

Extraction Oil & Gas

Weld County, CO (NAD83)

Vetting PAD (Sec 15-T5N-R65W)

VT-LDS 4-16-18

Wellbore #1

Design: Wellbore #1

Standard Survey Report

26 July, 2018

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
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 4-16-18	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:	40.40133
From:	Map	Easting:	3,234,926.48 usft	Longitude:	-104.65646
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	VT-LDS 4-16-18					
Well Position	+N/-S	0.00 ft	Northing:	1,390,142.74 usft	Latitude:	40.40128
	+E/-W	0.00 ft	Easting:	3,234,784.62 usft	Longitude:	-104.65697
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	7/26/2018	8.08	66.88	52,239

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	270.92	

Survey Program	Date	7/26/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
149.00	1,618.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,674.00	20,248.00	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	
149.00	0.32	177.73	149.00	-0.42	0.02	-0.02	0.21	0.21	0.00	
233.00	0.37	150.50	233.00	-0.89	0.16	-0.17	0.20	0.06	-32.42	
315.00	0.43	131.79	315.00	-1.32	0.52	-0.54	0.17	0.07	-22.82	
398.00	0.38	144.64	397.99	-1.75	0.91	-0.94	0.12	-0.06	15.48	
483.00	2.03	258.79	482.98	-2.28	-0.40	0.37	2.60	1.94	134.29	
569.00	3.46	285.46	568.88	-1.88	-4.40	4.37	2.19	1.66	31.01	
654.00	4.68	277.53	653.66	-0.74	-10.31	10.30	1.58	1.44	-9.33	
738.00	6.85	273.95	737.23	0.05	-18.70	18.70	2.62	2.58	-4.26	
823.00	7.48	274.58	821.57	0.84	-29.28	29.29	0.75	0.74	0.74	

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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)
907.00	8.96	271.12	904.71	1.41	-41.27	41.28	1.86	1.76	-4.12
990.00	11.12	273.08	986.43	1.96	-55.72	55.75	2.63	2.60	2.36
1,073.00	13.64	271.46	1,067.49	2.64	-73.50	73.54	3.06	3.04	-1.95
1,158.00	15.69	273.59	1,149.72	3.62	-94.99	95.04	2.49	2.41	2.51
1,244.00	16.91	274.71	1,232.26	5.37	-119.07	119.14	1.46	1.42	1.30
1,327.00	18.12	272.76	1,311.41	6.99	-143.99	144.08	1.62	1.46	-2.35
1,414.00	19.65	273.39	1,393.73	8.50	-172.11	172.22	1.77	1.76	0.72
1,498.00	20.98	271.54	1,472.50	9.74	-201.24	201.37	1.76	1.58	-2.20
1,568.00	22.29	270.97	1,537.57	10.30	-227.04	227.18	1.90	1.87	-0.81
