

# **Extraction Oil & Gas**

**Weld County, CO (NAD83)**

**Sec 28-T1N-R68W Coyote Trails**

**Coyote Trails 33S-20-5C**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**08 March, 2019**

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-5C
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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		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-20-5C				
Well Position	+N/-S	0.00 usft	Northing:	1,249,778.81 usft	Latitude:	40.01798
	+E/-W	0.00 usft	Easting:	3,138,071.88 usft	Longitude:	-105.00703
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,270.00 usft

<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	12/31/2018	8.32	66.35	51,919

<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) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	176.07	

<b>Survey Program</b>	<b>Date</b>	3/8/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
117.00	18,206.00	Atlas MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</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
117.00	0.27	85.03	117.00	0.02	0.27	0.00	0.23	0.23	0.00
<b>First MWD Survey @ ' MD</b>									
207.00	0.38	106.94	207.00	-0.04	0.77	0.10	0.18	0.12	24.34
298.00	0.39	98.91	298.00	-0.18	1.37	0.27	0.06	0.01	-8.82
387.00	0.38	104.71	386.99	-0.30	1.95	0.44	0.05	-0.01	6.52
476.00	0.43	103.80	475.99	-0.46	2.56	0.63	0.06	0.06	-1.02
566.00	0.50	121.37	565.99	-0.74	3.22	0.96	0.18	0.08	19.52
655.00	0.55	120.18	654.99	-1.16	3.92	1.43	0.06	0.06	-1.34
744.00	0.77	116.44	743.98	-1.64	4.83	1.97	0.25	0.25	-4.20
834.00	0.33	95.62	833.97	-1.93	5.63	2.32	0.53	-0.49	-23.13

