

# **Extraction Oil & Gas**

**Weld County, CO (NAD83)**

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

**Coyote Trails 33S-20-4N**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**18 February, 2019**

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-4N
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-4N	<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-20-4N					
Well Position	+N/-S	0.00 usft	Northing:	1,249,778.71 usft	Latitude:	40.01798
	+E/-W	0.00 usft	Easting:	3,138,053.96 usft	Longitude:	-105.00709
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	5,271.00 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	177.19	

<b>Survey Program</b>	<b>Date</b>	2/18/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
117.00	1,551.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,671.00	17,751.00	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	1.11	121.17	116.99	-0.59	0.97	0.63	0.95	0.95	0.00	
<b>First MWD Survey @ 117' MD</b>										
207.00	1.31	117.67	206.97	-1.52	2.63	1.64	0.24	0.22	-3.89	
298.00	0.61	72.44	297.96	-1.85	4.01	2.05	1.08	-0.77	-49.70	
387.00	0.45	65.29	386.96	-1.56	4.78	1.80	0.19	-0.18	-8.03	
476.00	0.55	167.71	475.95	-1.83	5.19	2.09	0.88	0.11	115.08	
566.00	0.30	178.43	565.95	-2.49	5.29	2.75	0.29	-0.28	11.91	
655.00	0.34	163.90	654.95	-2.98	5.37	3.24	0.10	0.04	-16.33	
744.00	0.29	133.09	743.95	-3.39	5.60	3.66	0.20	-0.06	-34.62	

