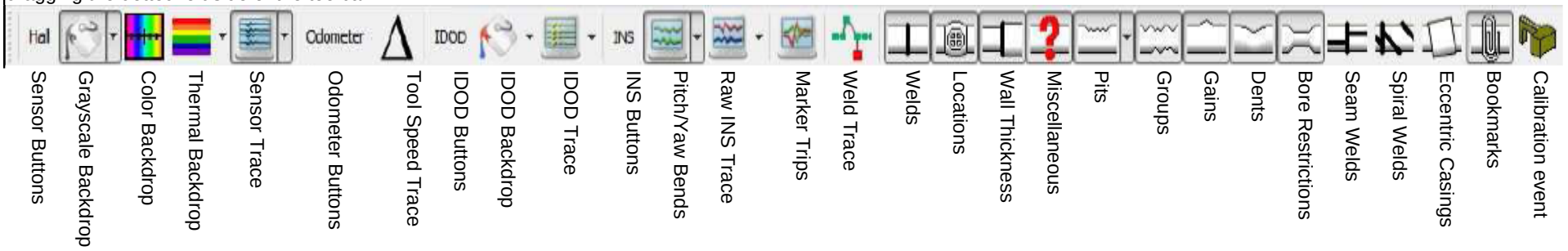
Issue	Possible Cause	Possible Solution
"Data files missing" message displayed on the Main view.	PigTrap™ is not able to load the necessary data file(s) because they are missing, not installed correctly, media/hardware damage (Dirty or scratched CD/DVD, drive failure).	Please reinstall the inspection 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

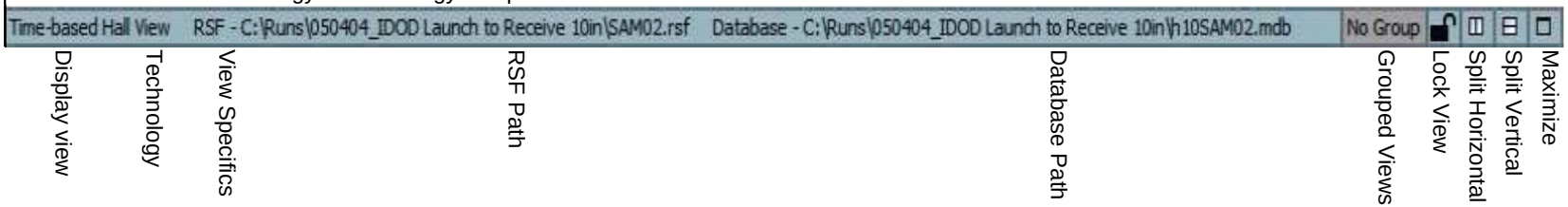
PigTrap™ allows user to zoom in on specific set of sensors, this dialog will display what sensors are currently being viewed. To return to viewing all sensors simply zoom out (-).

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.



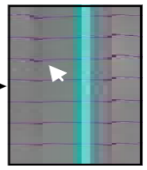
Appendix B

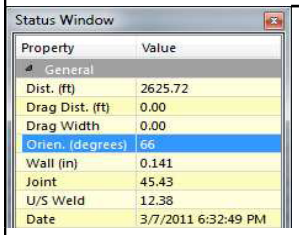
Displayed Information and Shortcuts

Pipe Object and Status Windows

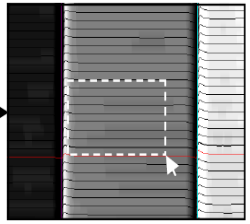
The Pipe Object and Status Windows will be defaulted to the right side of PigTrap™. Both windows can be docked and undocked by double clicking the title bar, left clicking and dragging or clicking the undock button located in the top right corner. As PigTrap™ has the ability to display multiple datasets 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.

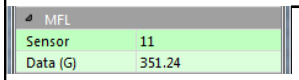
The pipe object window will display information about a highlighted feature, such as a weld, providing the weld ID and Distance. Features are highlighted when the cursor is placed upstream of an object and the object becomes highlighted with a teal color.



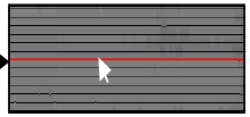


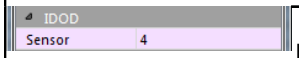
The General section of the Status Window will display information pertaining to all datasets. The information is dependent on the cursor location, displaying the current distance, orientation, wall thickness, joint length, up stream weld and date and time. The drag distance and drag width is populated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





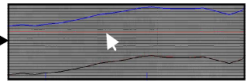
The MFL window will display information for the current highlighted sensor. The highlighted sensor will be a red line over the entire sensor. These sensors can be turned on and off using the Esc key.





