



# **Extraction Oil & Gas**

**Weld County, CO (NAD83)  
Vetting PAD (Sec 15-T5N-R65W)  
VT-LDS C3-16-18**

**Wellbore #1**

**Survey: MWD Surveys**

## **Standard Survey Report**

**13 July, 2018**



<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS C3-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29' @ 4677.00ft
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29' @ 4677.00ft
<b>Well:</b>	VT-LDS C3-16-18	<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		

<b>Site</b>	Vetting PAD (Sec 15-T5N-R65W)		
<b>Site Position:</b>		<b>Northing:</b>	1,390,162.31 usft
<b>From:</b>	Map	<b>Easting:</b>	3,234,926.48 usft
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	13-3/16 "
		<b>Latitude:</b>	40.40133
		<b>Longitude:</b>	-104.65646
		<b>Grid Convergence:</b>	0.55 °

<b>Well</b>	VT-LDS C3-16-18		
<b>Well Position</b>	<b>+N-S</b>	0.00 ft	<b>Northing:</b> 1,390,166.19 usft
	<b>+E-W</b>	0.00 ft	<b>Easting:</b> 3,234,951.51 usft
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b>	0.00 ft
		<b>Latitude:</b>	40.40134
		<b>Longitude:</b>	-104.65637
		<b>Ground Level:</b>	4,648.00 ft

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	HDGM	7/13/2018	8.10
			<b>Dip Angle (°)</b> 66.88
			<b>Field Strength (nT)</b> 52,243

<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>
	0.00	0.00	0.00
			<b>Direction (°)</b> 271.48

<b>Survey Program</b>	<b>Date</b> 7/13/2018		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>
1,674.00	20,340.00	MWD Surveys (Wellbore #1)	MWD
			<b>Description</b> 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>	
1,623.00	23.00	277.00	1,596.95	19.09	-206.87	207.29	0.00	0.00	0.00	
1,674.00	22.40	267.70	1,644.01	19.91	-226.48	226.91	7.13	-1.18	-18.24	
<b>First MWD Survey @ 1674'MD</b>										
1,770.00	23.20	271.80	1,732.52	19.77	-263.65	264.08	1.85	0.83	4.27	
1,865.00	25.76	274.35	1,818.97	21.93	-302.95	303.42	2.91	2.69	2.68	
1,960.00	29.87	273.60	1,902.98	24.98	-347.16	347.69	4.34	4.33	-0.79	
2,056.00	30.40	276.38	1,986.01	29.18	-395.16	395.79	1.55	0.55	2.90	
2,152.00	32.44	276.82	2,067.93	34.94	-444.87	445.63	2.14	2.13	0.46	
2,247.00	31.11	277.00	2,148.69	40.96	-494.53	495.43	1.40	-1.40	0.19	
2,343.00	30.62	272.99	2,231.10	45.25	-543.57	544.56	2.20	-0.51	-4.18	
2,438.00	32.44	272.90	2,312.07	47.81	-593.18	594.22	1.92	1.92	-0.09	