# Survey Report

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<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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 (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	0.23	104.58	922.97	-2.00	6.06	2.42	0.12	-0.11	10.07
1,013.00	0.09	185.52	1,012.97	-2.12	6.22	2.54	0.26	-0.16	89.93
1,102.00	0.21	276.60	1,101.97	-2.17	6.06	2.58	0.26	0.13	102.34
1,192.00	0.08	252.85	1,191.97	-2.17	5.83	2.57	0.16	-0.14	-26.39
1,281.00	1.31	169.03	1,280.97	-3.19	5.97	3.59	1.46	1.38	-94.18
1,371.00	3.29	155.38	1,370.89	-6.55	7.24	7.03	2.27	2.20	-15.17
1,445.68	4.95	150.72	1,445.37	-11.30	9.71	11.94	2.26	2.22	-6.23
<b>Meikle #2</b>									
1,461.00	5.29	150.13	1,460.63	-12.49	10.38	13.17	2.26	2.24	-3.88
<b>Meikle 28-1</b>									
1,540.00	6.81	146.32	1,539.19	-19.55	14.79	20.52	1.99	1.92	-4.82
1,671.00	7.03	146.78	1,669.24	-32.72	23.49	34.25	0.17	0.17	0.35
1,760.00	8.44	135.06	1,757.43	-41.90	31.09	43.93	2.37	1.58	-13.17
1,849.00	10.16	141.49	1,845.26	-52.67	40.59	55.32	2.26	1.93	7.22
1,938.00	11.36	157.09	1,932.71	-66.88	48.89	70.08	3.53	1.35	17.53
2,028.00	13.61	153.43	2,020.58	-84.52	57.08	88.24	2.65	2.50	-4.07
2,117.00	13.08	149.95	2,107.18	-102.61	66.81	106.95	1.08	-0.60	-3.91
2,206.00	12.06	149.42	2,194.04	-119.33	76.58	124.30	1.15	-1.15	-0.60
2,295.00	12.33	151.98	2,281.03	-135.72	85.78	141.28	0.68	0.30	2.88
2,384.00	11.45	151.63	2,368.12	-151.88	94.44	158.00	0.99	-0.99	-0.39
2,473.00	12.15	148.50	2,455.24	-167.64	103.53	174.35	1.07	0.79	-3.52
2,563.00	12.15	144.40	2,543.23	-183.42	113.99	190.80	0.96	0.00	-4.56
2,653.00	13.92	146.56	2,630.91	-200.16	125.47	208.29	2.04	1.97	2.40
2,742.00	12.64	145.94	2,717.53	-217.16	136.83	226.03	1.45	-1.44	-0.70
2,831.00	10.87	144.62	2,804.66	-232.07	147.14	241.61	2.01	-1.99	-1.48
2,920.00	12.15	142.20	2,891.86	-246.31	157.74	256.55	1.54	1.44	-2.72
3,007.00	13.79	143.39	2,976.64	-261.87	169.53	272.88	1.91	1.89	1.37
3,097.00	12.11	144.44	3,064.35	-278.16	181.42	289.95	1.88	-1.87	1.17
3,186.00	12.73	147.84	3,151.27	-294.06	192.07	306.54	1.08	0.70	3.82
3,275.00	10.96	144.93	3,238.37	-309.28	202.15	322.42	2.10	-1.99	-3.27
3,365.00	12.06	147.35	3,326.56	-324.20	212.14	337.99	1.33	1.22	2.69
3,454.00	14.41	147.84	3,413.19	-341.41	223.05	355.90	2.64	2.64	0.55
3,543.00	12.68	146.69	3,499.71	-358.95	234.31	374.17	1.97	-1.94	-1.29
3,632.00	14.18	145.24	3,586.28	-376.07	245.89	392.04	1.73	1.69	-1.63
3,722.00	12.73	142.81	3,673.80	-393.03	258.17	409.80	1.73	-1.61	-2.70
3,812.00	13.35	139.33	3,761.48	-408.81	270.94	426.42	1.11	0.69	-3.87
3,902.00	12.24	140.83	3,849.25	-424.08	283.74	442.54	1.29	-1.23	1.67
3,991.00	13.26	146.34	3,936.05	-439.89	295.35	459.11	1.78	1.15	6.19
4,080.00	11.14	149.34	4,023.04	-455.79	305.40	475.66	2.49	-2.38	3.37
4,169.00	12.15	149.29	4,110.21	-471.24	314.56	491.70	1.13	1.13	-0.06
4,259.00	14.32	151.67	4,197.81	-489.18	324.68	510.29	2.49	2.41	2.64
4,348.00	12.20	152.16	4,284.44	-507.19	334.30	528.92	2.39	-2.38	0.55
4,438.00	12.99	150.26	4,372.27	-524.38	343.76	546.72	0.99	0.88	-2.11

