

Extraction Oil & Gas

Weld County, CO (NAD83)

Vetting PAD (Sec 15-T5N-R65W)

VT-LDS C2-16-18

Wellbore #1

Survey: MWD Surveys

Standard Survey Report

27 June, 2018

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Site:	Vetting PAD (Sec 15-T5N-R65W)	MD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Well:	VT-LDS C2-16-18	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

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		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 C2-16-18					
Well Position	+N/-S	0.00 ft	Northing:	1,390,154.57 usfl	Latitude:	40.401310
	+E/-W	0.00 ft	Easting:	3,234,879.20 usfl	Longitude:	-104.656630
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,647.00 ft

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

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	273.89	

Survey Program	Date	6/27/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
86.00	1,515.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,671.00	20,580.00	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)	
1,515.00	15.07	289.82	1,507.06	24.91	-92.62	94.10	0.00	0.00	0.00	
Tie in to Surface Surveys @ 1515'MD										
1,671.00	14.18	286.97	1,658.00	37.36	-129.97	132.21	0.73	-0.57	-1.83	
First MWD Survey @ 1671'MD										
1,766.00	17.94	288.60	1,749.28	45.43	-154.98	157.71	3.99	3.96	1.72	
1,862.00	21.34	292.03	1,839.68	56.70	-185.19	188.62	3.74	3.54	3.57	
1,957.00	24.66	293.44	1,927.12	71.07	-219.41	223.73	3.54	3.49	1.48	
2,053.00	27.18	291.37	2,013.46	87.03	-258.21	263.52	2.79	2.63	-2.16	
2,149.00	30.23	289.39	2,097.65	103.05	-301.44	307.74	3.33	3.18	-2.06	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
2,244.00	32.08	286.61	2,178.95	118.20	-348.18	355.40	2.47	1.95	-2.93
2,340.00	32.61	286.92	2,260.06	133.02	-397.35	405.47	0.58	0.55	0.32
2,435.00	34.20	287.10	2,339.36	148.32	-447.37	456.40	1.68	1.67	0.19
2,530.00	32.48	287.94	2,418.72	164.03	-497.16	507.14	1.87	-1.81	0.88
2,625.00	30.98	287.94	2,499.52	179.42	-544.69	555.61	1.58	-1.58	0.00
2,721.00	34.38	285.25	2,580.32	194.16	-594.36	606.17	3.85	3.54	-2.80
2,778.43	34.96	285.12	2,627.55	202.72	-625.89	638.21	1.02	1.01	-0.23
Crossing Section 15/16 @ 2778'MD									
2,817.00	35.35	285.03	2,659.08	208.49	-647.33	659.99	1.02	1.01	-0.23
2,912.00	35.84	284.19	2,736.33	222.44	-700.84	714.32	0.73	0.52	-0.88
3,008.00	33.98	284.98	2,815.06	236.26	-754.01	768.31	1.99	-1.94	0.82