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

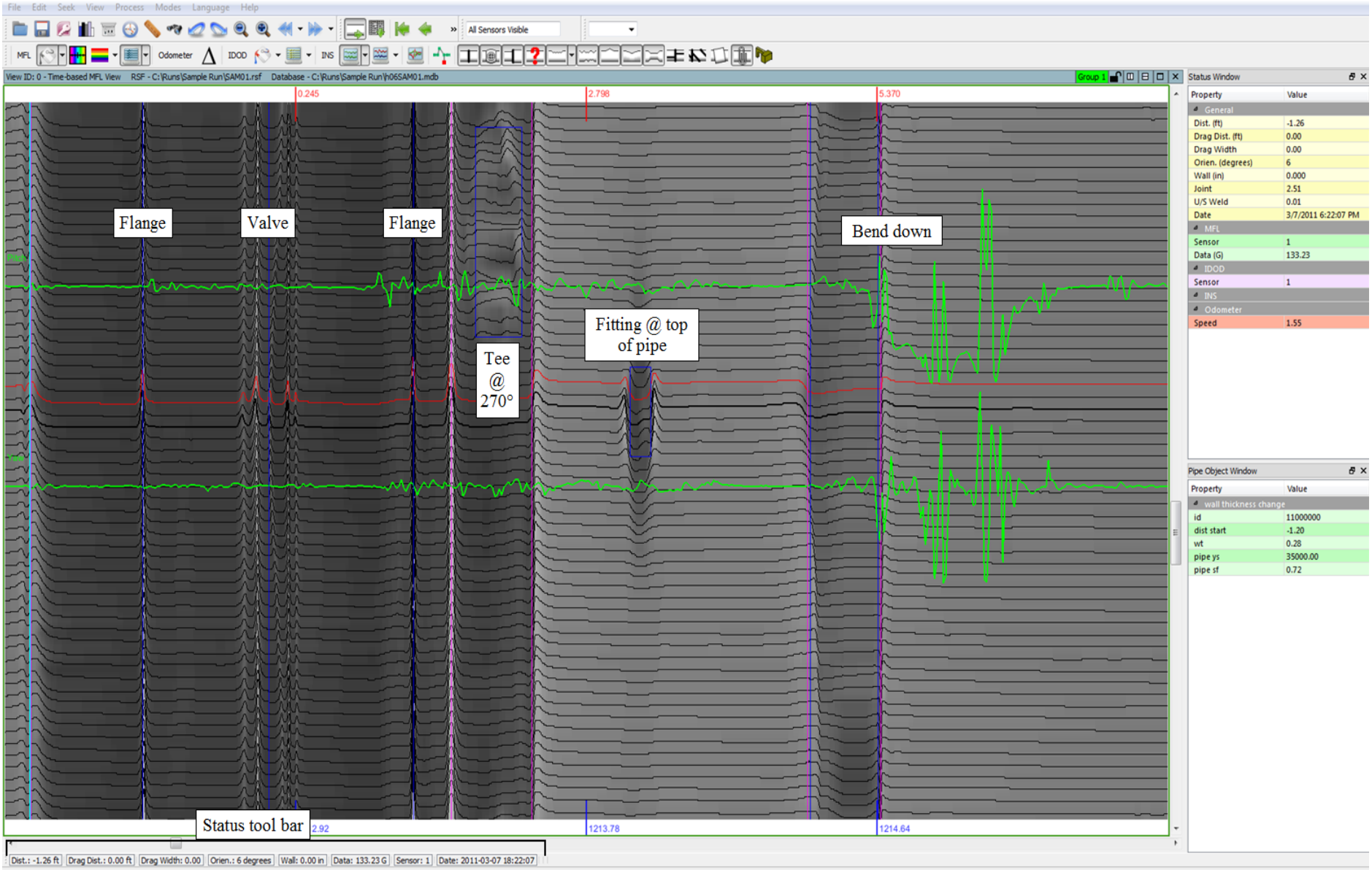
The Status Bar is located at the bottom left of PigTrap™ and contains much of the same information as the General section of the Status Window. It can also be customized by right clicking and selecting what information to display. The order can also be adjusted by clicking and dragging a section above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