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<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29' @ 4677.00ft
<b>Well:</b>	VT-LDS C3-16-18	<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)
2,533.00	31.33	271.40	2,392.74	49.70	-643.32	644.39	1.44	-1.17	-1.58
2,629.00	32.21	276.12	2,474.37	53.04	-693.72	694.86	2.75	0.92	4.92
2,636.68	32.12	276.06	2,480.87	53.47	-697.79	698.94	1.18	-1.12	-0.73
<b>Section 15/16 Crossing @ 2636.68'MD</b>									
2,724.00	31.15	275.41	2,555.21	58.05	-743.36	744.61	1.18	-1.12	-0.75
2,820.00	31.11	279.91	2,637.40	64.66	-792.52	793.92	2.42	-0.04	4.69
2,915.00	35.22	278.27	2,716.91	72.83	-843.83	845.42	4.43	4.33	-1.73
3,011.00	34.69	277.92	2,795.59	80.58	-898.28	900.06	0.59	-0.55	-0.36
3,106.00	32.97	277.61	2,874.50	87.72	-950.68	952.63	1.82	-1.81	-0.33
3,202.00	32.17	276.34	2,955.40	94.01	-1,001.97	1,004.07	1.10	-0.83	-1.32
3,297.00	30.62	276.12	3,036.49	99.38	-1,051.17	1,053.38	1.64	-1.63	-0.23
3,393.00	27.71	267.08	3,120.35	100.85	-1,097.80	1,100.04	5.49	-3.03	-9.42
3,488.00	32.13	265.89	3,202.67	97.91	-1,145.08	1,147.23	4.69	4.65	-1.25
3,584.00	34.56	271.27	3,282.88	96.69	-1,197.79	1,199.88	3.99	2.53	5.60
3,679.00	33.67	278.10	3,361.56	100.99	-1,250.82	1,253.01	4.14	-0.94	7.19
3,775.00	30.58	277.88	3,442.85	108.09	-1,301.36	1,303.72	3.22	-3.22	-0.23
3,870.00	30.98	275.98	3,524.47	113.95	-1,349.62	1,352.11	1.11	0.42	-2.00
3,966.00	31.95	276.03	3,606.35	119.20	-1,399.45	1,402.07	1.01	1.01	0.05
4,061.00	32.17	275.98	3,686.87	124.47	-1,449.60	1,452.34	0.23	0.23	-0.05
4,156.00	32.74	275.15	3,767.03	129.41	-1,500.34	1,503.19	0.76	0.60	-0.87
4,252.00	33.10	275.67	3,847.61	134.33	-1,552.28	1,555.23	0.48	0.38	0.54
4,347.00	32.74	275.15	3,927.36	139.20	-1,603.68	1,606.74	0.48	-0.38	-0.55
4,443.00	30.05	275.54	4,009.30	143.85	-1,653.47	1,656.63	2.81	-2.80	0.41
4,538.00	30.76	275.19	4,091.23	148.35	-1,701.34	1,704.60	0.77	0.75	-0.37
4,634.00	29.08	275.54	4,174.43	152.82	-1,749.01	1,752.38	1.76	-1.75	0.36
4,730.00	30.49	274.49	4,257.75	156.98	-1,796.52	1,799.97	1.57	1.47	-1.09
4,825.00	28.46	274.09	4,340.45	160.48	-1,843.13	1,846.66	2.15	-2.14	-0.42
4,921.00	30.09	273.65	4,424.19	163.65	-1,889.96	1,893.56	1.71	1.70	-0.46
5,016.00	32.57	276.29	4,505.33	167.96	-1,939.15	1,942.85	2.98	2.61	2.78
5,112.00	28.33	273.82	4,588.08	172.31	-1,987.59	1,991.38	4.60	-4.42	-2.57
5,207.00	30.67	275.32	4,670.76	176.06	-2,034.21	2,038.08	2.58	2.46	1.58
5,303.00	31.82	281.14	4,752.85	183.22	-2,083.44	2,087.47	3.36	1.20	6.06
5,398.00	28.46	280.74	4,834.99	192.28	-2,130.26	2,134.52	3.54	-3.54	-0.42
5,494.00	31.20	275.63	4,918.28	198.99	-2,177.50	2,181.91	3.89	2.85	-5.32
5,589.00	33.54	277.22	4,998.51	204.70	-2,228.03	2,232.57	2.62	2.46	1.67
5,685.00	30.53	277.22	5,079.88	211.10	-2,278.54	2,283.23	3.14	-3.14	0.00
5,780.00	31.73	272.41	5,161.22	215.19	-2,327.45	2,332.23	2.91	1.26	-5.06
5,876.00	28.99	272.06	5,244.04	217.08	-2,375.93	2,380.74	2.86	-2.85	-0.36
5,971.00	29.96	275.72	5,326.75	220.28	-2,422.54	2,427.42	2.15	1.02	3.85
6,067.00	31.20	274.93	5,409.40	224.80	-2,471.17	2,476.15	1.36	1.29	-0.82
6,163.00	32.70	273.21	5,490.86	228.39	-2,521.84	2,526.90	1.83	1.56	-1.79
6,258.00	29.70	271.97	5,572.11	230.64	-2,570.99	2,576.09	3.23	-3.16	-1.31
6,354.00	30.80	276.16	5,655.04	234.09	-2,619.20	2,624.37	2.48	1.15	4.36

