

# **Extraction Oil & Gas**

**Weld County, CO (NAD83)**

**Vetting PAD (Sec 15-T5N-R65W)**

**VT-LDS 1-16-18**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**28 June, 2018**

## Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS 1-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Well:</b>	VT-LDS 1-16-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1

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

Site		Vetting PAD (Sec 15-T5N-R65W)			
Site Position:		Northing:	1,390,162.31 usft	Latitude:	40.401330
From:	Map	Easting:	3,234,926.48 usft	Longitude:	-104.656460
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	VT-LDS 1-16-18					
Well Position	+N/-S	0.00 ft	Northing:	1,390,158.43 usft	Latitude:	40.401320
	+E/-W	0.00 ft	Easting:	3,234,901.45 usft	Longitude:	-104.656550
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,648.00 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	6/26/2018	8.10	66.88	52,249

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	274.46	

<b>Survey Program</b>	<b>Date</b>	6/28/2018			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
87.00	1,519.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,671.00	20,445.00	MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
87.00	0.53	82.22	87.00	0.05	0.40	-0.39	0.61	0.61	0.00	
149.00	0.28	111.92	149.00	0.04	0.82	-0.82	0.51	-0.40	47.90	
233.00	0.34	117.33	233.00	-0.15	1.24	-1.24	0.08	0.07	6.44	
314.00	0.48	108.16	313.99	-0.37	1.77	-1.79	0.19	0.17	-11.32	
398.00	0.63	103.30	397.99	-0.59	2.55	-2.59	0.19	0.18	-5.79	
483.00	0.49	251.39	482.99	-0.81	2.67	-2.72	1.27	-0.16	174.22	
569.00	1.12	255.68	568.98	-1.14	1.50	-1.59	0.74	0.73	4.99	
654.00	0.53	300.20	653.97	-1.14	0.36	-0.45	0.98	-0.69	52.38	
738.00	0.77	341.54	737.97	-0.41	-0.16	0.12	0.61	0.29	49.21	

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<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Well:</b>	VT-LDS 1-16-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1