1,618.00	24.50	273.50	1,583.46	11.10	-246.87	247.02	4.85	4.42	5.06
Tie in to Surface Surveys @ 1618'MD									
1,674.00	22.58	267.17	1,634.80	11.28	-269.21	269.35	5.66	-3.43	-11.30
First MWD Survey @ 1674'MD									
1,770.00	26.43	271.89	1,722.15	11.07	-308.99	309.13	4.50	4.01	4.92
1,865.00	29.12	273.91	1,806.20	13.34	-353.19	353.36	3.00	2.83	2.13
1,961.00	30.40	272.28	1,889.53	15.90	-400.77	400.97	1.58	1.33	-1.70
2,056.00	33.32	271.27	1,970.21	17.44	-450.88	451.10	3.12	3.07	-1.06
2,152.00	32.61	270.34	2,050.76	18.18	-503.11	503.34	0.91	-0.74	-0.97
2,206.88	31.89	270.42	2,097.17	18.37	-532.40	532.62	1.31	-1.31	0.15
Crossing 15/16 @ 2206'MD									
2,247.00	31.37	270.48	2,131.33	18.54	-553.44	553.66	1.31	-1.31	0.15
2,343.00	31.68	269.77	2,213.16	18.64	-603.63	603.85	0.50	0.32	-0.74
2,438.00	30.36	267.92	2,294.58	17.67	-652.57	652.77	1.71	-1.39	-1.95
2,533.00	32.52	271.97	2,375.63	17.68	-702.10	702.29	3.18	2.27	4.26
2,629.00	30.93	270.03	2,457.29	18.58	-752.56	752.76	1.97	-1.66	-2.02
2,724.00	30.18	274.84	2,539.11	20.61	-800.78	801.01	2.69	-0.79	5.06
2,820.00	31.86	278.50	2,621.38	26.39	-849.89	850.20	2.63	1.75	3.81
2,915.00	31.77	278.58	2,702.11	33.83	-899.42	899.84	0.10	-0.09	0.08
3,011.00	31.73	277.83	2,783.74	41.03	-949.41	949.95	0.41	-0.04	-0.78
3,106.00	29.61	277.48	2,865.45	47.49	-997.44	998.07	2.24	-2.23	-0.37
3,202.00	33.01	272.11	2,947.47	51.55	-1,047.11	1,047.80	4.58	3.54	-5.59
3,297.00	31.73	272.11	3,027.71	53.42	-1,097.93	1,098.65	1.35	-1.35	0.00
3,393.00	28.81	271.09	3,110.61	54.79	-1,146.30	1,147.03	3.09	-3.04	-1.06
3,488.00	31.02	270.74	3,192.95	55.54	-1,193.67	1,194.41	2.33	2.33	-0.37
3,584.00	30.62	272.24	3,275.40	56.82	-1,242.83	1,243.59	0.90	-0.42	1.56
3,679.00	30.36	272.41	3,357.26	58.77	-1,291.00	1,291.77	0.29	-0.27	0.18
3,775.00	28.50	275.63	3,440.87	62.04	-1,338.04	1,338.86	2.54	-1.94	3.35
3,870.00	28.33	276.51	3,524.43	66.82	-1,382.99	1,383.88	0.48	-0.18	0.93
3,966.00	30.14	275.72	3,608.20	71.80	-1,429.60	1,430.57	1.93	1.89	-0.82
4,061.00	31.33	275.01	3,689.85	76.34	-1,477.94	1,478.98	1.31	1.25	-0.75
4,156.00	31.60	275.28	3,770.88	80.78	-1,527.33	1,528.43	0.32	0.28	0.28
4,252.00	32.39	274.62	3,852.30	85.17	-1,578.00	1,579.17	0.90	0.82	-0.69
4,347.00	31.68	274.93	3,932.83	89.36	-1,628.22	1,629.45	0.77	-0.75	0.33