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
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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)
6,449.00	33.36	277.53	5,735.53	240.13	-2,669.29	2,674.60	2.80	2.69	1.44
6,545.00	29.92	277.79	5,817.25	246.83	-2,719.19	2,724.66	3.59	-3.58	0.27
6,640.00	32.39	277.26	5,898.54	253.26	-2,767.91	2,773.53	2.62	2.60	-0.56
6,736.00	30.80	276.95	5,980.31	259.48	-2,817.82	2,823.58	1.66	-1.66	-0.32
6,831.00	32.35	275.63	6,061.25	264.92	-2,867.26	2,873.15	1.79	1.63	-1.39
6,926.00	29.03	274.88	6,142.93	269.38	-2,915.54	2,921.52	3.52	-3.49	-0.79
7,022.00	28.90	274.62	6,226.92	273.23	-2,961.87	2,967.94	0.19	-0.14	-0.27
7,117.00	31.24	276.51	6,309.13	277.87	-3,009.23	3,015.40	2.66	2.46	1.99
7,213.00	26.91	275.28	6,393.01	282.69	-3,055.62	3,061.90	4.55	-4.51	-1.28
7,308.00	27.49	277.17	6,477.51	287.41	-3,098.78	3,105.17	1.10	0.61	1.99
7,404.00	28.55	274.79	6,562.26	292.09	-3,143.63	3,150.12	1.60	1.10	-2.48
7,499.00	30.80	275.10	6,644.79	296.15	-3,190.48	3,197.07	2.37	2.37	0.33
7,595.00	37.12	272.68	6,724.38	299.69	-3,243.95	3,250.61	6.73	6.58	-2.52
7,690.00	49.05	270.39	6,793.64	301.28	-3,308.70	3,315.38	12.66	12.56	-2.41
7,785.00	56.30	270.12	6,851.21	301.61	-3,384.20	3,390.86	7.63	7.63	-0.28
7,880.00	60.41	268.76	6,901.04	300.80	-3,465.05	3,471.66	4.49	4.33	-1.43
7,976.00	68.80	272.24	6,942.18	301.65	-3,551.67	3,558.28	9.33	8.74	3.63
8,071.00	80.87	272.85	6,966.99	305.72	-3,643.10	3,649.78	12.72	12.71	0.64
8,167.00	89.40	271.93	6,975.12	309.70	-3,738.58	3,745.34	8.94	8.89	-0.96
8,262.00	89.53	270.70	6,976.01	311.88	-3,833.55	3,840.33	1.30	0.14	-1.29
8,358.00	90.32	269.86	6,976.14	312.35	-3,929.55	3,936.31	1.20	0.82	-0.88
8,454.00	90.72	269.90	6,975.27	312.15	-4,025.55	4,032.26	0.42	0.42	0.04
8,492.00	91.56	270.03	6,974.51	312.13	-4,063.54	4,070.24	2.24	2.21	0.34
8,587.00	91.30	271.18	6,972.14	313.13	-4,158.50	4,165.20	1.24	-0.27	1.21
8,682.00	90.06	271.44	6,971.01	315.30	-4,253.47	4,260.19	1.33	-1.31	0.27
8,778.00	90.54	272.02	6,970.51	318.20	-4,349.42	4,356.19	0.78	0.50	0.60
8,873.00	90.50	273.07	6,969.65	322.42	-4,444.32	4,451.17	1.11	-0.04	1.11
8,969.00	90.32	272.77	6,968.96	327.31	-4,540.20	4,547.13	0.36	-0.19	-0.31
9,064.00	90.85	273.47	6,967.99	332.48	-4,635.05	4,642.09	0.92	0.56	0.74
9,160.00	90.77	273.25	6,966.63	338.11	-4,730.87	4,738.03	0.24	-0.08	-0.23
9,255.00	90.81	272.33	6,965.32	342.73	-4,825.75	4,832.99	0.97	0.04	-0.97
9,351.00	90.77	271.75	6,964.00	346.15	-4,921.68	4,928.98	0.61	-0.04	-0.60
9,446.00	90.94	272.33	6,962.58	349.53	-5,016.61	5,023.96	0.64	0.18	0.61
9,542.00	90.54	270.87	6,961.34	352.21	-5,112.56	5,119.95	1.58	-0.42	-1.52
9,637.00	90.28	272.41	6,960.66	354.93	-5,207.52	5,214.95	1.64	-0.27	1.62
9,733.00	90.06	271.71	6,960.38	358.38	-5,303.45	5,310.94	0.76	-0.23	-0.73
9,829.00	90.28	271.89	6,960.09	361.39	-5,399.41	5,406.94	0.30	0.23	0.19
9,924.00	90.37	272.46	6,959.55	365.00	-5,494.34	5,501.93	0.61	0.09	0.60
10,020.00	90.06	270.92	6,959.19	367.83	-5,590.29	5,597.93	1.64	-0.32	-1.60
10,115.00	90.23	270.74	6,958.95	369.21	-5,685.28	5,692.92	0.26	0.18	-0.19
10,211.00	90.01	269.86	6,958.75	369.71	-5,781.28	5,788.90	0.94	-0.23	-0.92
10,306.00	90.15	270.65	6,958.62	370.13	-5,876.28	5,883.88	0.84	0.15	0.83
10,401.00	90.28	270.92	6,958.26	371.43	-5,971.27	5,978.87	0.32	0.14	0.28

