

Extraction Oil & Gas

Weld County, CO (NAD83)

Sec 28-T1N-R68W Coyote Trails

Coyote Trails 33S-20-6N

Wellbore #1

Design: Wellbore #1

Standard Survey Report

13 February, 2019

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-6N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5298.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	kb @ 5298.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-6N	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		Sec 28-T1N-R68W Coyote Trails			
Site Position:		Northing:	1,249,743.73 usft	Latitude:	40.01788
From:	Map	Easting:	3,138,161.85 usft	Longitude:	-105.00671
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well		Coyote Trails 33S-20-6N				
Well Position	+N/-S	0.00 usft	Northing:	1,249,778.55 usft	Latitude:	40.01798
	+E/-W	0.00 usft	Easting:	3,138,089.81 usft	Longitude:	-105.00696
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,270.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/31/2018	8.32	66.35	51,919

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	174.44	

Survey Program	Date	2/13/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
117.00	17,961.00	Atlas MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	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
117.00	0.31	130.13	117.00	-0.20	0.24	0.23	0.26	0.26	0.00
First MWD Survey @ 117' MD									
207.00	1.32	155.72	206.99	-1.31	0.85	1.38	1.17	1.12	28.43
298.00	2.96	150.19	297.92	-4.30	2.45	4.52	1.81	1.80	-6.08
387.00	3.59	151.45	386.78	-8.74	4.93	9.18	0.71	0.71	1.42
476.00	3.33	153.36	475.61	-13.50	7.42	14.16	0.32	-0.29	2.15
566.00	3.67	153.20	565.45	-18.41	9.89	19.28	0.38	0.38	-0.18
655.00	2.12	156.37	654.33	-22.46	11.83	23.50	1.75	-1.74	3.56
744.00	2.14	161.51	743.27	-25.54	13.02	26.68	0.22	0.02	5.78
834.00	2.15	147.48	833.21	-28.56	14.46	29.83	0.58	0.01	-15.59