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<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,528.00	12.64	154.32	4,460.03	-542.04	353.04	564.97	1.07	-0.39	4.51
4,618.00	14.23	151.19	4,547.56	-560.60	362.64	584.15	1.94	1.77	-3.48
4,707.00	12.99	150.44	4,634.06	-578.89	372.85	603.09	1.41	-1.39	-0.84
4,796.00	14.36	148.19	4,720.54	-596.97	383.60	621.87	1.65	1.54	-2.53
4,886.00	11.84	148.41	4,808.19	-614.32	394.32	639.92	2.80	-2.80	0.24
4,976.00	12.55	144.09	4,896.16	-630.11	404.90	656.39	1.28	0.79	-4.80
5,065.00	14.67	138.98	4,982.66	-646.44	417.97	673.58	2.74	2.38	-5.74
5,070.57	14.58	138.96	4,988.05	-647.51	418.89	674.71	1.71	-1.70	-0.35
Dump UU 28-10									
5,156.00	13.12	138.63	5,070.99	-662.89	432.36	690.98	1.71	-1.70	-0.39
5,246.00	15.16	141.27	5,158.26	-679.74	446.47	708.75	2.38	2.27	2.93
5,336.00	12.90	141.67	5,245.57	-696.80	460.07	726.71	2.51	-2.51	0.44
5,426.00	13.04	142.33	5,333.28	-712.72	472.50	743.44	0.23	0.16	0.73
5,515.00	14.41	137.57	5,419.74	-728.84	486.11	760.46	1.99	1.54	-5.35
5,606.00	11.62	137.61	5,508.39	-743.97	499.93	776.50	3.07	-3.07	0.04
5,696.00	13.65	143.30	5,596.21	-759.18	512.39	792.53	2.64	2.26	6.32
5,786.00	11.71	138.76	5,684.01	-774.57	524.76	808.73	2.42	-2.16	-5.04
5,875.00	13.17	141.71	5,770.92	-789.32	537.00	824.28	1.79	1.64	3.31
5,965.00	14.18	142.95	5,858.37	-806.16	549.99	841.98	1.17	1.12	1.38
6,010.40	13.15	141.86	5,902.49	-814.66	556.53	850.91	2.33	-2.26	-2.40
Graeber 42-33									
6,055.00	12.15	140.61	5,946.00	-822.28	562.64	858.93	2.33	-2.25	-2.80
6,102.89	11.30	140.28	5,992.89	-829.79	568.84	866.84	1.77	-1.77	-0.69
Bickler A Unit 1									
6,145.00	10.56	139.95	6,034.24	-835.92	573.96	873.31	1.77	-1.77	-0.79
6,234.00	12.28	139.82	6,121.47	-849.39	585.32	887.53	1.93	1.93	-0.15
6,324.00	12.73	147.22	6,209.34	-865.04	596.86	903.93	1.85	0.50	8.22
6,413.00	13.26	147.75	6,296.06	-881.92	607.62	921.51	0.61	0.60	0.60
6,503.00	10.91	147.26	6,384.06	-897.81	617.73	938.06	2.61	-2.61	-0.54
6,592.00	11.89	140.13	6,471.31	-911.94	628.17	952.86	1.93	1.10	-8.01
6,682.00	13.17	132.28	6,559.17	-925.95	641.70	967.77	2.36	1.42	-8.72
6,771.00	10.56	129.42	6,646.26	-937.95	655.50	980.69	3.01	-2.93	-3.21
6,861.00	7.73	131.58	6,735.11	-947.21	666.40	990.68	3.17	-3.14	2.40
6,951.00	6.10	131.62	6,824.45	-954.40	674.50	998.41	1.81	-1.81	0.04
7,065.00	4.68	152.42	6,937.95	-962.55	681.19	1,006.99	2.10	-1.25	18.25
7,155.00	5.88	162.86	7,027.57	-970.21	684.25	1,014.85	1.70	1.33	11.60
7,245.00	6.50	171.02	7,117.05	-979.65	686.40	1,024.41	1.19	0.69	9.07
7,334.00	6.81	171.90	7,205.45	-989.85	687.93	1,034.69	0.37	0.35	0.99
7,424.00	5.35	172.69	7,294.94	-999.29	689.21	1,044.20	1.62	-1.62	0.88
7,514.00	3.89	178.90	7,384.65	-1,006.51	689.81	1,051.44	1.71	-1.62	6.90
7,604.00	2.83	176.97	7,474.49	-1,011.78	689.98	1,056.71	1.18	-1.18	-2.14
7,694.00	8.48	183.09	7,564.02	-1,020.63	689.74	1,065.52	6.30	6.28	6.80
7,783.00	13.92	177.80	7,651.29	-1,037.89	689.80	1,082.75	6.21	6.11	-5.94
EXIST VERT CARR 1 30' Radius									