3,103.00	32.57	284.45	2,894.48	249.51	-804.42	819.50	1.52	-1.48	-0.56
3,199.00	35.00	284.67	2,974.26	262.93	-856.08	871.96	2.53	2.53	0.23
3,294.00	33.19	285.12	3,052.93	276.61	-907.55	924.23	1.92	-1.91	0.47
3,390.00	30.31	284.50	3,134.55	289.54	-956.38	973.82	3.02	-3.00	-0.65
3,485.00	32.52	283.53	3,215.62	301.51	-1,004.42	1,022.57	2.39	2.33	-1.02
3,580.00	34.73	284.54	3,294.72	314.28	-1,055.45	1,074.35	2.40	2.33	1.06
3,676.00	32.39	283.57	3,374.72	327.18	-1,106.92	1,126.58	2.50	-2.44	-1.01
3,771.00	34.16	284.85	3,454.14	339.99	-1,157.44	1,177.85	2.00	1.86	1.35
3,867.00	31.64	284.72	3,534.74	353.30	-1,207.85	1,229.05	2.63	-2.63	-0.14
3,962.00	34.73	285.82	3,614.23	367.01	-1,258.00	1,280.01	3.31	3.25	1.16
4,058.00	36.15	286.04	3,692.44	382.29	-1,311.53	1,334.45	1.49	1.48	0.23
4,153.00	36.19	285.86	3,769.13	397.70	-1,365.44	1,389.28	0.12	0.04	-0.19
4,248.00	36.72	286.70	3,845.55	413.52	-1,419.62	1,444.41	0.77	0.56	0.88
4,344.00	36.41	285.82	3,922.65	429.54	-1,474.52	1,500.28	0.63	-0.32	-0.92
4,440.00	33.72	286.35	4,001.22	444.81	-1,527.51	1,554.18	2.82	-2.80	0.55
4,535.00	30.84	286.26	4,081.53	459.05	-1,576.20	1,603.72	3.03	-3.03	-0.09
4,631.00	33.10	285.03	4,162.96	472.74	-1,625.15	1,653.49	2.45	2.35	-1.28
4,727.00	32.17	283.88	4,243.81	485.67	-1,675.27	1,704.38	1.16	-0.97	-1.20
4,822.00	32.08	287.14	4,324.27	499.17	-1,723.94	1,753.84	1.83	-0.09	3.43
4,918.00	31.99	286.88	4,405.65	514.07	-1,772.63	1,803.44	0.17	-0.09	-0.27
5,013.00	34.78	284.19	4,484.97	528.02	-1,822.99	1,854.63	3.32	2.94	-2.83
5,109.00	32.30	283.00	4,564.98	540.51	-1,874.54	1,906.90	2.67	-2.58	-1.24
5,204.00	33.89	282.91	4,644.57	552.13	-1,925.09	1,958.13	1.67	1.67	-0.09
5,300.00	31.15	283.31	4,725.51	563.83	-1,975.35	2,009.06	2.86	-2.85	0.42
5,395.00	33.10	284.50	4,805.96	575.99	-2,024.38	2,058.81	2.16	2.05	1.25
5,490.00	31.55	284.50	4,886.23	588.70	-2,073.56	2,108.74	1.63	-1.63	0.00
5,586.00	35.26	287.10	4,966.37	603.15	-2,124.38	2,160.42	4.14	3.86	2.71
5,682.00	35.22	285.64	5,044.77	618.76	-2,177.52	2,214.50	0.88	-0.04	-1.52
5,777.00	32.97	287.05	5,123.44	633.72	-2,228.62	2,266.50	2.51	-2.37	1.48
5,872.00	30.05	285.86	5,204.42	647.81	-2,276.23	2,314.95	3.14	-3.07	-1.25
5,968.00	29.74	283.44	5,287.65	659.91	-2,322.51	2,361.95	1.30	-0.32	-2.52
5,977.24	30.00	283.41	5,295.67	660.98	-2,326.98	2,366.48	2.82	2.81	-0.35
30°Inclination @ 5977'MD									