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

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
923.00	2.48	148.77	922.13	-31.61	16.36	33.05	0.38	0.37	1.45
1,013.00	2.35	147.78	1,012.05	-34.84	18.35	36.45	0.15	-0.14	-1.10
1,102.00	2.25	146.73	1,100.98	-37.84	20.28	39.63	0.12	-0.11	-1.18
1,192.00	2.52	141.85	1,190.90	-40.88	22.47	42.86	0.38	0.30	-5.42
1,281.00	2.48	141.94	1,279.82	-43.93	24.87	46.14	0.05	-0.04	0.10
1,371.00	3.49	135.37	1,369.70	-47.41	27.99	49.90	1.18	1.12	-7.30
1,461.00	4.85	129.98	1,459.46	-51.81	32.83	54.75	1.57	1.51	-5.99
1,551.00	6.47	125.77	1,549.02	-57.22	39.86	60.81	1.86	1.80	-4.68
Meikle #2									
1,672.00	6.50	125.80	1,669.24	-65.21	50.95	69.84	0.02	0.02	0.02
Meikle 28-1									
1,761.00	8.40	135.10	1,757.49	-72.76	59.63	78.20	2.52	2.13	10.45
1,850.00	9.24	141.14	1,845.44	-82.93	68.70	89.20	1.40	0.94	6.79
1,939.00	11.05	141.54	1,933.04	-95.17	78.49	102.33	2.04	2.03	0.45
2,029.00	11.71	137.44	2,021.27	-108.66	90.03	116.87	1.16	0.73	-4.56
2,118.00	12.90	132.37	2,108.23	-122.00	103.48	131.46	1.80	1.34	-5.70
2,207.00	14.80	132.37	2,194.64	-136.36	119.22	147.27	2.13	2.13	0.00
2,296.00	15.82	133.52	2,280.48	-152.38	136.41	164.88	1.20	1.15	1.29
2,385.00	13.70	133.60	2,366.54	-168.00	152.84	182.02	2.38	-2.38	0.09
2,474.00	14.49	133.52	2,452.86	-182.93	168.55	198.41	0.89	0.89	-0.09
2,563.00	15.95	129.20	2,538.74	-198.33	186.10	215.44	2.08	1.64	-4.85
2,653.00	17.10	131.18	2,625.02	-214.86	205.64	233.78	1.42	1.28	2.20
2,743.00	15.11	129.02	2,711.48	-230.96	224.72	251.65	2.31	-2.21	-2.40
2,832.00	15.20	132.41	2,797.39	-246.13	242.35	268.46	1.00	0.10	3.81
2,921.00	15.64	134.66	2,883.19	-262.43	259.49	286.35	0.83	0.49	2.53
3,008.00	16.75	134.35	2,966.73	-279.44	276.80	304.95	1.28	1.28	-0.36
3,098.00	14.45	134.79	3,053.41	-296.42	294.05	323.53	2.56	-2.56	0.49
3,187.00	15.78	134.93	3,139.33	-312.79	310.50	341.41	1.49	1.49	0.16
3,276.00	16.92	136.12	3,224.73	-330.67	328.04	360.91	1.33	1.28	1.34
3,366.00	14.18	137.04	3,311.43	-348.18	344.63	379.95	3.06	-3.04	1.02
3,454.00	15.16	138.23	3,396.56	-364.65	359.64	397.80	1.17	1.11	1.35
3,544.00	16.79	135.85	3,483.08	-382.76	376.54	417.45	1.95	1.81	-2.64
3,633.00	17.15	133.47	3,568.21	-401.01	395.02	437.41	0.88	0.40	-2.67
3,723.00	14.49	134.18	3,654.79	-417.99	412.72	456.03	2.96	-2.96	0.79
3,813.00	14.23	133.47	3,741.98	-433.45	428.83	472.97	0.35	-0.29	-0.79
3,902.00	15.47	132.72	3,828.00	-449.03	445.49	490.09	1.41	1.39	-0.84
3,992.00	16.92	134.00	3,914.43	-466.27	463.73	509.02	1.66	1.61	1.42
4,081.00	16.17	132.81	3,999.74	-483.69	482.14	528.14	0.92	-0.84	-1.34
4,170.00	15.38	132.33	4,085.39	-500.06	499.95	546.16	0.90	-0.89	-0.54
4,260.00	15.82	128.71	4,172.08	-515.76	518.35	563.58	1.19	0.49	-4.02
4,349.00	16.70	131.93	4,257.52	-531.90	537.33	581.47	1.42	0.99	3.62
4,439.00	17.06	134.40	4,343.64	-549.78	556.38	601.12	0.89	0.40	2.74
4,529.00	17.28	132.15	4,429.63	-567.98	575.73	621.11	0.78	0.24	-2.50