### 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)
823.00	0.92	341.59	822.96	0.78	-0.55	0.61	0.18	0.18	0.06
907.00	1.89	254.43	906.94	1.05	-2.10	2.18	2.45	1.15	-103.76
990.00	3.95	264.13	989.83	0.39	-6.26	6.27	2.54	2.48	11.69
1,073.00	6.02	271.88	1,072.51	0.24	-13.46	13.44	2.62	2.49	9.34
1,158.00	7.52	278.75	1,156.91	1.23	-23.41	23.44	2.00	1.76	8.08
1,244.00	7.70	285.29	1,242.16	3.60	-34.53	34.71	1.03	0.21	7.60
1,327.00	7.83	288.00	1,324.40	6.82	-45.27	45.66	0.47	0.16	3.27
1,414.00	9.42	289.44	1,410.41	11.02	-57.62	58.30	1.84	1.83	1.66
1,498.00	11.13	290.15	1,493.06	16.10	-71.72	72.75	2.04	2.04	0.85
1,519.00	11.12	290.52	1,513.67	17.51	-75.52	76.65	0.34	-0.05	1.76
<b>Tie in to Surface Surveys @ 1519'MD</b>									
1,671.00	9.99	283.40	1,663.10	25.70	-102.07	103.76	1.13	-0.74	-4.68
<b>First MWD Survey @ 1671'MD</b>									
1,767.00	14.23	299.08	1,756.97	33.37	-120.50	122.72	5.55	4.42	16.33
1,862.00	17.94	298.07	1,848.23	45.94	-143.62	146.75	3.92	3.91	-1.06
1,957.00	21.08	297.50	1,937.77	60.71	-171.69	175.89	3.31	3.31	-0.60
2,053.00	23.95	293.80	2,026.44	76.55	-204.84	210.17	3.33	2.99	-3.85
2,149.00	26.29	289.52	2,113.36	91.52	-242.71	249.09	3.08	2.44	-4.46
2,244.00	28.72	287.67	2,197.62	105.48	-284.30	291.63	2.71	2.56	-1.95
2,328.16	30.00	287.40	2,270.97	117.91	-323.64	331.83	1.53	1.52	-0.32
<b>30°Inclination @ 2328'MD</b>									
2,340.00	30.18	287.36	2,281.22	119.68	-329.31	337.61	1.53	1.52	-0.31
2,435.00	32.88	288.07	2,362.18	134.81	-376.63	385.96	2.87	2.84	0.75
2,530.00	34.64	286.97	2,441.16	150.69	-426.97	437.39	1.96	1.85	-1.16
2,626.00	36.94	288.91	2,519.03	168.01	-480.36	491.96	2.67	2.40	2.02
2,721.00	36.90	288.51	2,594.98	186.31	-534.41	547.27	0.26	-0.04	-0.42
2,817.00	37.30	287.54	2,671.55	204.23	-589.48	603.56	0.74	0.42	-1.01
2,912.00	37.30	286.88	2,747.12	221.26	-644.47	659.71	0.42	0.00	-0.69
2,918.48	37.16	286.87	2,752.28	222.40	-648.22	663.54	2.22	-2.22	-0.22
<b>Crossing Section 15/16 @ 2918'MD</b>									
3,008.00	35.17	286.66	2,824.55	237.63	-698.80	715.15	2.22	-2.22	-0.23
3,103.00	38.84	288.42	2,900.40	254.90	-753.29	770.82	4.02	3.86	1.85
3,199.00	37.56	288.42	2,975.84	273.66	-809.62	828.43	1.33	-1.33	0.00
3,294.00	35.35	287.94	3,052.25	291.27	-863.24	883.26	2.35	-2.33	-0.51
3,390.00	32.26	287.41	3,132.01	307.50	-914.12	935.25	3.23	-3.22	-0.55
3,485.00	35.13	288.20	3,211.04	323.62	-964.29	986.52	3.06	3.02	0.83
3,581.00	32.35	287.80	3,290.87	340.11	-1,015.00	1,038.35	2.91	-2.90	-0.42
3,676.00	36.01	285.60	3,369.45	355.39	-1,066.11	1,090.50	4.07	3.85	-2.32
3,771.00	33.89	284.76	3,447.31	369.65	-1,118.63	1,143.97	2.29	-2.23	-0.88
3,867.00	35.00	287.89	3,526.48	384.93	-1,170.72	1,197.08	2.18	1.16	3.26
3,963.00	37.56	288.46	3,603.87	402.65	-1,224.68	1,252.26	2.69	2.67	0.59
4,058.00	38.09	288.91	3,678.90	421.32	-1,279.87	1,308.73	0.63	0.56	0.47
4,153.00	38.58	288.02	3,753.42	439.98	-1,335.76	1,365.90	0.78	0.52	-0.94
4,249.00	38.36	287.23	3,828.58	458.06	-1,392.68	1,424.05	0.56	-0.23	-0.82

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<b>Well:</b>	VT-LDS 1-16-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1