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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)	
4,443.00	28.37	274.49	4,015.94	93.32	-1,676.09	1,677.37	3.46	-3.45	-0.46	
4,538.00	28.81	269.59	4,099.37	94.92	-1,721.48	1,722.79	2.51	0.46	-5.16	
4,634.00	30.36	274.22	4,182.86	96.54	-1,768.82	1,770.14	2.88	1.61	4.82	
4,730.00	31.07	270.87	4,265.40	98.70	-1,817.79	1,819.14	1.93	0.74	-3.49	
4,825.00	33.45	270.39	4,345.73	99.25	-1,868.49	1,869.84	2.52	2.51	-0.51	
4,921.00	31.90	270.17	4,426.53	99.51	-1,920.31	1,921.67	1.62	-1.61	-0.23	
5,016.00	33.58	271.40	4,506.44	100.22	-1,971.68	1,973.04	1.90	1.77	1.29	
5,112.00	29.21	268.54	4,588.37	100.27	-2,021.67	2,023.02	4.81	-4.55	-2.98	
5,207.00	29.74	269.68	4,671.07	99.55	-2,068.40	2,069.74	0.81	0.56	1.20	
5,303.00	30.53	270.65	4,754.10	99.70	-2,116.60	2,117.93	0.97	0.82	1.01	
5,398.00	28.72	271.97	4,836.68	100.75	-2,163.54	2,164.88	2.03	-1.91	1.39	
5,494.00	31.73	273.82	4,919.62	103.23	-2,211.79	2,213.17	3.28	3.14	1.93	
5,589.00	32.39	276.07	5,000.13	107.59	-2,262.02	2,263.46	1.44	0.69	2.37	
5,685.00	29.43	276.51	5,082.49	112.98	-2,311.04	2,312.56	3.09	-3.08	0.46	
5,780.00	28.37	272.99	5,165.66	116.80	-2,356.77	2,358.34	2.11	-1.12	-3.71	
5,876.00	28.06	271.80	5,250.26	118.70	-2,402.12	2,403.71	0.67	-0.32	-1.24	
5,971.00	32.61	274.31	5,332.23	121.33	-2,450.00	2,451.64	4.97	4.79	2.64	
6,067.00	32.21	272.19	5,413.28	124.25	-2,501.36	2,503.04	1.25	-0.42	-2.21	
6,163.00	32.52	272.90	5,494.37	126.53	-2,552.70	2,554.41	0.51	0.32	0.74	
6,258.00	31.37	274.97	5,574.98	129.97	-2,602.84	2,604.60	1.67	-1.21	2.18	
6,354.00	31.42	274.44	5,656.93	134.07	-2,652.68	2,654.50	0.29	0.05	-0.55	
6,449.00	30.53	272.85	5,738.38	137.19	-2,701.47	2,703.33	1.27	-0.94	-1.67	
6,545.00	30.31	272.68	5,821.16	139.53	-2,750.02	2,751.91	0.25	-0.23	-0.18	
6,640.00	28.72	275.59	5,903.84	142.88	-2,796.69	2,798.63	2.25	-1.67	3.06	
6,736.00	30.58	274.40	5,987.26	147.00	-2,844.00	2,846.00	2.03	1.94	-1.24	
6,831.00	32.04	270.78	6,068.43	149.20	-2,893.30	2,895.32	2.51	1.54	-3.81	
6,927.00	31.07	272.15	6,150.24	150.47	-2,943.52	2,945.56	1.26	-1.01	1.43	
7,022.00	30.18	273.52	6,231.99	152.86	-2,991.85	2,993.92	1.19	-0.94	1.44	
7,117.00	30.62	273.69	6,313.93	155.88	-3,039.83	3,041.94	0.47	0.46	0.18	
7,213.00	30.67	274.26	6,396.52	159.27	-3,088.64	3,090.81	0.31	0.05	0.59	
7,308.00	30.31	274.22	6,478.38	162.84	-3,136.71	3,138.93	0.38	-0.38	-0.04	
7,404.00	28.77	273.03	6,561.90	165.84	-3,183.94	3,186.20	1.72	-1.60	-1.24	
7,418.87	30.00	272.75	6,574.86	166.21	-3,191.23	3,193.49	8.32	8.27	-1.89	
30°Inclination @ 7418'MD										
7,499.00	36.63	271.53	6,641.79	167.81	-3,235.18	3,237.47	8.32	8.28	-1.52	
7,617.00	47.72	269.68	6,729.10	168.51	-3,314.28	3,316.56	9.46	9.40	-1.57	
7,712.00	59.57	269.90	6,785.32	168.24	-3,390.65	3,392.92	12.48	12.47	0.23	
7,803.58	70.00	271.10	6,824.28	169.00	-3,473.38	3,475.65	11.45	11.39	1.31	
70°Inclination @ 7418'MD										
7,807.00	70.39	271.14	6,825.44	169.06	-3,476.60	3,478.87	11.45	11.39	1.20	
7,902.00	78.48	270.74	6,850.91	170.55	-3,568.03	3,570.31	8.53	8.52	-0.42	
7,998.00	87.36	268.67	6,862.73	170.05	-3,663.19	3,665.46	9.49	9.25	-2.16	
8,093.00	88.38	268.05	6,866.26	167.33	-3,758.09	3,760.29	1.26	1.07	-0.65	
8,189.00	88.51	269.51	6,868.87	165.29	-3,854.03	3,856.19	1.53	0.14	1.52	