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Survey									
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4,618.00	16.48	133.34	4,514.80	-585.52	594.71	640.40	0.98	-0.90	1.34
4,707.00	17.19	135.72	4,599.98	-603.60	613.07	660.18	1.11	0.80	2.67
4,797.00	18.52	137.70	4,685.65	-623.69	631.98	682.01	1.62	1.48	2.20
4,887.00	14.49	138.23	4,771.92	-642.67	649.10	702.56	4.48	-4.48	0.59
4,977.00	14.45	135.23	4,859.07	-659.04	664.51	720.35	0.83	-0.04	-3.33
5,025.96	15.88	133.83	4,906.32	-668.02	673.65	730.16	3.02	2.93	-2.87
Dump UU 28-10									
5,066.00	17.06	132.85	4,944.72	-675.80	681.91	738.72	3.02	2.94	-2.44
5,157.00	17.85	134.62	5,031.53	-694.68	701.62	759.41	1.05	0.87	1.95
5,247.00	18.96	134.18	5,116.92	-714.56	721.93	781.17	1.24	1.23	-0.49
5,337.00	15.51	133.52	5,202.87	-733.04	741.14	801.42	3.84	-3.83	-0.73
5,426.00	16.48	135.41	5,288.42	-750.22	758.63	820.22	1.24	1.09	2.12
5,516.00	17.54	135.28	5,374.48	-768.95	777.14	840.66	1.18	1.18	-0.14
5,607.00	18.16	138.80	5,461.11	-789.37	796.13	862.82	1.37	0.68	3.87
5,696.00	15.95	137.88	5,546.19	-808.87	813.47	883.91	2.50	-2.48	-1.03
5,786.00	17.01	133.65	5,632.49	-827.13	831.29	903.81	1.78	1.18	-4.70
5,876.00	18.03	132.24	5,718.32	-845.58	851.13	924.10	1.23	1.13	-1.57
5,966.00	17.54	132.28	5,804.01	-864.07	871.47	944.47	0.54	-0.54	0.04
6,056.00	17.94	134.88	5,889.74	-882.98	891.33	965.21	0.99	0.44	2.89
6,146.00	18.34	132.19	5,975.26	-902.27	911.64	986.38	1.03	0.44	-2.99
Graeber 42-33									
6,235.00	16.48	136.07	6,060.19	-920.76	930.78	1,006.65	2.46	-2.09	4.36
6,325.00	16.97	136.91	6,146.38	-939.55	948.60	1,027.07	0.61	0.54	0.93
6,346.36	16.30	136.80	6,166.84	-944.01	952.79	1,031.92	3.14	-3.14	-0.52
Bickler A Unit 1									
6,414.00	14.18	136.38	6,232.10	-956.93	965.00	1,045.96	3.14	-3.13	-0.62
6,504.00	11.58	135.50	6,319.83	-971.36	978.94	1,061.67	2.90	-2.89	-0.98
6,593.00	8.84	134.40	6,407.41	-982.51	990.09	1,073.85	3.09	-3.08	-1.24
6,683.00	7.07	131.80	6,496.54	-991.04	999.16	1,083.22	2.01	-1.97	-2.89
6,772.00	5.08	135.06	6,585.04	-997.49	1,006.03	1,090.30	2.27	-2.24	3.66
6,862.00	2.65	143.17	6,674.83	-1,001.97	1,010.09	1,095.16	2.76	-2.70	9.01
6,975.00	1.72	149.38	6,787.75	-1,005.52	1,012.52	1,098.93	0.85	-0.82	5.50
7,066.00	0.09	268.54	6,878.73	-1,006.70	1,013.14	1,100.16	1.94	-1.79	130.95
7,156.00	0.22	158.37	6,968.73	-1,006.86	1,013.14	1,100.32	0.29	0.14	-122.41
7,246.00	0.71	135.54	7,058.73	-1,007.42	1,013.59	1,100.92	0.57	0.54	-25.37
7,335.00	1.15	120.52	7,147.72	-1,008.27	1,014.75	1,101.88	0.56	0.49	-16.88
7,425.00	6.10	169.25	7,237.52	-1,013.43	1,016.42	1,107.17	6.01	5.50	54.14
7,515.00	12.99	168.95	7,326.22	-1,028.07	1,019.25	1,122.02	7.66	7.66	-0.33
EXIST VERT CARR 1 30' Radius									
7,605.00	19.35	166.43	7,412.62	-1,052.52	1,024.69	1,146.88	7.11	7.07	-2.80
EXIST VERT DUMP UU 28-5 30' Radius									
7,694.00	25.63	166.35	7,494.81	-1,085.59	1,032.70	1,180.57	7.06	7.06	-0.09
EXIST VERT DUMP UU 28-12 30' Radius									
7,752.31	29.98	169.87	7,546.37	-1,112.20	1,038.25	1,207.60	7.97	7.46	6.04
30° Inclination @ 7752.31' MD									