### 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)
4,344.00	37.96	287.45	3,903.28	475.56	-1,448.70	1,481.27	0.44	-0.42	0.23
4,440.00	35.57	286.57	3,980.18	492.38	-1,503.64	1,537.35	2.55	-2.49	-0.92
4,535.00	32.70	284.94	4,058.81	506.87	-1,554.93	1,589.61	3.17	-3.02	-1.72
4,631.00	34.56	288.77	4,138.75	522.32	-1,605.78	1,641.50	2.94	1.94	3.99
4,727.00	36.81	287.01	4,216.72	539.50	-1,659.07	1,695.97	2.58	2.34	-1.83
4,822.00	35.40	286.08	4,293.47	555.45	-1,712.73	1,750.70	1.59	-1.48	-0.98
4,918.00	40.52	287.01	4,369.14	572.29	-1,769.30	1,808.42	5.37	5.33	0.97
5,013.00	39.55	287.23	4,441.87	590.27	-1,827.70	1,868.04	1.03	-1.02	0.23
5,109.00	36.59	285.34	4,517.44	606.90	-1,884.50	1,925.96	3.31	-3.08	-1.97
5,204.00	31.99	282.34	4,595.92	619.78	-1,936.42	1,978.72	5.16	-4.84	-3.16
5,300.00	32.35	286.61	4,677.19	632.55	-1,985.88	2,029.03	2.40	0.38	4.45
5,395.00	35.40	286.13	4,756.05	647.47	-2,036.69	2,080.83	3.22	3.21	-0.51
5,490.00	37.30	292.65	4,832.59	666.21	-2,089.71	2,135.15	4.53	2.00	6.86
5,586.00	36.54	291.46	4,909.34	687.86	-2,143.15	2,190.11	1.09	-0.79	-1.24
5,682.00	38.93	293.31	4,985.26	710.26	-2,197.46	2,246.00	2.75	2.49	1.93
5,777.00	37.65	291.77	5,059.83	732.83	-2,251.82	2,301.95	1.68	-1.35	-1.62
5,873.00	36.06	289.17	5,136.64	752.99	-2,305.74	2,357.27	2.32	-1.66	-2.71
5,968.00	37.12	291.06	5,212.92	772.47	-2,358.90	2,411.79	1.63	1.12	1.99
6,064.00	34.64	290.01	5,290.70	792.22	-2,411.58	2,465.84	2.66	-2.58	-1.09
6,160.00	37.25	287.89	5,368.42	810.48	-2,464.88	2,520.40	3.01	2.72	-2.21
6,255.00	38.62	287.54	5,443.34	828.25	-2,520.51	2,577.24	1.46	1.44	-0.37
6,351.00	36.54	286.26	5,519.42	845.28	-2,576.52	2,634.41	2.31	-2.17	-1.33
6,446.00	39.33	288.02	5,594.34	862.52	-2,632.31	2,691.37	3.15	2.94	1.85
6,542.00	37.52	287.67	5,669.55	880.81	-2,689.10	2,749.40	1.90	-1.89	-0.36
6,637.00	34.73	287.14	5,746.28	897.57	-2,742.54	2,803.98	2.96	-2.94	-0.56
6,733.00	38.89	287.27	5,823.12	914.58	-2,797.47	2,860.07	4.33	4.33	0.14
6,828.00	38.05	286.04	5,897.50	931.52	-2,854.08	2,917.83	1.20	-0.88	-1.29
6,923.00	34.87	285.07	5,973.89	946.68	-2,908.46	2,973.22	3.40	-3.35	-1.02
7,019.00	36.90	286.97	6,051.67	962.22	-2,962.53	3,028.33	2.41	2.11	1.98
7,114.00	37.74	286.26	6,127.22	978.69	-3,017.72	3,084.63	0.99	0.88	-0.75
7,210.00	33.72	284.98	6,205.14	993.81	-3,071.69	3,139.61	4.26	-4.19	-1.33
7,305.00	34.87	287.36	6,283.62	1,008.73	-3,123.08	3,192.01	1.86	1.21	2.51
7,401.00	38.09	290.40	6,360.81	1,027.25	-3,177.05	3,247.25	3.85	3.35	3.17
7,496.00	38.98	288.29	6,435.12	1,046.84	-3,232.89	3,304.45	1.67	0.94	-2.22
7,592.00	34.34	287.10	6,512.11	1,064.29	-3,287.47	3,360.22	4.89	-4.83	-1.24
7,687.00	42.95	284.10	6,586.25	1,080.08	-3,344.58	3,418.38	9.27	9.06	-3.16
7,782.00	53.82	281.15	6,649.25	1,095.43	-3,413.80	3,488.59	11.67	11.44	-3.11
7,877.00	63.54	279.83	6,698.58	1,110.14	-3,493.51	3,569.20	10.30	10.23	-1.39
7,973.00	62.66	279.96	6,742.01	1,124.85	-3,577.85	3,654.43	0.92	-0.92	0.14
8,060.71	70.00	276.41	6,777.21	1,136.20	-3,657.30	3,734.52	9.15	8.36	-4.05
<b>70°Inclination @ 8060'MD</b>									
8,068.00	70.61	276.13	6,779.67	1,136.95	-3,664.12	3,741.38	9.15	8.41	-3.82
8,164.00	80.38	274.14	6,803.69	1,145.23	-3,756.58	3,834.20	10.37	10.18	-2.07