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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)
6,064.00	32.44	283.13	5,369.86	671.30	-2,370.75	2,410.85	2.82	2.81	-0.32
6,160.00	35.31	282.74	5,449.55	683.27	-2,422.90	2,463.69	3.00	2.99	-0.41
6,255.00	33.05	282.16	5,528.14	694.78	-2,475.01	2,516.46	2.40	-2.38	-0.61
6,351.00	34.25	289.21	5,608.08	709.19	-2,526.13	2,568.44	4.25	1.25	7.34
6,446.00	31.24	289.83	5,687.98	726.34	-2,574.56	2,617.93	3.19	-3.17	0.65
6,542.00	33.50	288.16	5,769.06	743.05	-2,623.16	2,667.55	2.53	2.35	-1.74
6,637.00	36.46	285.78	5,846.89	758.90	-2,675.25	2,720.59	3.43	3.12	-2.51
6,733.00	34.11	285.38	5,925.25	773.80	-2,728.66	2,774.89	2.46	-2.45	-0.42
6,828.00	33.98	285.73	6,003.96	788.06	-2,779.90	2,826.98	0.25	-0.14	0.37
6,923.00	36.19	285.34	6,081.70	802.68	-2,832.50	2,880.46	2.34	2.33	-0.41
7,019.00	32.48	284.59	6,160.96	816.67	-2,884.80	2,933.58	3.89	-3.86	-0.78
7,114.00	31.42	282.30	6,241.57	828.38	-2,933.68	2,983.14	1.69	-1.12	-2.41
7,210.00	32.97	283.35	6,322.80	839.74	-2,983.55	3,033.67	1.72	1.61	1.09
7,305.00	33.80	283.62	6,402.13	851.93	-3,034.38	3,085.21	0.89	0.87	0.28
7,401.00	33.10	287.76	6,482.24	866.22	-3,085.30	3,136.99	2.49	-0.73	4.31
7,496.00	34.47	289.08	6,561.19	882.92	-3,135.42	3,188.12	1.64	1.44	1.39
7,591.00	36.99	287.63	6,638.31	900.36	-3,188.07	3,241.83	2.80	2.65	-1.53
7,687.00	33.72	287.89	6,716.59	917.30	-3,240.97	3,295.76	3.41	-3.41	0.27
7,782.00	38.93	281.50	6,793.13	931.37	-3,295.37	3,350.99	6.77	5.48	-6.73
7,877.00	47.68	281.19	6,862.20	944.16	-3,359.19	3,415.53	9.21	9.21	-0.33
7,973.00	53.69	278.81	6,923.00	956.98	-3,432.31	3,489.35	6.55	6.26	-2.48
8,068.00	58.11	275.55	6,976.26	966.75	-3,510.33	3,567.85	5.45	4.65	-3.43
8,164.00	67.04	273.31	7,020.43	973.26	-3,595.19	3,652.97	9.53	9.30	-2.33
8,206.16	70.00	272.13	7,035.87	975.12	-3,634.38	3,692.18	7.48	7.01	-2.80
70°Inclination @ 8206'MD									
8,259.00	73.71	270.71	7,052.33	976.35	-3,684.56	3,742.34	7.48	7.03	-2.69
8,355.00	81.57	269.52	7,072.86	976.53	-3,778.26	3,835.83	8.28	8.19	-1.24
8,451.00	86.83	270.48	7,082.56	976.53	-3,873.74	3,931.09	5.57	5.48	1.00
8,546.00	92.49	270.13	7,083.12	977.04	-3,968.69	4,025.86	5.97	5.96	-0.37
8,641.00	94.08	269.52	7,077.68	976.75	-4,063.53	4,120.46	1.79	1.67	-0.64
8,737.00	90.68	269.65	7,073.69	976.05	-4,159.43	4,216.09	3.54	-3.54	0.14
8,832.00	90.28	270.44	7,072.90	976.13	-4,254.43	4,310.88	0.93	-0.42	0.83
8,870.00	90.77	269.96	7,072.55	976.26	-4,292.43	4,348.80	1.81	1.29	-1.26
8,965.00	91.52	269.47	7,070.65	975.79	-4,387.41	4,443.52	0.94	0.79	-0.52
9,061.00	91.07	269.47	7,068.48	974.90	-4,483.38	4,539.21	0.47	-0.47	0.00
9,156.00	91.07	269.65	7,066.71	974.17	-4,578.36	4,633.92	0.19	0.00	0.19
9,252.00	91.16	269.91	7,064.84	973.80	-4,674.34	4,729.66	0.29	0.09	0.27
9,348.00	91.30	270.31	7,062.78	973.99	-4,770.32	4,825.43	0.44	0.15	0.42
9,443.00	91.21	269.82	7,060.70	974.09	-4,865.29	4,920.19	0.52	-0.09	-0.52
9,538.00	91.52	269.12	7,058.44	973.22	-4,960.26	5,014.88	0.81	0.33	-0.74
9,634.00	91.16	269.78	7,056.19	972.29	-5,056.23	5,110.57	0.78	-0.38	0.69
9,729.00	91.30	270.44	7,054.15	972.48	-5,151.21	5,205.34	0.71	0.15	0.69
9,825.00	91.21	269.38	7,052.05	972.33	-5,247.18	5,301.08	1.11	-0.09	-1.10