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7,783.00	32.30	171.37	7,572.64	-1,127.86	1,040.82	1,223.43	7.97	7.56	4.89
7,873.00	40.39	176.83	7,645.09	-1,180.85	1,046.06	1,276.68	9.67	8.99	6.07
7,963.00	48.87	177.85	7,709.08	-1,243.95	1,048.94	1,339.76	9.46	9.42	1.13
8,052.00	58.95	177.32	7,761.44	-1,315.71	1,051.99	1,411.48	11.34	11.33	-0.60
8,142.00	69.16	178.60	7,800.77	-1,396.48	1,054.83	1,492.15	11.42	11.34	1.42
8,189.02	70.00	178.79	7,817.17	-1,440.54	1,055.84	1,536.09	1.82	1.79	0.40
70° Inclination @ 8189.02' MD									
8,231.00	70.75	178.95	7,831.27	-1,480.07	1,056.62	1,575.52	1.82	1.79	0.39
8,320.00	75.08	180.67	7,857.41	-1,565.12	1,056.88	1,660.19	5.20	4.87	1.93
8,357.77	76.65	181.34	7,866.64	-1,601.74	1,056.24	1,696.57	4.50	4.16	1.77
LP Coyote Trails 33S-20-6N									
8,410.00	78.83	182.25	7,877.73	-1,652.75	1,054.64	1,747.19	4.50	4.17	1.74
ABND VERT NIVEN GAYLE B 130' Radius									
8,500.00	87.41	183.27	7,888.50	-1,741.91	1,050.34	1,835.51	9.60	9.53	1.13
8,589.00	89.62	182.21	7,890.80	-1,830.77	1,046.08	1,923.55	2.75	2.48	-1.19
8,678.00	89.48	182.03	7,891.50	-1,919.71	1,042.79	2,011.74	0.26	-0.16	-0.20
8,768.00	87.23	180.98	7,894.09	-2,009.63	1,040.43	2,101.02	2.76	-2.50	-1.17
8,858.00	86.61	180.27	7,898.92	-2,099.50	1,039.45	2,190.36	1.05	-0.69	-0.79
8,948.00	88.33	180.09	7,902.90	-2,189.41	1,039.17	2,279.82	1.92	1.91	-0.20
9,037.00	88.29	179.13	7,905.52	-2,278.36	1,039.77	2,368.42	1.08	-0.04	-1.08
9,127.00	90.10	179.57	7,906.78	-2,368.35	1,040.79	2,458.07	2.07	2.01	0.49
9,217.00	89.62	179.08	7,907.00	-2,458.34	1,041.85	2,547.75	0.76	-0.53	-0.54