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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)
10,434.39	90.25	270.84	6,958.11	371.95	-6,004.65	6,012.26	0.25	-0.09	-0.23
<b>Section 16/17 Crossing @ 10434.39'MD</b>									
10,496.00	90.19	270.70	6,957.87	372.77	-6,066.26	6,073.86	0.25	-0.09	-0.23
10,592.00	89.93	269.51	6,957.77	372.95	-6,162.25	6,169.83	1.27	-0.27	-1.24
10,687.00	90.15	270.17	6,957.71	372.69	-6,257.25	6,264.79	0.73	0.23	0.69
10,783.00	90.01	270.17	6,957.57	372.97	-6,353.25	6,360.77	0.15	-0.15	0.00
10,878.00	90.46	270.61	6,957.18	373.62	-6,448.25	6,455.75	0.66	0.47	0.46
10,973.00	90.10	268.80	6,956.72	373.13	-6,543.24	6,550.70	1.94	-0.38	-1.91
11,068.00	90.32	269.42	6,956.37	371.65	-6,638.23	6,645.61	0.69	0.23	0.65
11,260.00	90.15	269.29	6,955.58	369.49	-6,830.22	6,837.48	0.11	-0.09	-0.07
11,450.00	90.77	269.02	6,954.06	366.69	-7,020.19	7,027.32	0.36	0.33	-0.14
11,546.00	90.77	268.71	6,952.77	364.79	-7,116.16	7,123.21	0.32	0.00	-0.32
11,641.00	90.77	268.49	6,951.49	362.47	-7,211.12	7,218.08	0.23	0.00	-0.23
11,737.00	90.72	268.89	6,950.24	360.27	-7,307.09	7,313.96	0.42	-0.05	0.42
11,832.00	90.85	269.86	6,948.94	359.24	-7,402.07	7,408.88	1.03	0.14	1.02
11,927.00	91.03	270.03	6,947.38	359.14	-7,497.06	7,503.84	0.26	0.19	0.18
12,023.00	90.72	268.49	6,945.92	357.91	-7,593.04	7,599.75	1.64	-0.32	-1.60
12,118.00	90.85	269.51	6,944.61	356.25	-7,688.01	7,694.65	1.08	0.14	1.07
12,213.00	90.94	269.64	6,943.13	355.54	-7,783.00	7,789.59	0.17	0.09	0.14
12,309.00	90.94	270.30	6,941.56	355.49	-7,878.99	7,885.54	0.69	0.00	0.69
12,405.00	90.54	269.02	6,940.32	354.92	-7,974.97	7,981.48	1.40	-0.42	-1.33
12,596.00	90.28	270.56	6,938.95	354.22	-8,165.96	8,172.39	0.82	-0.14	0.81
12,691.00	89.97	269.95	6,938.74	354.65	-8,260.96	8,267.36	0.72	-0.33	-0.64
12,787.00	90.10	269.73	6,938.68	354.38	-8,356.96	8,363.33	0.27	0.14	-0.23
12,882.00	90.50	271.62	6,938.19	355.50	-8,451.95	8,458.31	2.03	0.42	1.99
12,978.00	90.10	270.03	6,937.68	356.88	-8,547.93	8,554.30	1.71	-0.42	-1.66
13,169.00	90.37	271.31	6,936.90	359.11	-8,738.91	8,745.27	0.68	0.14	0.67
13,360.00	90.37	270.17	6,935.67	361.58	-8,929.89	8,936.25	0.60	0.00	-0.60
13,551.00	90.37	271.58	6,934.43	364.50	-9,120.86	9,127.23	0.74	0.00	0.74
13,647.00	90.37	271.14	6,933.81	366.77	-9,216.83	9,223.23	0.46	0.00	-0.46
13,743.00	90.41	271.36	6,933.16	368.87	-9,312.81	9,319.23	0.23	0.04	0.23
13,838.00	90.01	269.29	6,932.81	369.41	-9,407.80	9,414.20	2.22	-0.42	-2.18
13,934.00	90.16	270.37	6,932.67	369.12	-9,503.80	9,510.16	1.14	0.16	1.13
14,029.00	89.66	270.34	6,932.82	369.71	-9,598.79	9,605.14	0.53	-0.53	-0.03
14,220.00	89.84	270.65	6,933.65	371.36	-9,789.79	9,796.11	0.19	0.09	0.16
14,315.00	89.84	271.49	6,933.92	373.13	-9,884.77	9,891.11	0.88	0.00	0.88
14,411.00	89.70	270.12	6,934.30	374.48	-9,980.75	9,987.10	1.43	-0.15	-1.43
14,507.00	89.84	270.34	6,934.69	374.87	-10,076.75	10,083.07	0.27	0.15	0.23
14,602.00	89.62	270.74	6,935.13	375.76	-10,171.75	10,178.06	0.48	-0.23	0.42
14,697.00	89.75	270.34	6,935.66	376.66	-10,266.74	10,273.05	0.44	0.14	-0.42
14,793.00	89.66	270.83	6,936.15	377.64	-10,362.74	10,369.03	0.52	-0.09	0.51
14,888.00	89.75	270.96	6,936.64	379.12	-10,457.72	10,464.03	0.17	0.09	0.14
14,984.00	89.44	269.33	6,937.32	379.37	-10,553.72	10,559.99	1.73	-0.32	-1.70
15,080.00	89.53	270.03	6,938.18	378.83	-10,649.71	10,655.94	0.74	0.09	0.73