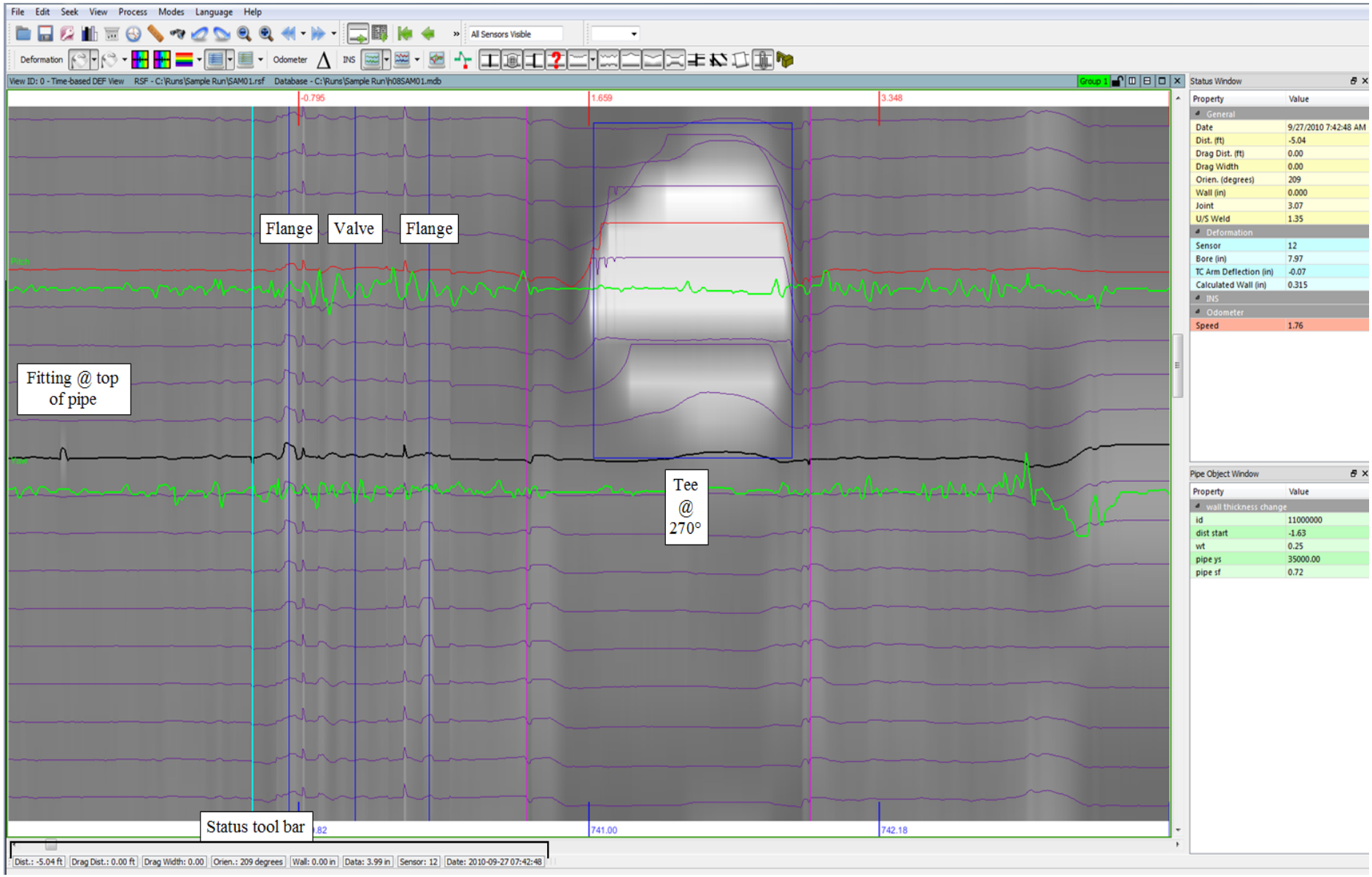
Appendix B

PigTrap™ MFL Runs



Appendix B

PigTrap™ DEF Runs



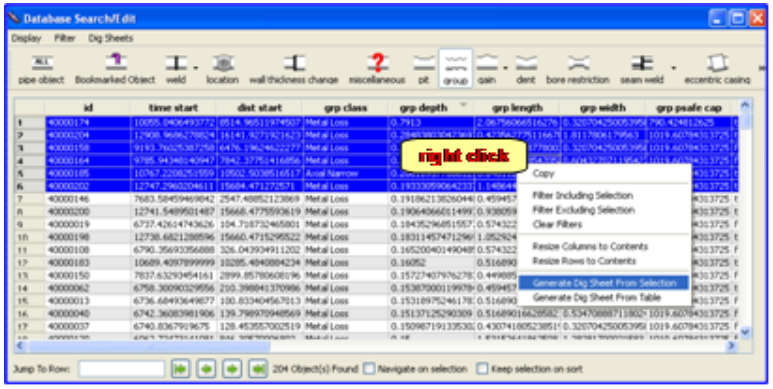
Appendix C

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.