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<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,858.55	19.15	187.10	7,723.70	-1,059.29	688.62	1,104.01	7.74	6.92	12.31
<b>EXIST VERT DUMP UU 28-5 30' Radius</b>									
7,873.00	20.19	188.34	7,737.31	-1,064.11	687.96	1,108.78	7.74	7.18	8.56
7,962.00	27.71	191.02	7,818.59	-1,099.67	681.77	1,143.83	8.54	8.45	3.01
7,989.12	29.98	189.53	7,842.34	-1,112.54	679.44	1,156.51	8.80	8.39	-5.50
<b>30° Inclination @ 7989.12' MD - EXIST VERT DUMP UU 28-12 30' Radius</b>									
8,041.23	34.39	187.17	7,886.44	-1,140.00	675.45	1,183.63	8.80	8.46	-4.52
<b>Cross @ 8041.23' MD</b>									
8,052.00	35.31	186.75	7,895.27	-1,146.11	674.70	1,189.68	8.80	8.51	-3.91
8,141.00	42.86	183.00	7,964.32	-1,201.97	670.09	1,245.09	8.89	8.48	-4.21
8,231.00	49.40	179.30	8,026.67	-1,266.78	668.90	1,309.67	7.85	7.27	-4.11
8,320.00	64.69	179.13	8,074.94	-1,341.23	669.93	1,384.02	17.18	17.18	-0.19
8,370.04	70.00	179.30	8,094.20	-1,387.39	670.56	1,430.11	10.62	10.61	0.34
<b>70° Inclination @ 8370.04' MD</b>									
8,410.00	74.24	179.43	8,106.47	-1,425.41	670.98	1,468.07	10.62	10.61	0.32
8,499.00	86.04	177.54	8,121.69	-1,512.91	673.32	1,555.52	13.42	13.26	-2.12
8,587.49	87.09	178.45	8,126.98	-1,601.18	676.41	1,643.79	1.58	1.19	1.03
<b>LP Coyote Trails 33S-20-5C</b>									
8,588.00	87.10	178.46	8,127.01	-1,601.69	676.42	1,644.30	1.58	1.19	1.03
8,678.00	87.32	177.80	8,131.39	-1,691.54	679.35	1,734.14	0.77	0.24	-0.73
8,767.00	88.25	178.33	8,134.83	-1,780.42	682.36	1,823.02	1.20	1.04	0.60
8,857.00	88.47	176.75	8,137.41	-1,870.29	686.22	1,912.95	1.77	0.24	-1.76
