



Extraction Oil & Gas

Weld County, CO (NAD83)

MLD Pad

MLD 2

Wellbore #1

Design: Wellbore #1

Standard Survey Report

28 September, 2017





Integrity Directional Services, LLC

Survey Report



Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well MLD 2
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25' @ 4902.00ft (P346)
Site:	MLD Pad	MD Reference:	KB=25' @ 4902.00ft (P346)
Well:	MLD 2	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Project	Weld County, CO (NAD83)		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	MLD Pad		
Site Position:		Northing:	1,350,393.7900 usft
From:	Map	Easting:	3,140,798.8300 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	40.294131
		Longitude:	-104.995243
		Grid Convergence:	0.33 °

Well	MLD 2		
Well Position	+N/-S	0.00 ft	Northing: 1,353,975.9400 usft
	+E/-W	0.00 ft	Easting: 3,140,549.1700 usft
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	40.303968
		Longitude:	-104.996065
		Ground Level:	4,877.00 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	8/15/2017	8.60	66.68	52,219

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	114.03

Survey Program	Date 9/28/2017			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
600.50	1,534.50	Surface Surveys (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s
1,653.00	6,705.00	MWD Surveys (Wellbore #1)	MWD	MWD - Standard

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.50	1.10	262.77	600.46	-0.73	-5.72	-4.93	0.18	0.18	0.00
696.50	0.88	202.92	696.45	-1.52	-6.92	-5.70	1.05	-0.23	-62.34
792.50	1.80	222.34	792.42	-3.31	-8.22	-6.16	1.06	0.96	20.23
887.50	0.75	213.03	887.40	-4.94	-9.57	-6.73	1.12	-1.11	-9.80
983.50	0.48	205.82	983.39	-5.83	-10.08	-6.84	0.29	-0.28	-7.51
1,079.50	0.48	337.43	1,079.39	-5.82	-10.41	-7.14	0.91	0.00	137.09
1,175.50	0.97	343.81	1,175.38	-4.67	-10.79	-7.96	0.52	0.51	6.65
1,270.50	0.88	70.03	1,270.38	-3.64	-10.33	-7.95	1.33	-0.09	90.76
1,366.50	0.83	83.56	1,366.37	-3.31	-8.95	-6.82	0.22	-0.05	14.09

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,460.50	1.05	38.92	1,460.35	-2.57	-7.73	-6.02	0.79	0.23	-47.49
1,534.50	1.01	28.37	1,534.34	-1.47	-7.00	-5.79	0.26	-0.05	-14.26
1,653.00	1.10	346.99	1,652.82	0.56	-6.76	-6.40	0.63	0.08	-34.92
First MWD Survey									
1,747.00	4.68	219.29	1,746.73	-1.53	-9.39	-7.95	5.77	3.81	-135.85
1,841.00	9.81	202.01	1,839.96	-11.93	-14.82	-8.68	5.87	5.46	-18.38
1,935.00	13.92	207.70	1,931.93	-29.37	-23.08	-9.12	4.54	4.37	6.05
2,029.00	16.88	198.62	2,022.56	-52.33	-32.70	-8.56	4.05	3.15	-9.66
2,124.00	19.89	194.21	2,112.70	-81.07	-41.07	-4.50	3.49	3.17	-4.64
2,218.00	24.39	196.11	2,199.75	-115.24	-50.39	0.90	4.85	4.79	2.02
2,312.00	29.12	198.49	2,283.67	-155.60	-63.04	5.78	5.16	5.03	2.53
2,406.00	33.41	201.22	2,364.00	-201.44	-79.66	9.26	4.81	4.56	2.90
2,501.00	37.30	200.12	2,441.47	-252.87	-99.04	12.50	4.15	4.09	-1.16
2,595.00	40.52	203.91	2,514.61	-307.55	-121.22	14.51	4.26	3.43	4.03
2,689.00	42.69	206.29	2,584.90	-364.05	-147.72	13.31	2.86	2.31	2.53
2,784.00	41.18	204.61	2,655.57	-421.36	-175.01	11.72	1.98	-1.59	-1.77
2,878.00	41.98	206.29	2,725.89	-477.68	-201.82	10.17	1.46	0.85	1.79
2,973.00	40.08	204.30	2,797.55	-534.05	-228.48	8.77	2.43	-2.00	-2.09
3,067.00	41.49	204.61	2,868.73	-589.94	-253.90	8.31	1.52	1.50	0.33
3,162.00	42.29	207.52	2,939.45	-646.90	-281.78	6.04	2.21	0.84	3.06
3,257.00	41.41	205.49	3,010.22	-703.61	-310.07	3.29	1.70	-0.93	-2.14
3,351.00	46.18	208.18	3,078.06	-761.60	-339.48	0.04	5.45	5.07	2.86
3,445.00	46.89	205.80	3,142.73	-822.39	-370.44	-3.48	1.99	0.76	-2.53
3,540.00	47.19	205.58	3,207.47	-885.04	-400.57	-5.50	0.36	0.32	-0.23
3,634.00	46.80	204.22	3,271.58	-947.39	-429.52	-6.55	1.14	-0.41	-1.45
3,729.00	45.38	204.08	3,337.47	-1,009.84	-457.52	-6.69	1.50	-1.49	-0.15
3,823.00	41.89	201.62	3,405.49	-1,069.58	-482.74	-5.41	4.13	-3.71	-2.62
3,917.00	39.02	202.10	3,477.01	-1,126.18	-505.44	-3.09	3.07	-3.05	0.51
4,011.00	37.12	201.70	3,551.01	-1,179.96	-527.06	-0.94	2.04	-2.02	-0.43
4,106.00	37.78	199.00	3,626.43	-1,234.11	-547.14	2.77	1.86	0.69	-2.84
4,200.00	37.91	200.20	3,700.66	-1,288.44	-566.48	7.22	0.80	0.14	1.28
4,294.00	36.41	199.02	3,775.58	-1,341.92	-585.55	11.58	1.77	-1.60	-1.26
4,388.00	34.11	198.49	3,852.33	-1,393.30	-603.00	16.56	2.47	-2.45	-0.56
4,483.00	34.51	201.00	3,930.80	-1,443.69	-621.09	20.56	1.55	0.42	2.64
4,577.00	33.10	204.22	4,008.91	-1,491.96	-641.17	21.88	2.42	-1.50	3.43
4,671.00	32.39	204.30	4,087.97	-1,538.31	-662.06	21.67	0.76	-0.76	0.09
4,766.00	31.11	202.50	4,168.76	-1,584.18	-681.92	22.20	1.68	-1.35	-1.89
4,860.00	29.52	202.32	4,249.90	-1,628.04	-700.01	23.54	1.69	-1.69	-0.19
4,954.00	26.29	202.19	4,332.96	-1,668.75	-716.67	24.90	3.44	-3.44	-0.14
5,049.00	23.69	206.68	4,419.07	-1,705.29	-733.19	24.69	3.39	-2.74	4.73
5,143.00	21.21	207.78	4,505.94	-1,737.22	-749.60	22.70	2.68	-2.64	1.17
5,236.00	19.00	210.52	4,593.27	-1,765.15	-765.13	19.89	2.58	-2.38	2.95
5,330.00	18.12	211.00	4,682.38	-1,790.86	-780.43	16.38	0.95	-0.94	0.51