9,307.00	90.85	179.17	7,906.64	-2,548.33	1,043.23	2,637.44	1.37	1.37	0.10
9,397.00	90.99	179.21	7,905.19	-2,638.30	1,044.50	2,727.12	0.16	0.16	0.04
9,487.00	92.27	178.99	7,902.63	-2,728.26	1,045.91	2,816.79	1.44	1.42	-0.24
9,576.00	92.14	178.73	7,899.21	-2,817.17	1,047.68	2,905.46	0.33	-0.15	-0.29
9,666.00	90.50	179.30	7,897.13	-2,907.13	1,049.23	2,995.14	1.93	-1.82	0.63
9,756.00	91.52	178.60	7,895.55	-2,997.10	1,050.88	3,084.85	1.37	1.13	-0.78
9,846.00	88.86	178.68	7,895.25	-3,087.07	1,053.01	3,174.60	2.96	-2.96	0.09
9,936.00	89.26	177.94	7,896.72	-3,177.01	1,055.67	3,264.38	0.93	0.44	-0.82
10,025.00	89.00	177.45	7,898.08	-3,265.93	1,059.24	3,353.22	0.62	-0.29	-0.55
10,115.00	88.25	180.18	7,900.24	-3,355.88	1,061.11	3,442.93	3.14	-0.83	3.03
10,205.00	87.19	179.79	7,903.82	-3,445.80	1,061.13	3,532.43	1.25	-1.18	-0.43
10,294.00	89.84	180.71	7,906.12	-3,534.76	1,060.74	3,620.94	3.15	2.98	1.03
10,384.00	90.59	179.92	7,905.78	-3,624.76	1,060.25	3,710.46	1.21	0.83	-0.88
10,474.00	90.50	179.30	7,904.93	-3,714.75	1,060.86	3,800.09	0.70	-0.10	-0.69
10,564.00	90.68	178.68	7,904.00	-3,804.74	1,062.44	3,889.80	0.72	0.20	-0.69
10,653.00	90.54	177.98	7,903.05	-3,893.69	1,065.04	3,978.59	0.80	-0.16	-0.79
10,742.00	88.69	180.49	7,903.65	-3,982.67	1,066.23	4,067.27	3.50	-2.08	2.82
10,832.00	89.44	182.25	7,905.12	-4,072.63	1,064.07	4,156.59	2.13	0.83	1.96
10,922.00	89.22	181.06	7,906.17	-4,162.58	1,061.48	4,245.87	1.34	-0.24	-1.32
11,012.00	91.03	182.03	7,905.98	-4,252.55	1,059.05	4,335.17	2.28	2.01	1.08
11,045.86	91.11	181.66	7,905.34	-4,286.38	1,057.96	4,368.75	1.12	0.25	-1.09
ABND VERT K & R LIVESTOCK COMM 1 30' Radius									