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Survey

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8,284.00	89.75	269.42	6,870.31	164.40	-3,949.01	3,951.14	1.31	1.31	-0.09
8,492.00	90.19	269.15	6,870.42	161.80	-4,156.99	4,159.06	0.25	0.21	-0.13
8,587.00	90.06	268.89	6,870.21	160.18	-4,251.98	4,254.01	0.31	-0.14	-0.27
8,683.00	89.93	269.11	6,870.22	158.50	-4,347.96	4,349.95	0.27	-0.14	0.23
8,778.00	90.19	270.39	6,870.12	158.09	-4,442.96	4,444.93	1.37	0.27	1.35
8,873.00	89.93	270.34	6,870.02	158.69	-4,537.96	4,539.93	0.28	-0.27	-0.05
8,969.00	89.93	270.87	6,870.14	159.71	-4,633.95	4,635.92	0.55	0.00	0.55
9,064.00	89.88	270.74	6,870.29	161.04	-4,728.94	4,730.92	0.15	-0.05	-0.14
9,160.00	89.97	271.58	6,870.42	162.99	-4,824.92	4,826.92	0.88	0.09	0.88
9,255.00	89.93	271.53	6,870.50	165.56	-4,919.89	4,921.92	0.07	-0.04	-0.05
9,351.00	90.01	271.84	6,870.55	168.39	-5,015.85	5,017.91	0.33	0.08	0.32
9,447.00	90.01	272.15	6,870.54	171.73	-5,111.79	5,113.89	0.32	0.00	0.32
9,542.00	90.06	271.62	6,870.48	174.85	-5,206.74	5,208.88	0.56	0.05	-0.56
9,637.00	89.79	270.74	6,870.60	176.81	-5,301.72	5,303.87	0.97	-0.28	-0.93
9,733.00	89.70	271.14	6,871.03	178.38	-5,397.70	5,399.87	0.43	-0.09	0.42
9,829.00	89.93	271.40	6,871.34	180.51	-5,493.68	5,495.87	0.36	0.24	0.27
9,924.00	89.75	270.78	6,871.60	182.32	-5,588.66	5,590.87	0.68	-0.19	-0.65
10,020.00	90.06	272.19	6,871.76	184.81	-5,684.62	5,686.86	1.50	0.32	1.47
10,116.00	89.79	271.84	6,871.89	188.18	-5,780.56	5,782.84	0.46	-0.28	-0.36
10,172.74	89.90	271.97	6,872.04	190.07	-5,837.27	5,839.58	0.30	0.19	0.23
Crossing 16/17 @ 10172'MD									
10,211.00	89.97	272.06	6,872.09	191.42	-5,875.51	5,877.83	0.30	0.19	0.23
10,306.00	89.79	271.71	6,872.29	194.54	-5,970.46	5,972.81	0.41	-0.19	-0.37
10,401.00	90.28	270.56	6,872.23	196.42	-6,065.44	6,067.81	1.32	0.52	-1.21
10,496.00	90.50	272.02	6,871.58	198.56	-6,160.41	6,162.81	1.55	0.23	1.54
10,592.00	90.41	271.66	6,870.82	201.64	-6,256.36	6,258.79	0.39	-0.09	-0.38
10,687.00	90.19	270.56	6,870.32	203.48	-6,351.33	6,353.79	1.18	-0.23	-1.16
10,783.00	90.37	271.49	6,869.85	205.20	-6,447.32	6,449.78	0.99	0.19	0.97
10,878.00	90.32	270.96	6,869.28	207.23	-6,542.29	6,544.78	0.56	-0.05	-0.56
10,973.00	90.46	271.62	6,868.64	209.37	-6,637.27	6,639.78	0.71	0.15	0.69
11,069.00	90.50	271.27	6,867.83	211.79	-6,733.23	6,735.77	0.37	0.04	-0.36
11,164.00	90.46	271.75	6,867.04	214.29	-6,828.20	6,830.76	0.51	-0.04	0.51
11,260.00	90.50	270.87	6,866.23	216.49	-6,924.17	6,926.75	0.92	0.04	-0.92
11,355.00	90.10	270.74	6,865.73	217.82	-7,019.16	7,021.75	0.44	-0.42	-0.14
11,450.00	90.23	270.78	6,865.46	219.08	-7,114.15	7,116.75	0.14	0.14	0.04
11,546.00	90.59	272.37	6,864.77	221.72	-7,210.10	7,212.74	1.70	0.38	1.66
11,641.00	90.46	271.40	6,863.90	224.85	-7,305.05	7,307.72	1.03	-0.14	-1.02
11,737.00	90.15	270.56	6,863.39	226.49	-7,401.03	7,403.72	0.93	-0.32	-0.88
11,832.00	89.93	270.52	6,863.32	227.38	-7,496.03	7,498.72	0.24	-0.23	-0.04
11,927.00	90.37	270.34	6,863.08	228.10	-7,591.02	7,593.71	0.50	0.46	-0.19
12,023.00	90.50	270.08	6,862.35	228.45	-7,687.02	7,689.70	0.30	0.14	-0.27
12,118.00	90.50	268.49	6,861.52	227.26	-7,782.01	7,784.66	1.67	0.00	-1.67
12,214.00	90.32	268.84	6,860.83	225.03	-7,877.98	7,880.58	0.41	-0.19	0.36
12,309.00	90.41	268.98	6,860.23	223.22	-7,972.96	7,975.52	0.18	0.09	0.15