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9,921.00	91.03	269.43	7,050.17	971.33	-5,343.16	5,396.77	0.19	-0.19	0.05
10,017.00	91.07	271.76	7,048.41	972.33	-5,439.13	5,492.59	2.43	0.04	2.43
10,112.00	90.63	271.41	7,047.00	974.95	-5,534.09	5,587.50	0.59	-0.46	-0.37
10,207.00	90.77	272.42	7,045.84	978.13	-5,629.02	5,682.44	1.07	0.15	1.06
10,303.00	90.68	271.59	7,044.63	981.49	-5,724.96	5,778.37	0.87	-0.09	-0.86
10,398.00	90.06	270.75	7,044.01	983.43	-5,819.93	5,873.26	1.10	-0.65	-0.88
10,493.00	90.15	272.25	7,043.84	985.91	-5,914.90	5,968.18	1.58	0.09	1.58
10,514.65	90.11	271.94	7,043.79	986.70	-5,936.53	5,989.82	1.45	-0.19	-1.44
Crossing Section 16/17 @ 10514'MD									
10,588.00	89.97	270.88	7,043.74	988.51	-6,009.86	6,063.10	1.45	-0.19	-1.44
10,684.00	90.06	271.32	7,043.72	990.35	-6,105.84	6,158.98	0.47	0.09	0.46
10,780.00	90.10	271.45	7,043.58	992.67	-6,201.81	6,254.89	0.14	0.04	0.14
10,874.00	90.06	270.97	7,043.45	994.66	-6,295.79	6,348.79	0.51	-0.04	-0.51
10,970.00	90.01	271.01	7,043.39	996.31	-6,391.78	6,444.67	0.07	-0.05	0.04
11,065.00	90.01	270.48	7,043.37	997.55	-6,486.77	6,539.52	0.56	0.00	-0.56
11,161.00	90.01	270.84	7,043.36	998.65	-6,582.76	6,635.37	0.38	0.00	0.38
11,256.00	90.15	272.38	7,043.23	1,001.32	-6,677.72	6,730.29	1.63	0.15	1.62
11,352.00	90.15	270.93	7,042.97	1,004.10	-6,773.68	6,826.21	1.51	0.00	-1.51
11,447.00	90.50	272.03	7,042.44	1,006.55	-6,868.65	6,921.13	1.22	0.37	1.16
11,542.00	90.28	271.28	7,041.79	1,009.29	-6,963.60	7,016.05	0.82	-0.23	-0.79
11,638.00	90.23	271.01	7,041.36	1,011.21	-7,059.58	7,111.94	0.29	-0.05	-0.28
11,733.00	90.77	271.94	7,040.53	1,013.66	-7,154.55	7,206.85	1.13	0.57	0.98
11,829.00	90.50	270.97	7,039.47	1,016.09	-7,250.51	7,302.76	1.05	-0.28	-1.01
11,924.00	90.32	271.15	7,038.79	1,017.85	-7,345.49	7,397.64	0.27	-0.19	0.19
12,019.00	90.19	270.31	7,038.37	1,019.06	-7,440.48	7,492.49	0.89	-0.14	-0.88
12,115.00	89.97	270.88	7,038.23	1,020.06	-7,536.47	7,588.33	0.64	-0.23	0.59
12,210.00	90.01	271.19	7,038.25	1,021.78	-7,631.46	7,683.21	0.33	0.04	0.33
12,306.00	90.32	272.34	7,037.97	1,024.73	-7,727.41	7,779.15	1.24	0.32	1.20
12,401.00	90.10	270.84	7,037.62	1,027.37	-7,822.37	7,874.07	1.60	-0.23	-1.58
12,497.00	89.93	270.88	7,037.60	1,028.81	-7,918.36	7,969.93	0.18	-0.18	0.04
12,592.00	89.70	271.06	7,037.91	1,030.42	-8,013.35	8,064.81	0.31	-0.24	0.19
12,687.00	89.79	270.44	7,038.33	1,031.66	-8,108.34	8,159.66	0.66	0.09	-0.65
12,783.00	89.44	271.28	7,038.97	1,033.10	-8,204.32	8,255.53	0.95	-0.36	0.88
12,879.00	89.79	272.20	7,039.62	1,036.02	-8,300.27	8,351.45	1.03	0.36	0.96
12,974.00	89.88	272.47	7,039.89	1,039.89	-8,395.19	8,446.42	0.30	0.09	0.28
13,070.00	89.53	272.86	7,040.39	1,044.35	-8,491.09	8,542.39	0.55	-0.36	0.41
13,166.00	89.48	271.90	7,041.22	1,048.34	-8,587.00	8,638.36	1.00	-0.05	-1.00
13,261.00	89.75	271.23	7,041.85	1,050.93	-8,681.96	8,733.28	0.76	0.28	-0.71
13,356.00	90.28	271.28	7,041.83	1,053.01	-8,776.94	8,828.17	0.56	0.56	0.05
13,452.00	90.63	272.64	7,041.07	1,056.29	-8,872.88	8,924.11	1.46	0.36	1.42
13,548.00	90.85	271.76	7,039.83	1,059.98	-8,968.80	9,020.06	0.94	0.23	-0.92
13,644.00	91.21	270.88	7,038.10	1,062.19	-9,064.76	9,115.95	0.99	0.38	-0.92
13,739.00	91.21	270.35	7,036.09	1,063.21	-9,159.73	9,210.77	0.56	0.00	-0.56
13,835.00	91.25	271.54	7,034.03	1,064.79	-9,255.69	9,306.62	1.24	0.04	1.24