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-6N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5298.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	kb @ 5298.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-6N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
11,101.00	91.25	181.06	7,904.21	-4,341.50	1,056.65	4,423.47	1.12	0.25	-1.09
11,191.00	90.46	179.96	7,902.86	-4,431.48	1,055.85	4,512.95	1.50	-0.88	-1.22
11,281.00	91.12	179.13	7,901.62	-4,521.47	1,056.56	4,602.59	1.18	0.73	-0.92
11,359.63	92.20	179.28	7,899.34	-4,600.05	1,057.66	4,680.91	1.39	1.38	0.19
TGT #3 @ 11500' MD									
11,371.00	92.36	179.30	7,898.89	-4,611.42	1,057.80	4,692.23	1.39	1.38	0.19
11,461.00	92.05	179.13	7,895.43	-4,701.34	1,059.03	4,781.85	0.39	-0.34	-0.19
11,550.00	89.70	180.71	7,894.07	-4,790.32	1,059.15	4,870.43	3.18	-2.64	1.78
11,640.00	90.23	180.18	7,894.12	-4,880.32	1,058.45	4,959.93	0.83	0.59	-0.59
11,698.78	89.85	180.62	7,894.08	-4,939.10	1,058.05	5,018.39	0.98	-0.64	0.74
ABND VERT BICKLER A UNIT 2 30' Radius									
11,729.00	89.66	180.84	7,894.21	-4,969.31	1,057.66	5,048.43	0.98	-0.64	0.74
11,820.00	90.23	180.05	7,894.30	-5,060.31	1,056.95	5,138.93	1.07	0.63	-0.87
11,910.00	88.33	181.11	7,895.43	-5,150.29	1,056.04	5,228.40	2.42	-2.11	1.18
12,000.00	88.60	181.02	7,897.84	-5,240.24	1,054.37	5,317.77	0.32	0.30	-0.10
12,089.00	88.60	180.54	7,900.01	-5,329.21	1,053.16	5,406.20	0.54	0.00	-0.54
12,162.30	88.42	180.50	7,901.92	-5,402.48	1,052.50	5,479.06	0.25	-0.24	-0.06
ABND VERT KATS B UNIT 1 30' Radius									
12,179.00	88.38	180.49	7,902.38	-5,419.17	1,052.35	5,495.66	0.25	-0.24	-0.06
12,268.00	88.11	180.32	7,905.11	-5,508.13	1,051.72	5,584.13	0.36	-0.30	-0.19
12,357.00	87.67	180.09	7,908.39	-5,597.07	1,051.40	5,672.62	0.56	-0.49	-0.26
12,447.00	89.00	180.23	7,911.00	-5,687.03	1,051.15	5,762.14	1.49	1.48	0.16
12,535.00	91.03	180.49	7,910.98	-5,775.02	1,050.60	5,849.66	2.33	2.31	0.30
12,553.50	91.03	180.40	7,910.65	-5,793.52	1,050.46	5,868.06	0.49	0.00	-0.49
TGT #4 @ 12600' MD									
12,625.00	91.03	180.05	7,909.36	-5,865.01	1,050.18	5,939.18	0.49	0.00	-0.49
12,714.00	90.99	179.30	7,907.79	-5,953.99	1,050.68	6,027.79	0.84	-0.04	-0.84
12,804.00	91.34	178.68	7,905.96	-6,043.96	1,052.27	6,117.49	0.79	0.39	-0.69
12,893.00	91.91	178.16	7,903.44	-6,132.89	1,054.72	6,206.24	0.87	0.64	-0.58
12,983.00	90.81	179.65	7,901.30	-6,222.84	1,056.44	6,295.94	2.06	-1.22	1.66
13,072.00	91.34	179.87	7,899.63	-6,311.82	1,056.81	6,384.54	0.64	0.60	0.25
13,162.00	90.85	179.61	7,897.91	-6,401.81	1,057.22	6,474.14	0.62	-0.54	-0.29
13,251.00	90.19	179.92	7,897.10	-6,490.80	1,057.59	6,562.75	0.82	-0.74	0.35
13,340.00	90.68	180.32	7,896.43	-6,579.80	1,057.40	6,651.31	0.71	0.55	0.45
13,429.00	89.62	179.79	7,896.20	-6,668.80	1,057.31	6,739.88	1.33	-1.19	-0.60
13,519.00	89.13	180.01	7,897.18	-6,758.79	1,057.47	6,829.46	0.60	-0.54	0.24
13,607.00	88.69	180.05	7,898.85	-6,846.77	1,057.42	6,917.03	0.50	-0.50	0.05
13,697.00	88.42	180.27	7,901.12	-6,936.75	1,057.17	7,006.55	0.39	-0.30	0.24
13,786.00	89.00	180.18	7,903.12	-7,025.72	1,056.82	7,095.08	0.66	0.65	-0.10
13,853.65	89.13	179.49	7,904.23	-7,093.36	1,057.02	7,162.42	1.04	0.19	-1.02
TGT #5 @ 13900' MD									
13,876.00	89.17	179.26	7,904.56	-7,115.71	1,057.26	7,184.68	1.04	0.19	-1.02
13,966.00	88.91	178.82	7,906.07	-7,205.68	1,058.77	7,274.38	0.57	-0.29	-0.49
14,055.00	88.47	178.64	7,908.10	-7,294.64	1,060.74	7,363.10	0.53	-0.49	-0.20