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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)
8,259.00	89.17	270.66	6,812.33	1,149.16	-3,850.99	3,928.63	9.94	9.25	-3.66
8,355.00	87.19	270.35	6,815.38	1,150.01	-3,946.94	4,024.35	2.09	-2.06	-0.32
8,451.00	87.85	269.96	6,819.54	1,150.27	-4,042.84	4,119.99	0.80	0.69	-0.41
8,546.00	88.38	269.65	6,822.66	1,149.95	-4,137.79	4,214.63	0.65	0.56	-0.33
8,679.00	89.62	268.15	6,824.98	1,147.39	-4,270.74	4,346.98	1.46	0.93	-1.13
8,774.00	90.19	269.91	6,825.14	1,145.78	-4,365.72	4,441.55	1.95	0.60	1.85
8,870.00	90.06	269.21	6,824.93	1,145.05	-4,461.72	4,537.19	0.74	-0.14	-0.73
8,965.00	90.10	269.82	6,824.80	1,144.24	-4,556.72	4,631.84	0.64	0.04	0.64
9,061.00	90.06	269.16	6,824.66	1,143.39	-4,652.71	4,727.48	0.69	-0.04	-0.69
9,156.00	90.10	269.78	6,824.53	1,142.51	-4,747.71	4,822.12	0.65	0.04	0.65
9,252.00	90.10	269.87	6,824.36	1,142.22	-4,843.71	4,917.81	0.09	0.00	0.09
9,348.00	90.63	269.96	6,823.75	1,142.07	-4,939.70	5,013.50	0.56	0.55	0.09
9,443.00	90.68	270.31	6,822.67	1,142.30	-5,034.70	5,108.23	0.37	0.05	0.37
9,538.00	90.41	268.77	6,821.76	1,141.54	-5,129.69	5,202.87	1.65	-0.28	-1.62
9,634.00	90.50	269.25	6,821.00	1,139.88	-5,225.67	5,298.43	0.51	0.09	0.50
9,729.00	90.54	269.65	6,820.14	1,138.96	-5,320.66	5,393.07	0.42	0.04	0.42
9,825.00	90.68	270.35	6,819.12	1,138.96	-5,416.65	5,488.77	0.74	0.15	0.73
9,921.00	90.46	268.72	6,818.16	1,138.19	-5,512.64	5,584.41	1.71	-0.23	-1.70
10,017.00	90.68	270.22	6,817.20	1,137.30	-5,608.63	5,680.04	1.58	0.23	1.56
10,112.00	90.63	269.43	6,816.12	1,137.01	-5,703.62	5,774.72	0.83	-0.05	-0.83
10,207.00	90.46	269.07	6,815.22	1,135.76	-5,798.61	5,869.32	0.42	-0.18	-0.38
10,303.00	90.15	269.43	6,814.70	1,134.51	-5,894.60	5,964.93	0.49	-0.32	0.38
10,368.29	90.05	270.21	6,814.59	1,134.30	-5,959.89	6,030.00	1.21	-0.15	1.20
<b>Crossing Section 16/17 @ 10368'MD</b>									
10,398.00	90.01	270.57	6,814.57	1,134.51	-5,989.60	6,059.64	1.21	-0.15	1.20
10,493.00	90.19	272.07	6,814.41	1,136.70	-6,084.57	6,154.49	1.59	0.19	1.58
10,588.00	90.15	271.85	6,814.12	1,139.94	-6,179.52	6,249.40	0.24	-0.04	-0.23
10,684.00	90.19	272.12	6,813.84	1,143.27	-6,275.46	6,345.31	0.28	0.04	0.28
10,780.00	90.23	272.03	6,813.49	1,146.75	-6,371.39	6,441.23	0.10	0.04	-0.09
10,874.00	90.01	270.57	6,813.29	1,148.88	-6,465.37	6,535.08	1.57	-0.23	-1.55
10,970.00	90.23	272.12	6,813.09	1,151.13	-6,561.34	6,630.94	1.63	0.23	1.61
11,065.00	90.01	270.71	6,812.89	1,153.48	-6,656.31	6,725.80	1.50	-0.23	-1.48
11,161.00	89.97	271.19	6,812.91	1,155.07	-6,752.29	6,821.62	0.50	-0.04	0.50
11,256.00	90.19	271.81	6,812.77	1,157.56	-6,847.26	6,916.50	0.69	0.23	0.65
11,352.00	90.01	270.53	6,812.61	1,159.52	-6,943.24	7,012.34	1.35	-0.19	-1.33
11,447.00	89.97	270.93	6,812.62	1,160.73	-7,038.23	7,107.13	0.42	-0.04	0.42
11,542.00	89.97	270.53	6,812.67	1,161.94	-7,133.22	7,201.93	0.42	0.00	-0.42
11,638.00	90.01	270.93	6,812.69	1,163.16	-7,229.21	7,297.73	0.42	0.04	0.42
11,733.00	90.19	271.98	6,812.52	1,165.57	-7,324.18	7,392.60	1.12	0.19	1.11
11,829.00	89.97	270.84	6,812.39	1,167.93	-7,420.15	7,488.46	1.21	-0.23	-1.19
11,924.00	89.97	270.44	6,812.44	1,169.00	-7,515.14	7,583.25	0.42	0.00	-0.42
12,019.00	90.15	271.81	6,812.34	1,170.86	-7,610.12	7,678.09	1.45	0.19	1.44
12,115.00	90.15	272.25	6,812.09	1,174.26	-7,706.06	7,774.00	0.46	0.00	0.46
12,210.00	89.97	270.75	6,811.99	1,176.75	-7,801.03	7,868.87	1.59	-0.19	-1.58

## Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS 1-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Well:</b>	VT-LDS 1-16-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1

### 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)
12,306.00	90.01	270.48	6,812.01	1,177.78	-7,897.02	7,964.66	0.28	0.04	-0.28
12,401.00	90.19	271.67	6,811.84	1,179.56	-7,992.00	8,059.49	1.27	0.19	1.25
12,496.00	90.23	272.12	6,811.49	1,182.70	-8,086.95	8,154.39	0.48	0.04	0.47
12,592.00	90.15	271.98	6,811.17	1,186.14	-8,182.89	8,250.31	0.17	-0.08	-0.15
12,687.00	90.19	272.42	6,810.89	1,189.78	-8,277.82	8,345.23	0.47	0.04	0.46
12,783.00	90.06	270.57	6,810.68	1,192.29	-8,373.78	8,441.10	1.93	-0.14	-1.93
12,879.00	90.01	271.23	6,810.62	1,193.80	-8,469.77	8,536.92	0.69	-0.05	0.69
12,974.00	90.06	271.45	6,810.57	1,196.02	-8,564.74	8,631.78	0.24	0.05	0.23
13,070.00	90.23	272.38	6,810.32	1,199.23	-8,660.69	8,727.68	0.98	0.18	0.97
13,166.00	90.23	272.25	6,809.94	1,203.10	-8,756.61	8,823.61	0.14	0.00	-0.14
13,261.00	90.06	271.01	6,809.70	1,205.81	-8,851.57	8,918.49	1.32	-0.18	-1.31
13,356.00	90.10	271.45	6,809.56	1,207.84	-8,946.55	9,013.34	0.47	0.04	0.46
13,452.00	90.19	272.16	6,809.32	1,210.87	-9,042.50	9,109.24	0.75	0.09	0.74
13,548.00	90.23	272.20	6,808.97	1,214.52	-9,138.43	9,205.16	0.06	0.04	0.04
13,644.00	90.19	272.03	6,808.62	1,218.06	-9,234.36	9,301.08	0.18	-0.04	-0.18
13,739.00	90.19	271.54	6,808.30	1,221.02	-9,329.31	9,395.98	0.52	0.00	-0.52
13,835.00	89.48	268.72	6,808.58	1,221.24	-9,425.30	9,491.69	3.03	-0.74	-2.94
13,930.00	89.48	268.90	6,809.44	1,219.27	-9,520.28	9,586.23	0.19	0.00	0.19
14,026.00	89.57	269.56	6,810.24	1,217.98	-9,616.27	9,681.83	0.69	0.09	0.69
14,121.00	89.70	270.48	6,810.84	1,218.01	-9,711.26	9,776.54	0.98	0.14	0.97
14,217.00	89.48	268.77	6,811.53	1,217.38	-9,807.25	9,872.19	1.80	-0.23	-1.78
14,312.00	89.44	268.81	6,812.42	1,215.38	-9,902.23	9,966.72	0.06	-0.04	0.04
14,408.00	89.62	270.26	6,813.21	1,214.60	-9,998.22	10,062.36	1.52	0.19	1.51
14,503.00	89.66	270.62	6,813.81	1,215.33	-10,093.22	10,157.13	0.38	0.04	0.38
14,599.00	89.48	268.90	6,814.53	1,214.92	-10,189.21	10,252.80	1.80	-0.19	-1.79
14,694.00	89.48	268.85	6,815.39	1,213.06	-10,284.19	10,347.35	0.05	0.00	-0.05
14,789.00	89.75	270.66	6,816.03	1,212.65	-10,379.18	10,442.02	1.93	0.28	1.91
14,885.00	89.53	269.25	6,816.63	1,212.58	-10,475.17	10,537.72	1.49	-0.23	-1.47
14,980.00	89.53	268.99	6,817.41	1,211.12	-10,570.16	10,632.30	0.27	0.00	-0.27
15,076.00	89.66	270.62	6,818.09	1,210.79	-10,666.15	10,727.98	1.70	0.14	1.70
15,172.00	89.48	268.68	6,818.81	1,210.21	-10,762.14	10,823.64	2.03	-0.19	-2.02
15,267.00	89.75	270.66	6,819.45	1,209.66	-10,857.14	10,918.30	2.10	0.28	2.08
15,363.00	89.62	270.26	6,819.98	1,210.43	-10,953.13	11,014.06	0.44	-0.14	-0.42
15,458.00	89.48	269.21	6,820.72	1,209.99	-11,048.13	11,108.74	1.12	-0.15	-1.11
15,554.00	89.44	269.03	6,821.63	1,208.52	-11,144.11	11,204.32	0.19	-0.04	-0.19
15,648.00	89.04	269.74	6,822.88	1,207.51	-11,238.10	11,297.94	0.87	-0.43	0.76
15,661.68	89.05	269.87	6,823.10	1,207.46	-11,251.77	11,311.57	0.92	0.09	0.92
<b>Crossing Section 17/18 @ 15661'MD</b>									
15,744.00	89.13	270.62	6,824.41	1,207.81	-11,334.08	11,393.66	0.92	0.09	0.92
15,839.00	89.17	270.13	6,825.82	1,208.43	-11,429.07	11,488.41	0.52	0.04	-0.52
15,935.00	89.04	269.12	6,827.32	1,207.80	-11,525.05	11,584.06	1.06	-0.14	-1.05
16,030.00	89.22	270.66	6,828.76	1,207.62	-11,620.04	11,678.74	1.63	0.19	1.62
16,125.00	88.91	269.87	6,830.31	1,208.06	-11,715.03	11,773.47	0.89	-0.33	-0.83

## Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS 1-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Well:</b>	VT-LDS 1-16-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1

### 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)
16,221.00	89.09	268.94	6,831.99	1,207.06	-11,811.00	11,869.08	0.99	0.19	-0.97
16,316.00	88.86	269.52	6,833.69	1,205.79	-11,905.98	11,963.67	0.66	-0.24	0.61
16,412.00	88.16	269.21	6,836.18	1,204.72	-12,001.94	12,059.26	0.80	-0.73	-0.32
16,507.00	88.16	270.44	6,839.23	1,204.43	-12,096.89	12,153.90	1.29	0.00	1.29
16,603.00	88.03	269.38	6,842.42	1,204.28	-12,192.84	12,249.54	1.11	-0.14	-1.10
16,698.00	88.20	270.44	6,845.55	1,204.13	-12,287.78	12,344.19	1.13	0.18	1.12
16,794.00	88.07	269.87	6,848.67	1,204.39	-12,383.73	12,439.87	0.61	-0.14	-0.59
16,890.00	88.16	269.65	6,851.83	1,203.99	-12,479.68	12,535.50	0.25	0.09	-0.23
16,985.00	88.03	268.85	6,854.99	1,202.75	-12,574.62	12,630.05	0.85	-0.14	-0.84
17,081.00	87.89	268.59	6,858.41	1,200.60	-12,670.53	12,725.51	0.31	-0.15	-0.27
17,176.00	89.00	269.16	6,860.98	1,198.74	-12,765.48	12,820.02	1.31	1.17	0.60
17,272.00	89.13	269.87	6,862.55	1,197.93	-12,861.46	12,915.65	0.75	0.14	0.74
17,367.00	89.00	269.16	6,864.10	1,197.12	-12,956.44	13,010.29	0.76	-0.14	-0.75
17,463.00	89.62	271.85	6,865.26	1,197.97	-13,052.42	13,106.04	2.88	0.65	2.80
17,558.00	90.15	272.07	6,865.45	1,201.22	-13,147.37	13,200.95	0.60	0.56	0.23
17,654.00	90.06	271.28	6,865.27	1,204.02	-13,243.33	13,296.84	0.83	-0.09	-0.82
17,749.00	90.19	272.34	6,865.06	1,207.02	-13,338.28	13,391.74	1.12	0.14	1.12
17,845.00	90.15	271.59	6,864.78	1,210.32	-13,434.22	13,487.64	0.78	-0.04	-0.78
17,941.00	90.63	271.72	6,864.13	1,213.09	-13,530.18	13,583.53	0.52	0.50	0.14
18,036.00	91.34	272.51	6,862.49	1,216.59	-13,625.10	13,678.43	1.12	0.75	0.83