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS C3-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29' @ 4677.00ft
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29' @ 4677.00ft
<b>Well:</b>	VT-LDS C3-16-18	<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)
15,175.00	89.44	270.30	6,939.04	379.10	-10,744.71	10,750.91	0.30	-0.09	0.28
15,271.00	89.17	268.84	6,940.20	378.38	-10,840.69	10,846.85	1.55	-0.28	-1.52
15,366.00	89.17	269.15	6,941.58	376.72	-10,935.67	10,941.75	0.33	0.00	0.33
15,461.00	89.35	270.43	6,942.80	376.37	-11,030.66	11,036.70	1.36	0.19	1.35
15,557.00	89.40	270.43	6,943.85	377.09	-11,126.65	11,132.68	0.05	0.05	0.00
15,652.00	89.13	269.68	6,945.07	377.18	-11,221.64	11,227.64	0.84	-0.28	-0.79
15,730.05	89.24	270.12	6,946.18	377.04	-11,299.68	11,305.65	0.57	0.14	0.56
<b>Section 17/18 Crossing @ 15730.05'MD</b>									
15,747.00	89.26	270.21	6,946.40	377.09	-11,316.63	11,322.60	0.57	0.14	0.56
15,843.00	89.13	269.11	6,947.75	376.52	-11,412.62	11,418.54	1.15	-0.14	-1.15
15,938.00	89.84	270.17	6,948.61	375.92	-11,507.61	11,513.48	1.34	0.75	1.12
16,033.00	90.06	270.74	6,948.69	376.68	-11,602.61	11,608.47	0.64	0.23	0.60
16,129.00	89.84	269.68	6,948.77	377.03	-11,698.61	11,704.44	1.13	-0.23	-1.10
16,224.00	89.84	270.25	6,949.04	376.97	-11,793.60	11,799.41	0.60	0.00	0.60
16,320.00	89.93	270.03	6,949.23	377.21	-11,889.60	11,895.38	0.25	0.09	-0.23
16,415.00	90.15	270.92	6,949.17	377.99	-11,984.60	11,990.36	0.97	0.23	0.94
16,511.00	89.84	269.02	6,949.17	377.94	-12,080.60	12,086.33	2.01	-0.32	-1.98
16,606.00	90.01	270.70	6,949.30	377.71	-12,175.59	12,181.29	1.78	0.18	1.77
16,702.00	89.84	270.78	6,949.42	378.95	-12,271.58	12,277.28	0.20	-0.18	0.08
16,797.00	89.70	268.71	6,949.80	378.53	-12,366.58	12,372.23	2.18	-0.15	-2.18