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-6N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5298.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	kb @ 5298.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-6N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
14,109.24	88.74	177.84	7,909.43	-7,348.84	1,062.41	7,417.21	1.55	0.49	-1.47	
ABND VERT ASHER 1 30' Radius										
14,145.00	88.91	177.32	7,910.16	-7,384.56	1,063.91	7,452.91	1.55	0.49	-1.47	
14,234.00	88.42	176.48	7,912.24	-7,473.40	1,068.73	7,541.80	1.09	-0.55	-0.94	
14,324.00	88.56	179.39	7,914.61	-7,563.30	1,071.97	7,631.59	3.24	0.16	3.23	
14,414.00	87.63	178.68	7,917.60	-7,653.24	1,073.48	7,721.25	1.30	-1.03	-0.79	
14,503.00	89.84	179.70	7,919.56	-7,742.20	1,074.74	7,809.92	2.73	2.48	1.15	
14,593.00	90.41	178.86	7,919.37	-7,832.19	1,075.87	7,899.59	1.13	0.63	-0.93	
14,683.00	90.81	178.46	7,918.41	-7,922.16	1,077.98	7,989.34	0.63	0.44	-0.44	
14,772.00	89.40	178.99	7,918.25	-8,011.14	1,079.96	8,078.09	1.69	-1.58	0.60	
14,862.00	89.13	177.41	7,919.40	-8,101.08	1,082.78	8,167.89	1.78	-0.30	-1.76	
14,952.00	90.06	178.99	7,920.04	-8,191.03	1,085.61	8,257.69	2.04	1.03	1.76	
14,987.72	90.27	178.87	7,919.93	-8,226.74	1,086.28	8,293.30	0.69	0.60	-0.35	
ABND VERT HULSTROM G UNIT 1 30' Radius										
15,030.86	90.53	178.72	7,919.63	-8,269.88	1,087.19	8,336.31	0.69	0.60	-0.35	
Memorial 12-3										
15,041.00	90.59	178.68	7,919.53	-8,280.01	1,087.42	8,346.42	0.69	0.60	-0.35	
15,131.00	89.57	178.86	7,919.41	-8,369.99	1,089.35	8,436.17	1.15	-1.13	0.20	
15,220.00	89.40	177.41	7,920.21	-8,458.94	1,092.25	8,524.97	1.64	-0.19	-1.63	
15,310.00	89.57	181.24	7,921.02	-8,548.91	1,093.31	8,614.63	4.26	0.19	4.26	
15,354.58	89.63	181.24	7,921.33	-8,593.48	1,092.34	8,658.89	0.14	0.14	0.00	
TGT #6 @ 15400' MD										
15,400.00	89.70	181.24	7,921.59	-8,638.89	1,091.36	8,703.99	0.14	0.14	0.00	
15,490.00	90.01	181.11	7,921.82	-8,728.87	1,089.51	8,793.37	0.37	0.34	-0.14	
15,580.00	90.59	181.28	7,921.35	-8,818.84	1,087.64	8,882.74	0.67	0.64	0.19	
15,670.00	89.13	181.68	7,921.57	-8,908.81	1,085.31	8,972.06	1.68	-1.62	0.44	
15,759.00	89.66	182.12	7,922.51	-8,997.76	1,082.36	9,060.30	0.77	0.60	0.49	
15,849.00	89.84	181.95	7,922.90	-9,087.70	1,079.17	9,149.51	0.28	0.20	-0.19	
15,939.00	90.01	182.43	7,923.02	-9,177.63	1,075.73	9,238.69	0.57	0.19	0.53	
16,028.00	89.70	181.46	7,923.24	-9,266.58	1,072.71	9,326.92	1.14	-0.35	-1.09	
16,117.00	90.15	180.89	7,923.36	-9,355.56	1,070.88	9,415.31	0.82	0.51	-0.64	
16,206.00	89.31	181.06	7,923.78	-9,444.55	1,069.37	9,503.73	0.96	-0.94	0.19	
16,295.00	89.66	180.67	7,924.58	-9,533.53	1,068.02	9,592.16	0.59	0.39	-0.44	
16,385.00	88.51	179.61	7,926.01	-9,623.52	1,067.80	9,681.71	1.74	-1.28	-1.18	
16,475.00	88.33	179.04	7,928.50	-9,713.48	1,068.86	9,771.34	0.66	-0.20	-0.63	
16,508.52	88.23	178.59	7,929.50	-9,746.97	1,069.56	9,804.75	1.37	-0.29	-1.34	
EXIST VERT NORDSTROM 5-4 30' Radius										
16,564.00	88.07	177.85	7,931.29	-9,802.40	1,071.28	9,860.08	1.37	-0.29	-1.34	
16,654.00	88.60	179.13	7,933.91	-9,892.33	1,073.65	9,949.82	1.54	0.59	1.42	
16,743.00	89.04	179.26	7,935.74	-9,981.30	1,074.90	10,038.49	0.52	0.49	0.15	
16,755.01	89.09	179.24	7,935.94	-9,993.31	1,075.05	10,050.46	0.47	0.44	-0.14	
TGT #7 @ 16800' MD										
16,833.00	89.44	179.13	7,936.93	-10,071.28	1,076.16	10,128.17	0.47	0.44	-0.14	