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
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 4-16-18	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)
12,405.00	90.37	269.20	6,859.57	221.70	-8,068.94	8,071.47	0.23	-0.04	0.23
12,500.00	90.41	269.20	6,858.93	220.37	-8,163.93	8,166.42	0.04	0.04	0.00
12,596.00	90.50	270.21	6,858.16	219.87	-8,259.93	8,262.40	1.06	0.09	1.05
12,691.00	90.41	269.46	6,857.41	219.60	-8,354.92	8,357.38	0.80	-0.09	-0.79
12,787.00	90.41	269.37	6,856.72	218.62	-8,450.92	8,453.34	0.09	0.00	-0.09
12,882.00	90.15	269.02	6,856.26	217.29	-8,545.90	8,548.30	0.46	-0.27	-0.37
12,978.00	90.19	269.02	6,855.97	215.64	-8,641.89	8,644.24	0.04	0.04	0.00
13,074.00	89.84	269.46	6,855.95	214.37	-8,737.88	8,740.20	0.59	-0.36	0.46
13,169.00	89.97	269.64	6,856.11	213.62	-8,832.88	8,835.17	0.23	0.14	0.19
13,264.00	90.15	270.48	6,856.01	213.72	-8,927.88	8,930.16	0.90	0.19	0.88
13,360.00	89.97	270.34	6,855.91	214.41	-9,023.88	9,026.16	0.24	-0.19	-0.15
13,456.00	90.06	270.30	6,855.88	214.95	-9,119.87	9,122.15	0.10	0.09	-0.04
13,551.00	89.79	268.62	6,856.00	214.05	-9,214.87	9,217.12	1.79	-0.28	-1.77
13,647.00	89.93	269.37	6,856.24	212.37	-9,310.85	9,313.06	0.79	0.15	0.78
13,743.00	89.70	268.45	6,856.55	210.54	-9,406.83	9,409.00	0.99	-0.24	-0.96
13,839.00	89.88	269.51	6,856.90	208.83	-9,502.81	9,504.94	1.12	0.19	1.10
13,934.00	90.15	270.43	6,856.88	208.78	-9,597.81	9,599.93	1.01	0.28	0.97
14,030.00	89.88	268.58	6,856.85	207.95	-9,693.80	9,695.90	1.95	-0.28	-1.93
14,125.00	90.01	269.95	6,856.94	206.74	-9,788.79	9,790.85	1.45	0.14	1.44
14,220.00	89.75	268.62	6,857.14	205.55	-9,883.78	9,885.81	1.43	-0.27	-1.40
14,315.00	89.97	270.52	6,857.37	204.84	-9,978.78	9,980.78	2.01	0.23	2.00
14,411.00	89.97	269.77	6,857.42	205.08	-10,074.78	10,076.77	0.78	0.00	-0.78
14,507.00	89.66	268.76	6,857.73	203.85	-10,170.77	10,172.73	1.10	-0.32	-1.05
14,602.00	89.79	268.67	6,858.19	201.72	-10,265.74	10,267.66	0.17	0.14	-0.09
14,697.00	89.93	269.90	6,858.42	200.53	-10,360.73	10,362.62	1.30	0.15	1.29
14,793.00	89.97	269.81	6,858.51	200.29	-10,456.73	10,458.60	0.10	0.04	-0.09
14,888.00	89.93	269.02	6,858.59	199.32	-10,551.73	10,553.57	0.83	-0.04	-0.83
14,984.00	89.66	268.93	6,858.93	197.60	-10,647.71	10,649.51	0.30	-0.28	-0.09
15,080.00	90.01	270.78	6,859.21	197.36	-10,743.70	10,745.49	1.96	0.36	1.93
15,175.00	90.01	269.15	6,859.19	197.30	-10,838.70	10,840.47	1.72	0.00	-1.72
15,271.00	90.23	269.55	6,858.99	196.21	-10,934.70	10,936.44	0.48	0.23	0.42
15,366.00	90.10	270.12	6,858.72	195.94	-11,029.69	11,031.42	0.62	-0.14	0.60
15,462.00	89.62	272.46	6,858.95	198.10	-11,125.66	11,127.41	2.49	-0.50	2.44
15,467.47	89.60	272.36	6,858.99	198.33	-11,131.13	11,132.88	1.85	-0.38	-1.81
Crossing 17/18 @ 15467'MD									
15,557.00	89.26	270.74	6,859.88	200.75	-11,220.62	11,222.39	1.85	-0.38	-1.81
15,652.00	89.31	270.65	6,861.07	201.90	-11,315.60	11,317.39	0.11	0.05	-0.09
15,747.00	89.35	270.83	6,862.18	203.13	-11,410.59	11,412.38	0.19	0.04	0.19
15,843.00	89.48	271.80	6,863.16	205.33	-11,506.56	11,508.37	1.02	0.14	1.01
15,938.00	89.48	272.33	6,864.02	208.76	-11,601.49	11,603.35	0.56	0.00	0.56
16,034.00	89.35	270.43	6,865.00	211.07	-11,697.45	11,699.34	1.98	-0.14	-1.98
16,129.00	89.66	272.33	6,865.82	213.36	-11,792.42	11,794.32	2.03	0.33	2.00
16,224.00	89.66	270.96	6,866.38	216.08	-11,887.37	11,889.31	1.44	0.00	-1.44