8,947.00	89.00	176.48	8,139.39	-1,960.12	691.53	2,002.92	0.66	0.59	-0.30
9,037.00	89.44	175.47	8,140.62	-2,049.88	697.85	2,092.91	1.22	0.49	-1.12
9,078.88	89.75	176.19	8,140.92	-2,091.65	700.89	2,134.79	1.86	0.73	1.71
<b>ABND VERT NIVEN GAYLE B 130' Radius</b>									
9,127.00	90.10	177.01	8,140.98	-2,139.69	703.75	2,182.91	1.86	0.73	1.71
9,217.00	90.06	178.86	8,140.85	-2,229.62	706.99	2,272.86	2.06	-0.04	2.06
9,307.00	90.59	179.21	8,140.34	-2,319.61	708.51	2,362.73	0.71	0.59	0.39
9,397.00	89.79	177.94	8,140.05	-2,409.58	710.75	2,452.64	1.67	-0.89	-1.41
9,486.00	91.87	181.11	8,138.76	-2,498.55	711.48	2,541.46	4.26	2.34	3.56
9,576.00	89.26	182.21	8,137.87	-2,588.50	708.88	2,631.01	3.15	-2.90	1.22
9,666.00	87.85	181.86	8,140.14	-2,678.41	705.68	2,720.50	1.61	-1.57	-0.39
9,755.00	88.16	180.45	8,143.24	-2,767.34	703.89	2,809.09	1.62	0.35	-1.58
9,846.00	87.94	179.83	8,146.33	-2,858.28	703.67	2,899.81	0.72	-0.24	-0.68
9,935.00	89.66	179.13	8,148.20	-2,947.26	704.47	2,988.63	2.09	1.93	-0.79
10,025.00	89.84	179.04	8,148.59	-3,037.24	705.91	3,078.50	0.22	0.20	-0.10
10,114.00	90.90	180.49	8,148.01	-3,126.24	706.28	3,167.31	2.02	1.19	1.63
10,204.00	91.96	180.40	8,145.77	-3,216.20	705.58	3,257.02	1.18	1.18	-0.10
10,294.00	89.53	181.28	8,144.60	-3,306.18	704.26	3,346.69	2.87	-2.70	0.98
10,384.00	89.66	181.11	8,145.23	-3,396.16	702.38	3,436.33	0.24	0.14	-0.19
10,474.00	91.30	179.87	8,144.48	-3,486.15	701.61	3,526.05	2.28	1.82	-1.38
10,563.00	90.54	178.82	8,143.05	-3,575.13	702.63	3,614.89	1.46	-0.85	-1.18
10,652.00	90.41	178.90	8,142.31	-3,664.11	704.40	3,703.78	0.17	-0.15	0.09
10,742.00	89.75	178.60	8,142.19	-3,754.08	706.36	3,793.68	0.81	-0.73	-0.33