16,923.00	89.88	178.38	7,937.47	-10,161.26	1,078.12	10,217.91	0.97	0.49	-0.83	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-6N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5298.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	kb @ 5298.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-6N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,013.00	90.72	178.20	7,937.00	-10,251.22	1,080.80	10,307.71	0.95	0.93	-0.20
17,102.00	91.83	178.73	7,935.02	-10,340.16	1,083.19	10,396.46	1.38	1.25	0.60
17,192.00	90.19	178.02	7,933.43	-10,430.11	1,085.74	10,486.23	1.99	-1.82	-0.79
17,281.00	90.85	177.94	7,932.62	-10,519.05	1,088.87	10,575.06	0.75	0.74	-0.09
17,371.00	88.78	177.36	7,932.91	-10,608.97	1,092.57	10,664.91	2.39	-2.30	-0.64
17,383.34	88.83	177.40	7,933.17	-10,621.29	1,093.13	10,677.23	0.49	0.39	0.30
EXIST VERT NORDSTROM 2-4 30' Radius									
17,461.00	89.13	177.63	7,934.55	-10,698.87	1,096.50	10,754.77	0.49	0.39	0.30
17,550.00	90.01	178.02	7,935.22	-10,787.80	1,099.88	10,843.61	1.08	0.99	0.44
17,616.15	90.57	178.41	7,934.88	-10,853.91	1,101.93	10,909.61	1.04	0.85	0.60
EXIST VERT WEBBER H UNIT 1 30' Radius									
17,639.00	90.77	178.55	7,934.62	-10,876.75	1,102.54	10,932.41	1.04	0.85	0.60
17,729.00	91.87	178.55	7,932.54	-10,966.70	1,104.82	11,022.15	1.22	1.22	0.00
17,818.00	92.75	178.51	7,928.96	-11,055.60	1,107.10	11,110.85	0.99	0.99	-0.04
17,900.00	93.50	178.42	7,924.49	-11,137.45	1,109.29	11,192.53	0.92	0.91	-0.11
Last MWD Survey @ 17900.00' MD									
17,961.00	93.50	178.42	7,920.76	-11,198.31	1,110.97	11,253.27	0.00	0.00	0.00
Projection to TD @ 17961.00' MD 203.2' FSL/ 1616' FEL - PBHL Coyote Trails 33S-20-6N									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
30° Inclination @ 7752.3	0.00	0.00	7,546.37	-1,112.20	1,038.30	1,248,672.14	3,139,134.28	40.01492	-105.00326
- hit/miss target									
- Shape									
- actual wellpath misses target center by 0.06usft at 7752.31usft MD (7546.37 TVD, -1112.20 N, 1038.25 E)									
- Point									
Cross @ 7798.11' MD	0.00	0.00	7,585.32	-1,136.00	1,041.98	1,248,648.36	3,139,138.09	40.01486	-105.00324
- actual wellpath misses target center by 0.02usft at 7798.10usft MD (7585.31 TVD, -1135.99 N, 1041.98 E)									
- Point									
70° Inclination @ 8189.0	0.00	0.00	7,817.17	-1,440.54	1,055.84	1,248,343.90	3,139,153.64	40.01402	-105.00319
- actual wellpath hits target center									
- Point									
Cross @ 13198.20' MD	0.00	0.00	7,897.46	-6,438.00	1,057.43	1,243,346.52	3,139,183.02	40.00030	-105.00319
- actual wellpath hits target center									
- Point									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
117.00	117.00	-0.20	0.24	First MWD Survey @ 117' MD	
7,752.31	7,546.37	-1,112.20	1,038.25	30° Inclination @ 7752.31' MD	
8,189.02	7,817.17	-1,440.54	1,055.84	70° Inclination @ 8189.02' MD	
17,900.00	7,924.49	-11,137.45	1,109.29	Last MWD Survey @ 17900.00' MD	
17,961.00	7,920.76	-11,198.31	1,110.97	Projection to TD @ 17961.00' MD 203.2' FSL/ 1616' FEL	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-6N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5298.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	kb @ 5298.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-6N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Checked By: _____ Approved By: _____ Date: _____