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Survey Report



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Survey										
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5,424.00	16.62	207.39	4,772.09	-1,815.33	-794.15	13.82	1.96	-1.60	-3.84	
5,519.00	13.52	212.10	4,863.82	-1,836.80	-806.30	11.46	3.51	-3.26	4.96	
5,613.00	13.08	209.81	4,955.29	-1,855.34	-817.43	8.85	0.73	-0.47	-2.44	
5,707.00	12.11	210.78	5,047.03	-1,873.04	-827.76	6.62	1.06	-1.03	1.03	
5,801.00	11.40	206.11	5,139.06	-1,889.85	-836.90	5.12	1.26	-0.76	-4.97	
5,895.00	9.28	212.50	5,231.53	-1,904.59	-845.06	3.67	2.56	-2.26	6.80	
5,989.00	8.31	211.79	5,324.43	-1,916.76	-852.71	1.63	1.04	-1.03	-0.76	
6,082.00	5.79	196.99	5,416.72	-1,926.96	-857.62	1.30	3.32	-2.71	-15.91	
6,176.00	4.51	221.80	5,510.35	-1,934.25	-861.47	0.75	2.70	-1.36	26.39	
6,270.00	1.90	193.59	5,604.20	-1,938.52	-864.30	-0.09	3.16	-2.78	-30.01	
6,364.00	2.61	280.10	5,698.15	-1,939.66	-866.77	-1.89	3.33	0.76	92.03	
6,458.00	1.81	319.10	5,792.09	-1,938.16	-869.85	-5.31	1.76	-0.85	41.49	
6,552.00	2.21	334.39	5,886.03	-1,935.40	-871.61	-8.04	0.71	0.43	16.27	
6,645.00	1.19	297.81	5,978.99	-1,933.34	-873.24	-10.37	1.55	-1.10	-39.33	
Final MWD Survey										
6,705.00	1.19	297.81	6,038.98	-1,932.76	-874.34	-11.61	0.00	0.00	0.00	
Projection										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
1,653.00	1,652.82	0.56	-6.76	First MWD Survey	
6,645.00	5,978.99	-1,933.34	-873.24	Final MWD Survey	
6,705.00	6,038.98	-1,932.76	-874.34	Projection	

Checked By: _____	Approved By: _____	Date: _____
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