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-5C
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
10,831.00	91.65	180.49	8,141.10	-3,843.07	707.07	3,882.51	3.01	2.13	2.12
10,921.00	91.83	180.23	8,138.37	-3,933.02	706.51	3,972.21	0.35	0.20	-0.29
11,011.00	92.18	179.74	8,135.22	-4,022.97	706.53	4,061.95	0.67	0.39	-0.54
11,101.00	87.45	180.84	8,135.51	-4,112.94	706.07	4,151.68	5.40	-5.26	1.22
11,191.00	86.70	178.24	8,140.10	-4,202.81	706.79	4,241.38	3.00	-0.83	-2.89
11,281.00	89.22	177.85	8,143.31	-4,292.69	709.86	4,331.27	2.83	2.80	-0.43
11,370.00	88.56	177.94	8,145.03	-4,381.62	713.13	4,420.20	0.75	-0.74	0.10
11,460.00	90.23	178.73	8,145.98	-4,471.57	715.75	4,510.12	2.05	1.86	0.88
11,550.00	88.69	177.41	8,146.83	-4,561.51	718.78	4,600.06	2.25	-1.71	-1.47
11,639.00	88.82	175.78	8,148.76	-4,650.33	724.06	4,689.03	1.84	0.15	-1.83
11,729.00	91.69	177.32	8,148.36	-4,740.15	729.48	4,779.02	3.62	3.19	1.71
ABND VERT K & R LIVESTOCK COMM 1 30' Radius									
11,819.00	92.18	177.41	8,145.32	-4,830.01	733.61	4,868.94	0.55	0.54	0.10
11,909.00	92.97	178.51	8,141.28	-4,919.86	736.81	4,958.80	1.50	0.88	1.22
11,975.32	92.39	178.80	8,138.18	-4,986.09	738.37	5,024.98	0.98	-0.88	0.43
ABND VERT BICKLER A UNIT 2 30' Radius									
11,999.00	92.18	178.90	8,137.24	-5,009.74	738.84	5,048.61	0.98	-0.88	0.43
12,087.00	89.22	178.24	8,136.16	-5,097.70	741.04	5,136.51	3.45	-3.36	-0.75
12,177.00	88.33	176.57	8,138.09	-5,187.58	745.11	5,226.46	2.10	-0.99	-1.86
12,266.00	88.42	178.68	8,140.61	-5,276.46	748.80	5,315.39	2.37	0.10	2.37
12,355.00	89.22	180.14	8,142.44	-5,365.44	749.72	5,404.22	1.87	0.90	1.64
12,429.51	89.11	179.88	8,143.53	-5,439.93	749.70	5,478.54	0.37	-0.14	-0.34
ABND VERT KATS B UNIT 1 30' Radius									
12,445.00	89.09	179.83	8,143.77	-5,455.43	749.74	5,494.00	0.37	-0.14	-0.34
12,533.00	89.09	181.95	8,145.17	-5,543.40	748.37	5,581.67	2.41	0.00	2.41
12,623.00	88.73	180.93	8,146.88	-5,633.35	746.11	5,671.26	1.20	-0.40	-1.13
12,712.00	89.53	182.43	8,148.23	-5,722.30	743.50	5,759.82	1.91	0.90	1.69
12,802.00	89.70	182.08	8,148.84	-5,812.23	739.96	5,849.29	0.43	0.19	-0.39
12,891.00	88.95	180.84	8,149.89	-5,901.19	737.69	5,937.89	1.63	-0.84	-1.39
12,981.00	90.19	181.59	8,150.56	-5,991.17	735.79	6,027.52	1.61	1.38	0.83
13,070.00	89.88	181.20	8,150.51	-6,080.14	733.62	6,116.14	0.56	-0.35	-0.44
13,160.00	90.10	181.06	8,150.52	-6,170.12	731.84	6,205.78	0.29	0.24	-0.16
13,249.00	90.19	180.54	8,150.30	-6,259.11	730.60	6,294.48	0.59	0.10	-0.58
13,338.00	89.93	180.40	8,150.20	-6,348.11	729.87	6,383.22	0.33	-0.29	-0.16
13,427.00	90.50	180.54	8,149.87	-6,437.11	729.14	6,471.95	0.66	0.64	0.16
13,428.39	90.48	180.52	8,149.86	-6,438.50	729.13	6,473.34	2.31	-1.69	-1.58
Cross @ 13428.39' MD									
13,516.00	89.00	179.13	8,150.26	-6,526.10	729.40	6,560.76	2.31	-1.69	-1.58
13,605.00	88.78	178.68	8,151.98	-6,615.07	731.10	6,649.63	0.56	-0.25	-0.51
13,695.00	89.22	181.11	8,153.55	-6,705.05	731.26	6,739.41	2.74	0.49	2.70
13,784.00	90.54	181.02	8,153.74	-6,794.03	729.61	6,828.07	1.49	1.48	-0.10
13,874.00	90.37	181.28	8,153.02	-6,884.01	727.80	6,917.71	0.35	-0.19	0.29
13,964.00	90.23	180.54	8,152.55	-6,973.99	726.37	7,007.39	0.84	-0.16	-0.82
14,053.00	90.41	180.27	8,152.06	-7,062.99	725.74	7,096.13	0.36	0.20	-0.30