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
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 4-16-18	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)
16,320.00	90.23	272.63	6,866.48	219.09	-11,983.32	11,985.30	1.84	0.59	1.74
16,415.00	89.88	271.14	6,866.39	222.22	-12,078.27	12,080.28	1.61	-0.37	-1.57
16,511.00	90.19	272.06	6,866.33	224.90	-12,174.23	12,176.27	1.01	0.32	0.96
16,606.00	89.97	271.58	6,866.19	227.91	-12,269.18	12,271.26	0.56	-0.23	-0.51
16,702.00	89.97	270.78	6,866.24	229.89	-12,365.16	12,367.26	0.83	0.00	-0.83
16,798.00	89.93	271.71	6,866.33	231.98	-12,461.14	12,463.26	0.97	-0.04	0.97
16,893.00	89.93	270.78	6,866.44	234.04	-12,556.11	12,558.25	0.98	0.00	-0.98
16,989.00	90.28	272.59	6,866.27	236.86	-12,652.07	12,654.24	1.92	0.36	1.89
17,084.00	90.15	271.22	6,865.91	240.02	-12,747.01	12,749.22	1.45	-0.14	-1.44
17,180.00	90.28	272.55	6,865.55	243.18	-12,842.96	12,845.21	1.39	0.14	1.39
17,275.00	90.19	272.55	6,865.16	247.41	-12,937.86	12,940.17	0.09	-0.09	0.00
17,371.00	90.06	270.87	6,864.95	250.27	-13,033.82	13,036.16	1.76	-0.14	-1.75
17,466.00	90.06	271.44	6,864.85	252.18	-13,128.80	13,131.16	0.60	0.00	0.60
17,562.00	89.66	270.74	6,865.09	254.01	-13,224.78	13,227.15	0.84	-0.42	-0.73
17,657.00	89.53	270.78	6,865.76	255.27	-13,319.77	13,322.15	0.14	-0.14	0.04
17,753.00	89.57	271.97	6,866.51	257.57	-13,415.74	13,418.14	1.24	0.04	1.24
17,848.00	89.66	272.02	6,867.15	260.88	-13,510.68	13,513.12	0.11	0.09	0.05
17,944.00	89.53	271.18	6,867.83	263.56	-13,606.64	13,609.11	0.89	-0.14	-0.88
18,040.00	89.57	272.59	6,868.58	266.72	-13,702.58	13,705.10	1.47	0.04	1.47
18,135.00	89.57	272.59	6,869.30	271.01	-13,797.48	13,800.05	0.00	0.00	0.00
18,231.00	89.40	271.44	6,870.16	274.39	-13,893.41	13,896.03	1.21	-0.18	-1.20
18,326.00	89.44	270.25	6,871.12	275.79	-13,988.40	13,991.02	1.25	0.04	-1.25
18,422.00	89.48	269.46	6,872.03	275.55	-14,084.39	14,087.00	0.82	0.04	-0.82
18,518.00	89.70	270.12	6,872.71	275.19	-14,180.39	14,182.98	0.72	0.23	0.69
18,614.00	89.53	270.12	6,873.36	275.39	-14,276.38	14,278.97	0.18	-0.18	0.00
18,709.00	89.40	269.64	6,874.25	275.20	-14,371.38	14,373.95	0.52	-0.14	-0.51
18,805.00	89.70	270.92	6,875.00	275.67	-14,467.37	14,469.94	1.37	0.31	1.33
18,900.00	89.79	268.84	6,875.42	275.47	-14,562.37	14,564.91	2.19	0.09	-2.19
18,995.00	90.06	270.34	6,875.55	274.79	-14,657.36	14,659.89	1.60	0.28	1.58
19,090.00	89.93	269.37	6,875.55	274.55	-14,752.36	14,754.87	1.03	-0.14	-1.02
19,186.00	90.06	270.96	6,875.56	274.82	-14,848.36	14,850.86	1.66	0.14	1.66
19,281.00	89.88	269.06	6,875.61	274.84	-14,943.35	14,945.84	2.01	-0.19	-2.00
19,377.00	89.97	270.30	6,875.74	274.30	-15,039.35	15,041.82	1.30	0.09	1.29
19,472.00	90.23	270.61	6,875.57	275.06	-15,134.35	15,136.81	0.43	0.27	0.33
19,568.00	90.19	271.05	6,875.22	276.45	-15,230.34	15,232.81	0.46	-0.04	0.46
19,663.00	89.79	268.89	6,875.24	276.40	-15,325.33	15,327.79	2.31	-0.42	-2.27
19,759.00	89.93	269.11	6,875.47	274.72	-15,421.31	15,423.74	0.27	0.15	0.23
19,854.00	90.19	270.43	6,875.37	274.34	-15,516.31	15,518.72	1.42	0.27	1.39
19,950.00	90.10	270.34	6,875.13	274.99	-15,612.31	15,614.71	0.13	-0.09	-0.09
20,045.00	90.15	270.30	6,874.92	275.52	-15,707.31	15,709.71	0.07	0.05	-0.04
20,140.00	90.23	270.92	6,874.61	276.53	-15,802.30	15,804.70	0.66	0.08	0.65
Last MWD Survey @ 20140'MD									
20,248.00	90.23	270.92	6,874.17	278.26	-15,910.29	15,912.70	0.00	0.00	0.00
PTB @ TD @ 20248'MD (486'FWL & 1650'FNL)									