16,893.00	89.84	268.98	6,950.19	376.59	-12,462.56	12,468.13	0.32	0.15	0.28
16,989.00	90.01	269.59	6,950.32	375.40	-12,558.55	12,564.05	0.66	0.18	0.64
17,084.00	90.01	269.42	6,950.30	374.57	-12,653.54	12,659.00	0.18	0.00	-0.18
17,180.00	90.50	270.92	6,949.87	374.86	-12,749.54	12,754.97	1.64	0.51	1.56
17,275.00	90.37	270.56	6,949.15	376.09	-12,844.53	12,849.96	0.40	-0.14	-0.38
17,371.00	90.28	269.55	6,948.61	376.18	-12,940.53	12,945.93	1.06	-0.09	-1.05
17,466.00	90.10	269.11	6,948.29	375.07	-13,035.52	13,040.86	0.50	-0.19	-0.46
17,562.00	90.19	269.81	6,948.05	374.16	-13,131.51	13,136.80	0.74	0.09	0.73
17,657.00	90.10	269.20	6,947.81	373.34	-13,226.51	13,231.74	0.65	-0.09	-0.64
17,753.00	90.37	271.18	6,947.41	373.66	-13,322.50	13,327.71	2.08	0.28	2.06
17,848.00	89.93	271.49	6,947.17	375.87	-13,417.48	13,422.71	0.57	-0.46	0.33
17,944.00	89.75	271.27	6,947.43	378.19	-13,513.45	13,518.71	0.30	-0.19	-0.23
18,040.00	89.66	271.71	6,947.93	380.68	-13,609.41	13,614.71	0.47	-0.09	0.46
18,135.00	89.35	269.86	6,948.75	381.98	-13,704.40	13,709.69	1.97	-0.33	-1.95
18,231.00	90.23	272.11	6,949.10	383.63	-13,800.38	13,805.68	2.52	0.92	2.34
18,326.00	89.93	269.90	6,948.97	385.30	-13,895.36	13,900.67	2.35	-0.32	-2.33
18,422.00	89.57	269.68	6,949.39	384.95	-13,991.35	13,996.63	0.44	-0.38	-0.23
18,518.00	89.40	269.37	6,950.25	384.15	-14,087.35	14,092.57	0.37	-0.18	-0.32
18,613.00	89.40	269.42	6,951.24	383.15	-14,182.34	14,187.50	0.05	0.00	0.05
18,709.00	89.66	269.81	6,952.03	382.50	-14,278.33	14,283.45	0.49	0.27	0.41
18,805.00	89.88	271.84	6,952.42	383.89	-14,374.31	14,379.43	2.13	0.23	2.11
18,900.00	89.79	271.49	6,952.69	386.65	-14,469.27	14,474.43	0.38	-0.09	-0.37
18,995.00	89.48	270.25	6,953.30	388.09	-14,564.26	14,569.42	1.35	-0.33	-1.31