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Site:	Vetting PAD (Sec 15-T5N-R65W)	MD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Well:	VT-LDS C2-16-18	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
13,930.00	90.94	270.44	7,032.22	1,066.43	-9,350.66	9,401.48	1.20	-0.33	-1.16
14,026.00	90.99	270.48	7,030.60	1,067.20	-9,446.64	9,497.30	0.07	0.05	0.04
14,121.00	91.03	269.87	7,028.93	1,067.50	-9,541.63	9,592.08	0.64	0.04	-0.64
14,217.00	90.90	270.75	7,027.31	1,068.01	-9,637.61	9,687.88	0.93	-0.14	0.92
14,312.00	90.77	270.35	7,025.93	1,068.93	-9,732.60	9,782.71	0.44	-0.14	-0.42
14,408.00	90.68	270.57	7,024.71	1,069.70	-9,828.59	9,878.53	0.25	-0.09	0.23
14,503.00	90.41	268.77	7,023.81	1,069.15	-9,923.58	9,973.26	1.92	-0.28	-1.89
14,599.00	90.19	268.94	7,023.30	1,067.23	-10,019.56	10,068.89	0.29	-0.23	0.18
14,694.00	90.10	268.50	7,023.06	1,065.11	-10,114.53	10,163.50	0.47	-0.09	-0.46
14,789.00	90.15	268.28	7,022.86	1,062.44	-10,209.49	10,258.06	0.24	0.05	-0.23
14,885.00	89.88	268.11	7,022.83	1,059.42	-10,305.45	10,353.59	0.33	-0.28	-0.18
14,980.00	89.97	268.28	7,022.96	1,056.42	-10,400.40	10,448.12	0.20	0.09	0.18
15,076.00	90.01	268.99	7,022.97	1,054.14	-10,496.37	10,543.72	0.74	0.04	0.74
15,172.00	89.53	267.36	7,023.36	1,051.08	-10,592.32	10,639.23	1.77	-0.50	-1.70
15,267.00	89.66	268.81	7,024.03	1,047.91	-10,687.26	10,733.74	1.53	0.14	1.53
15,363.00	89.79	269.30	7,024.49	1,046.32	-10,783.25	10,829.40	0.53	0.14	0.51
15,458.00	89.97	269.12	7,024.69	1,045.01	-10,878.24	10,924.08	0.27	0.19	-0.19
15,554.00	90.01	270.18	7,024.71	1,044.43	-10,974.23	11,019.82	1.10	0.04	1.10
15,648.00	89.97	268.90	7,024.72	1,043.67	-11,068.23	11,113.54	1.36	-0.04	-1.36
15,744.00	90.15	270.62	7,024.62	1,043.27	-11,164.22	11,209.29	1.80	0.19	1.79