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well VT-LDS 4-16-18
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 4-16-18	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)
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Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
VT-LDS 4-16-18 BHL	0.00	0.00	0.00	256.52	-15,935.93	1,390,247.74	3,218,847.00	40.40197	-104.71419
- actual wellpath misses target center by 6874.26ft at 20248.00ft MD (6874.17 TVD, 278.26 N, -15910.29 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,618.00	1,583.46	11.10	-246.87	Tie in to Surface Surveys @ 1618'MD
1,674.00	1,634.80	11.28	-269.21	First MWD Survey @ 1674'MD
2,206.88	2,097.17	18.37	-532.40	Crossing 15/16 @ 2206'MD
7,418.87	6,574.86	166.21	-3,191.23	30°Inclination @ 7418'MD
7,803.58	6,824.28	169.00	-3,473.38	70°Inclination @ 7418'MD
10,172.74	6,872.04	190.07	-5,837.27	Crossing 16/17 @ 10172'MD
15,467.47	6,858.99	198.33	-11,131.13	Crossing 17/18 @ 15467'MD
20,140.00	6,874.61	276.53	-15,802.30	Last MWD Survey @ 20140'MD
20,248.00	6,874.17	278.26	-15,910.29	PTB @ TD @ 20248'MD (486'FWL & 1650'FNL)

Checked By: _____ Approved By: _____ Date: _____