18,132.00	91.16	271.76	6,860.40	1,220.17	-13,721.01	13,774.33	0.80	-0.19	-0.78
18,227.00	91.25	272.51	6,858.40	1,223.71	-13,815.92	13,869.23	0.79	0.09	0.79
18,323.00	91.07	270.57	6,856.46	1,226.29	-13,911.86	13,965.08	2.03	-0.19	-2.02
18,419.00	91.16	272.03	6,854.59	1,228.46	-14,007.81	14,060.92	1.52	0.09	1.52
18,514.00	91.25	272.73	6,852.59	1,232.41	-14,102.71	14,155.83	0.74	0.09	0.74
18,610.00	91.25	270.93	6,850.50	1,235.47	-14,198.63	14,251.70	1.87	0.00	-1.88
18,705.00	91.60	270.62	6,848.13	1,236.76	-14,293.60	14,346.48	0.49	0.37	-0.33
18,801.00	91.60	271.23	6,845.45	1,238.31	-14,389.55	14,442.26	0.64	0.00	0.64
18,896.00	91.74	272.42	6,842.69	1,241.33	-14,484.46	14,537.12	1.26	0.15	1.25
18,992.00	92.05	272.38	6,839.51	1,245.35	-14,580.32	14,633.00	0.33	0.32	-0.04
19,087.00	92.14	271.90	6,836.04	1,248.89	-14,675.19	14,727.86	0.51	0.09	-0.51
19,182.00	92.05	271.41	6,832.57	1,251.64	-14,770.09	14,822.68	0.52	-0.09	-0.52
19,278.00	92.22	272.69	6,828.99	1,255.07	-14,865.96	14,918.53	1.34	0.18	1.33
19,373.00	92.09	271.76	6,825.42	1,258.75	-14,960.82	15,013.39	0.99	-0.14	-0.98
19,469.00	92.14	270.62	6,821.87	1,260.75	-15,056.73	15,109.17	1.19	0.05	-1.19
19,564.00	91.91	268.90	6,818.52	1,260.35	-15,151.66	15,203.79	1.83	-0.24	-1.81
19,660.00	92.09	270.09	6,815.17	1,259.50	-15,247.60	15,299.37	1.25	0.19	1.24
19,755.00	92.14	269.74	6,811.66	1,259.36	-15,342.54	15,394.00	0.37	0.05	-0.37
19,850.00	92.09	270.22	6,808.15	1,259.33	-15,437.47	15,488.65	0.51	-0.05	0.51
19,946.00	92.00	269.25	6,804.73	1,258.88	-15,533.41	15,584.26	1.01	-0.09	-1.01
20,041.00	92.05	269.38	6,801.37	1,257.75	-15,628.34	15,678.82	0.15	0.05	0.14
20,136.00	92.00	269.25	6,798.01	1,256.61	-15,723.27	15,773.38	0.15	-0.05	-0.14
20,232.00	92.00	268.90	6,794.66	1,255.07	-15,819.20	15,868.90	0.36	0.00	-0.36

## Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS 1-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29 @ 4677.00ft (Patterson #901)
<b>Well:</b>	VT-LDS 1-16-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDM 5000.1

### 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)
20,327.00	92.05	269.74	6,791.31	1,253.94	-15,914.14	15,963.46	0.89	0.05	0.88
20,415.00	91.91	268.77	6,788.27	1,252.80	-16,002.08	16,051.04	1.11	-0.16	-1.10
<b>Last MWD Survey @ 20415'MD</b>									
20,445.00	91.91	268.77	6,787.27	1,252.15	-16,032.05	16,080.88	0.00	0.00	0.00
<b>PTB @ TD @ 20445'MD (483'FWL &amp; 661'FNL)</b>									

### Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,519.00	1,513.67	17.51	-75.52	Tie in to Surface Surveys @ 1519'MD
1,671.00	1,663.10	25.70	-102.07	First MWD Survey @ 1671'MD
2,328.16	2,270.97	117.91	-323.64	30°Inclination @ 2328'MD
2,918.48	2,752.28	222.40	-648.22	Crossing Section 15/16 @ 2918'MD
8,060.71	6,777.21	1,136.20	-3,657.30	70°Inclination @ 8060'MD
10,368.29	6,814.59	1,134.30	-5,959.89	Crossing Section 16/17 @ 10368'MD
15,661.68	6,823.10	1,207.46	-11,251.77	Crossing Section 17/18 @ 15661'MD
20,415.00	6,788.27	1,252.80	-16,002.08	Last MWD Survey @ 20415'MD
20,445.00	6,787.27	1,252.15	-16,032.05	PTB @ TD @ 20445'MD (483'FWL & 661'FNL)

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_