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-5C
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
14,142.00	90.10	179.57	8,151.66	-7,151.99	725.87	7,184.93	0.86	-0.35	-0.79
14,232.00	88.95	177.85	8,152.41	-7,241.96	727.89	7,274.83	2.30	-1.28	-1.91
14,316.19	86.85	176.12	8,155.50	-7,325.97	732.32	7,358.94	3.24	-2.50	-2.06
<b>ABND VERT ASHER 1 30' Radius</b>									
14,322.00	86.70	176.00	8,155.82	-7,331.75	732.72	7,364.74	3.24	-2.50	-2.06
14,412.00	89.40	177.72	8,158.88	-7,421.56	737.64	7,454.67	3.56	3.00	1.91
14,501.00	90.10	177.80	8,159.27	-7,510.49	741.12	7,543.63	0.79	0.79	0.09
14,591.00	88.56	180.27	8,160.33	-7,600.46	742.64	7,633.49	3.23	-1.71	2.74
14,681.00	87.76	179.70	8,163.22	-7,690.41	742.66	7,723.23	1.09	-0.89	-0.63
14,770.00	87.89	182.12	8,166.59	-7,779.33	741.25	7,811.85	2.72	0.15	2.72
14,859.00	89.40	183.36	8,168.70	-7,868.20	736.99	7,900.21	2.20	1.70	1.39
14,949.00	90.15	183.84	8,169.05	-7,958.02	731.34	7,989.44	0.99	0.83	0.53
15,039.00	90.28	184.24	8,168.71	-8,047.79	725.00	8,078.57	0.47	0.14	0.44
15,129.00	91.16	181.42	8,167.58	-8,137.67	720.56	8,167.92	3.28	0.98	-3.13
15,176.52	90.95	180.55	8,166.71	-8,185.17	719.74	8,215.26	1.88	-0.44	-1.83
<b>ABND VERT HULSTROM G UNIT 1 30' Radius</b>									
15,218.00	90.77	179.79	8,166.08	-8,226.65	719.62	8,256.63	1.88	-0.44	-1.83
15,259.49	90.63	179.62	8,165.58	-8,268.14	719.83	8,298.04	0.53	-0.34	-0.40
<b>Memorial 12-3</b>									
15,308.00	90.46	179.43	8,165.12	-8,316.64	720.23	8,346.45	0.53	-0.34	-0.40
15,398.00	90.19	179.21	8,164.61	-8,406.63	721.30	8,436.30	0.39	-0.30	-0.24
15,488.00	89.79	178.46	8,164.62	-8,496.61	723.13	8,526.20	0.94	-0.44	-0.83
15,578.00	89.35	177.89	8,165.30	-8,586.56	726.00	8,616.13	0.80	-0.49	-0.63
15,668.00	89.09	177.67	8,166.52	-8,676.49	729.48	8,706.09	0.38	-0.29	-0.24
15,757.00	89.75	177.36	8,167.42	-8,765.40	733.34	8,795.05	0.82	0.74	-0.35
15,847.00	89.04	178.38	8,168.37	-8,855.33	736.69	8,885.00	1.38	-0.79	1.13
15,937.00	88.69	177.89	8,170.16	-8,945.26	739.61	8,974.92	0.67	-0.39	-0.54
16,026.00	89.57	178.16	8,171.51	-9,034.20	742.68	9,063.86	1.03	0.99	0.30
16,115.00	90.19	178.51	8,171.69	-9,123.16	745.27	9,152.79	0.80	0.70	0.39
16,204.00	90.06	180.09	8,171.50	-9,212.15	746.35	9,241.65	1.78	-0.15	1.78
16,293.00	90.23	179.65	8,171.28	-9,301.15	746.56	9,330.45	0.53	0.19	-0.49
16,383.00	89.84	179.13	8,171.22	-9,391.14	747.51	9,420.30	0.72	-0.43	-0.58
16,473.00	89.26	178.46	8,171.93	-9,481.12	749.41	9,510.19	0.98	-0.64	-0.74
16,562.00	88.95	178.07	8,173.32	-9,570.07	752.10	9,599.12	0.56	-0.35	-0.44
16,651.00	88.95	179.48	8,174.95	-9,659.03	754.00	9,688.00	1.58	0.00	1.58
16,727.64	90.30	180.38	8,175.45	-9,735.67	754.10	9,764.46	2.12	1.77	1.18
<b>EXIST VERT NORDSTROM 5-4 30' Radius</b>									
16,741.00	90.54	180.54	8,175.35	-9,749.03	753.99	9,777.78	2.12	1.77	1.18
16,831.00	90.23	179.87	8,174.74	-9,839.02	753.67	9,867.54	0.82	-0.34	-0.74
16,921.00	90.19	179.39	8,174.41	-9,929.02	754.25	9,957.37	0.54	-0.04	-0.53
17,010.00	90.10	178.73	8,174.19	-10,018.01	755.71	10,046.25	0.75	-0.10	-0.74
17,100.00	89.62	177.98	8,174.41	-10,107.97	758.29	10,136.17	0.99	-0.53	-0.83
17,190.00	89.04	179.21	8,175.46	-10,197.93	760.50	10,226.08	1.51	-0.64	1.37
17,279.00	89.09	178.77	8,176.91	-10,286.91	762.07	10,314.95	0.50	0.06	-0.49