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well VT-LDS C3-16-18
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB=29' @ 4677.00ft
<b>Site:</b>	Vetting PAD (Sec 15-T5N-R65W)	<b>MD Reference:</b>	KB=29' @ 4677.00ft
<b>Well:</b>	VT-LDS C3-16-18	<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)	
19,090.00	90.15	269.99	6,953.60	388.29	-14,659.26	14,664.40	0.76	0.71	-0.27	
19,186.00	90.19	270.34	6,953.32	388.56	-14,755.26	14,760.37	0.37	0.04	0.36	
19,281.00	90.37	270.61	6,952.85	389.35	-14,850.25	14,855.35	0.34	0.19	0.28	
19,377.00	90.32	270.87	6,952.28	390.59	-14,946.24	14,951.34	0.28	-0.05	0.27	
19,472.00	90.15	269.46	6,951.89	390.87	-15,041.24	15,046.32	1.49	-0.18	-1.48	
19,567.00	90.28	271.18	6,951.53	391.40	-15,136.23	15,141.29	1.82	0.14	1.81	
19,663.00	89.75	269.33	6,951.50	391.82	-15,232.23	15,237.27	2.00	-0.55	-1.93	
19,758.00	90.23	269.73	6,951.52	391.04	-15,327.22	15,332.21	0.66	0.51	0.42	
19,854.00	90.19	270.25	6,951.17	391.03	-15,423.22	15,428.18	0.54	-0.04	0.54	
19,949.00	90.28	270.12	6,950.78	391.33	-15,518.22	15,523.15	0.17	0.09	-0.14	
20,045.00	90.68	270.78	6,949.98	392.09	-15,614.21	15,619.13	0.80	0.42	0.69	
20,140.00	90.59	271.14	6,948.92	393.68	-15,709.19	15,714.12	0.39	-0.09	0.38	
20,235.00	90.50	270.08	6,948.02	394.69	-15,804.18	15,809.11	1.12	-0.09	-1.12	
<b>Final MWD Survey @ 20235'MD</b>										
20,340.00	90.50	270.08	6,947.10	394.84	-15,909.18	15,914.07	0.00	0.00	0.00	
<b>PTB @ TD @ 20340'MD (2153'FNL 654'FWL)</b>										

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,674.00	1,644.01	19.91	-226.48	First MWD Survey @ 1674'MD	
2,636.68	2,480.87	53.47	-697.79	Section 15/16 Crossing @ 2636.68'MD	
10,434.39	6,958.11	371.95	-6,004.65	Section 16/17 Crossing @ 10434.39'MD	
15,730.05	6,946.18	377.04	-11,299.68	Section 17/18 Crossing @ 15730.05'MD	
20,235.00	6,948.02	394.69	-15,804.18	Final MWD Survey @ 20235'MD	
20,340.00	6,947.10	394.84	-15,909.18	PTB @ TD @ 20340'MD (2153'FNL 654'FWL)	

Checked By: _____	Approved By: _____	Date: _____
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