15,808.82	90.20	270.89	7,024.42	1,044.12	-11,229.04	11,274.01	0.42	0.08	0.41
Crossing Section 17/18 @ 15808'MD									
15,839.00	90.23	271.01	7,024.31	1,044.62	-11,259.21	11,304.15	0.42	0.08	0.41
15,935.00	90.15	270.35	7,023.99	1,045.76	-11,355.21	11,400.00	0.69	-0.08	-0.69
16,030.00	90.06	269.38	7,023.81	1,045.54	-11,450.20	11,494.76	1.03	-0.09	-1.02
16,125.00	90.19	270.13	7,023.61	1,045.13	-11,545.20	11,589.52	0.80	0.14	0.79
16,221.00	90.23	270.48	7,023.26	1,045.64	-11,641.20	11,685.33	0.37	0.04	0.36
16,316.00	90.19	269.47	7,022.91	1,045.60	-11,736.20	11,780.10	1.06	-0.04	-1.06
16,412.00	89.09	269.38	7,023.51	1,044.64	-11,832.19	11,875.81	1.15	-1.15	-0.09
16,507.00	89.53	269.21	7,024.65	1,043.47	-11,927.18	11,970.50	0.50	0.46	-0.18
16,603.00	89.97	269.52	7,025.07	1,042.40	-12,023.17	12,066.20	0.56	0.46	0.32
16,698.00	90.06	270.00	7,025.05	1,042.01	-12,118.17	12,160.95	0.51	0.09	0.51
16,794.00	90.06	270.22	7,024.95	1,042.19	-12,214.17	12,256.74	0.23	0.00	0.23
16,890.00	90.54	271.76	7,024.45	1,043.85	-12,310.15	12,352.61	1.68	0.50	1.60
16,985.00	90.59	271.01	7,023.51	1,046.14	-12,405.12	12,447.51	0.79	0.05	-0.79
17,081.00	90.32	270.04	7,022.75	1,047.02	-12,501.11	12,543.34	1.05	-0.28	-1.01
17,176.00	90.32	269.96	7,022.22	1,047.02	-12,596.11	12,638.12	0.08	0.00	-0.08
17,272.00	90.46	271.72	7,021.56	1,048.43	-12,692.09	12,733.98	1.84	0.15	1.83
17,367.00	90.50	271.23	7,020.77	1,050.88	-12,787.05	12,828.89	0.52	0.04	-0.52
17,463.00	90.72	271.81	7,019.74	1,053.42	-12,883.01	12,924.81	0.65	0.23	0.60
17,558.00	90.54	269.87	7,018.70	1,054.82	-12,977.99	13,019.66	2.05	-0.19	-2.04
17,654.00	90.72	270.13	7,017.64	1,054.82	-13,073.99	13,115.43	0.33	0.19	0.27
17,749.00	90.10	269.52	7,016.96	1,054.53	-13,168.98	13,210.19	0.92	-0.65	-0.64