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-5C
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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 (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,369.00	89.04	179.30	8,178.38	-10,376.88	763.58	10,404.82	0.59	-0.06	0.59
17,459.00	89.88	179.43	8,179.23	-10,466.87	764.58	10,494.66	0.94	0.93	0.14
17,548.00	89.79	178.60	8,179.49	-10,555.86	766.11	10,583.55	0.94	-0.10	-0.93
17,637.00	90.50	179.35	8,179.26	-10,644.84	767.70	10,672.43	1.16	0.80	0.84
17,697.96	90.92	179.59	8,178.51	-10,705.79	768.27	10,733.28	0.79	0.69	0.39
EXIST VERT NORDSTROM 2-4 30' Radius									
17,727.00	91.12	179.70	8,177.99	-10,734.83	768.45	10,762.26	0.79	0.69	0.39
17,783.13	90.84	179.37	8,177.03	-10,790.95	768.90	10,818.28	0.77	-0.49	-0.60
EXIST VERT WEBBER H UNIT 1 30' Radius									
17,816.00	90.68	179.17	8,176.59	-10,823.81	769.32	10,851.09	0.77	-0.49	-0.60
17,905.00	90.41	178.07	8,175.75	-10,912.78	771.47	10,940.00	1.27	-0.30	-1.24
17,994.00	89.70	177.45	8,175.66	-11,001.71	774.95	11,028.96	1.06	-0.80	-0.70
18,084.00	88.78	175.91	8,176.85	-11,091.55	780.16	11,118.94	1.99	-1.02	-1.71
18,128.00	88.07	174.72	8,178.06	-11,135.39	783.75	11,162.92	3.15	-1.61	-2.70
Last MWD Survey @ 18128.00' MD									
18,206.00	88.07	174.72	8,180.69	-11,213.01	790.92	11,240.85	0.00	0.00	0.00
Projection to TD @ 18206' MD 187.2' FSL/ 1954.4' FEL - PBHL Coyote Trails 33S-20-5C									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
30° Inclination @ 7989.1 - actual wellpath misses target center by 0.02usft at 7989.12usft MD (7842.34 TVD, -1112.54 N, 679.44 E) - Point	0.00	0.00	7,842.34	-1,112.54	679.42	1,248,670.07	3,138,757.47	40.01492	-105.00460
Cross @ 8041.23' MD - actual wellpath hits target center - Point	0.00	0.00	7,886.44	-1,140.00	675.45	1,248,642.58	3,138,753.66	40.01485	-105.00462
70° Inclination @ 8370.0 - actual wellpath hits target center - Point	0.00	0.00	8,094.21	-1,387.39	670.56	1,248,395.17	3,138,750.15	40.01417	-105.00463
Cross @ 13428.39' MD - actual wellpath hits target center - Point	0.00	0.00	8,149.86	-6,438.50	729.13	1,243,344.46	3,138,836.79	40.00030	-105.00442



## Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-5C
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5298.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-5C	<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

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
117.00	117.00	0.02	0.27	First MWD Survey @ ' MD
7,989.12	7,842.34	-1,112.54	679.44	30° Inclination @ 7989.12' MD
8,041.23	7,886.44	-1,140.00	675.45	Cross @ 8041.23' MD
8,370.04	8,094.20	-1,387.39	670.56	70° Inclination @ 8370.04' MD
13,428.39	8,149.86	-6,438.50	729.13	Cross @ 13428.39' MD
18,128.00	8,178.06	-11,135.39	783.75	Last MWD Survey @ 18128.00' MD
18,206.00	8,180.69	-11,213.01	790.92	Projection to TD @ 18206' MD 187.2' FSL/ 1954.4' FEL

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