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Site:	Vetting PAD (Sec 15-T5N-R65W)	MD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Well:	VT-LDS C2-16-18	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
17,845.00	89.40	270.09	7,017.38	1,054.20	-13,264.98	13,305.94	0.94	-0.73	0.59
17,941.00	89.66	270.48	7,018.17	1,054.68	-13,360.98	13,401.75	0.49	0.27	0.41
18,036.00	87.76	269.34	7,020.31	1,054.53	-13,455.95	13,496.49	2.33	-2.00	-1.20
18,132.00	88.42	270.13	7,023.51	1,054.08	-13,551.89	13,592.18	1.07	0.69	0.82
18,227.00	89.53	271.10	7,025.21	1,055.10	-13,646.87	13,687.01	1.55	1.17	1.02
18,323.00	89.84	271.06	7,025.74	1,056.91	-13,742.85	13,782.89	0.33	0.32	-0.04
18,419.00	89.66	269.47	7,026.16	1,057.36	-13,838.84	13,878.70	1.67	-0.19	-1.66
18,610.00	89.75	269.56	7,027.14	1,055.74	-14,029.83	14,069.14	0.07	0.05	0.05
18,705.00	89.66	270.84	7,027.63	1,056.07	-14,124.83	14,163.94	1.35	-0.09	1.35
18,801.00	89.35	268.94	7,028.46	1,055.89	-14,220.82	14,259.70	2.01	-0.32	-1.98
18,897.00	89.57	270.66	7,029.36	1,055.55	-14,316.81	14,355.44	1.81	0.23	1.79
18,992.00	89.48	270.04	7,030.15	1,056.13	-14,411.81	14,450.26	0.66	-0.09	-0.65
19,087.00	89.31	269.16	7,031.15	1,055.47	-14,506.80	14,544.99	0.94	-0.18	-0.93
19,182.00	89.31	268.63	7,032.30	1,053.64	-14,601.78	14,639.62	0.56	0.00	-0.56
19,278.00	89.26	270.88	7,033.49	1,053.23	-14,697.76	14,735.35	2.34	-0.05	2.34
19,373.00	89.84	272.38	7,034.24	1,055.93	-14,792.72	14,830.27	1.69	0.61	1.58
19,469.00	89.57	271.28	7,034.74	1,058.99	-14,888.66	14,926.21	1.18	-0.28	-1.15
19,564.00	89.66	271.23	7,035.37	1,061.08	-14,983.64	15,021.11	0.11	0.09	-0.05
19,660.00	90.41	273.66	7,035.31	1,065.17	-15,079.54	15,117.07	2.65	0.78	2.53
19,755.00	89.93	271.41	7,035.03	1,069.37	-15,174.44	15,212.03	2.42	-0.51	-2.37
19,850.00	91.07	271.94	7,034.20	1,072.15	-15,269.40	15,306.96	1.32	1.20	0.56
19,946.00	91.38	273.48	7,032.15	1,076.69	-15,365.27	15,402.91	1.64	0.32	1.60
20,041.00	90.99	272.29	7,030.19	1,081.47	-15,460.12	15,497.87	1.32	-0.41	-1.25
20,136.00	90.77	271.90	7,028.73	1,084.94	-15,555.05	15,592.82	0.47	-0.23	-0.41
20,232.00	90.85	271.98	7,027.37	1,088.19	-15,650.98	15,688.75	0.12	0.08	0.08
20,327.00	90.41	271.98	7,026.33	1,091.47	-15,745.92	15,783.69	0.46	-0.46	0.00
20,423.00	89.88	270.71	7,026.08	1,093.72	-15,841.89	15,879.59	1.43	-0.55	-1.32
20,518.00	90.06	269.74	7,026.13	1,094.10	-15,936.89	15,974.40	1.04	0.19	-1.02
Last MWD Survey @ 20518'MD									
20,580.00	90.06	269.74	7,026.07	1,093.82	-15,998.89	16,036.24	0.00	0.00	0.00
PTB @ TD @ 20580'MD (494'FWL & 823'FNL)									

Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,515.00	1,507.06	24.91	-92.62	Tie in to Surface Surveys @ 1515'MD
1,671.00	1,658.00	37.36	-129.97	First MWD Survey @ 1671'MD
2,778.43	2,627.55	202.72	-625.89	Crossing Section 15/16 @ 2778'MD
5,977.24	5,295.67	660.98	-2,326.98	30°Inclination @ 5977'MD
8,206.16	7,035.87	975.12	-3,634.38	70°Inclination @ 8206'MD
10,514.65	7,043.79	986.70	-5,936.53	Crossing Section 16/17 @ 10514'MD
15,808.82	7,024.42	1,044.12	-11,229.04	Crossing Section 17/18 @ 15808'MD
20,518.00	7,026.13	1,094.10	-15,936.89	Last MWD Survey @ 20518'MD
20,580.00	7,026.07	1,093.82	-15,998.89	PTB @ TD @ 20580'MD (494'FWL & 823'FNL)

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS C2-16-18
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Site:	Vetting PAD (Sec 15-T5N-R65W)	MD Reference:	KB=29 @ 4676.00ft (Patterson #901)
Well:	VT-LDS C2-16-18	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Checked By: _____ Approved By: _____ Date: _____