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<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-4N	<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)
834.00	0.31	123.60	833.95	-3.68	5.97	3.96	0.06	0.02	-10.54
923.00	0.97	239.00	922.94	-4.20	5.53	4.46	1.28	0.74	129.66
1,013.00	1.31	231.26	1,012.93	-5.23	4.07	5.43	0.41	0.38	-8.60
1,102.00	1.28	237.41	1,101.90	-6.41	2.44	6.52	0.16	-0.03	6.91
1,192.00	1.28	240.90	1,191.88	-7.44	0.72	7.46	0.09	0.00	3.88
1,281.00	1.22	235.37	1,280.86	-8.46	-0.93	8.40	0.15	-0.07	-6.21
1,371.00	1.70	211.09	1,370.83	-10.15	-2.41	10.02	0.86	0.53	-26.98
1,461.00	2.35	183.11	1,460.78	-13.13	-3.20	12.96	1.29	0.72	-31.09
1,551.00	4.21	169.25	1,550.63	-18.22	-2.68	18.07	2.23	2.07	-15.40
<b>Meikle 28-1 - Meikle #2</b>									
1,671.00	4.55	165.46	1,670.28	-27.16	-0.67	27.09	0.37	0.28	-3.16
1,761.00	7.42	145.15	1,759.79	-35.38	3.55	35.51	3.92	3.19	-22.57
1,850.00	9.63	147.53	1,847.80	-46.38	10.83	46.85	2.51	2.48	2.67
1,938.00	11.45	150.44	1,934.31	-60.19	19.09	61.05	2.15	2.07	3.31
2,028.00	12.95	151.23	2,022.27	-76.80	28.35	78.10	1.68	1.67	0.88
2,117.00	11.40	149.34	2,109.27	-93.11	37.64	94.84	1.80	-1.74	-2.12
2,206.00	12.86	153.21	2,196.28	-109.52	46.59	111.67	1.88	1.64	4.35
2,295.00	11.75	152.11	2,283.24	-126.37	55.29	128.92	1.27	-1.25	-1.24
2,384.00	13.43	156.52	2,370.10	-143.86	63.65	146.80	2.17	1.89	4.96
2,473.00	12.33	155.24	2,456.85	-161.97	71.75	165.29	1.28	-1.24	-1.44
2,563.00	13.08	155.68	2,544.65	-179.98	79.97	183.67	0.84	0.83	0.49
2,653.00	14.14	154.58	2,632.12	-199.19	88.88	203.30	1.21	1.18	-1.22
2,742.00	12.42	152.11	2,718.74	-217.46	98.03	222.00	2.03	-1.93	-2.78
2,831.00	13.17	150.75	2,805.53	-234.77	107.46	239.75	0.91	0.84	-1.53
2,920.00	11.71	149.60	2,892.44	-251.41	116.98	256.83	1.66	-1.64	-1.29
3,007.00	12.37	152.42	2,977.52	-267.28	125.76	273.12	1.02	0.76	3.24
3,097.00	14.01	155.20	3,065.15	-285.72	134.80	291.97	1.95	1.82	3.09
3,186.00	12.33	154.09	3,151.80	-304.05	143.47	310.70	1.91	-1.89	-1.25
3,275.00	12.28	149.51	3,238.76	-320.75	152.42	327.82	1.10	-0.06	-5.15
3,365.00	13.04	155.95	3,326.58	-338.27	161.42	345.76	1.78	0.84	7.16
3,454.00	14.98	157.97	3,412.93	-358.10	169.83	365.99	2.25	2.18	2.27
3,543.00	14.72	151.76	3,498.96	-378.73	179.49	387.06	1.81	-0.29	-6.98
3,632.00	12.28	152.02	3,585.49	-397.05	189.28	405.84	2.74	-2.74	0.29
3,722.00	12.06	151.05	3,673.47	-413.73	198.32	422.94	0.33	-0.24	-1.08
3,812.00	12.95	152.38	3,761.34	-430.89	207.55	440.54	1.04	0.99	1.48
3,902.00	13.61	149.42	3,848.93	-448.95	217.61	459.06	1.05	0.73	-3.29
3,991.00	11.14	149.95	3,935.85	-465.41	227.25	475.97	2.78	-2.78	0.60
4,080.00	11.31	146.74	4,023.15	-480.15	236.34	491.14	0.73	0.19	-3.61
4,169.00	10.21	156.25	4,110.59	-494.66	244.30	506.03	2.34	-1.24	10.69
4,259.00	12.90	162.91	4,198.77	-511.57	250.47	523.22	3.33	2.99	7.40
4,349.00	14.49	157.18	4,286.21	-531.56	257.79	543.53	2.32	1.77	-6.37
4,438.00	12.99	164.19	4,372.66	-551.45	264.83	563.74	2.52	-1.69	7.88
4,528.00	13.61	159.65	4,460.25	-571.11	271.27	583.70	1.35	0.69	-5.04

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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)
4,618.00	14.14	155.77	4,547.63	-591.06	279.47	604.03	1.19	0.59	-4.31
4,707.00	11.36	157.71	4,634.43	-609.09	287.25	622.42	3.16	-3.12	2.18
4,796.00	13.12	156.17	4,721.40	-626.44	294.66	640.11	2.01	1.98	-1.73
4,886.00	13.96	153.57	4,808.90	-645.50	303.62	659.59	1.15	0.93	-2.89
4,976.00	10.74	157.22	4,896.80	-662.96	311.70	677.42	3.68	-3.58	4.06
5,066.00	12.15	151.49	4,985.02	-679.02	319.47	693.84	2.01	1.57	-6.37
Dump UU 28-10									
5,156.00	15.33	152.02	5,072.43	-697.85	329.58	713.14	3.54	3.53	0.59
5,247.00	17.90	153.30	5,159.62	-720.97	341.50	736.82	2.85	2.82	1.41
5,336.00	15.60	152.60	5,244.84	-743.82	353.16	760.21	2.59	-2.58	-0.79
5,426.00	12.51	149.86	5,332.14	-763.00	363.62	779.88	3.51	-3.43	-3.04
5,516.00	13.43	155.81	5,419.84	-780.96	372.80	798.27	1.80	1.02	6.61
5,606.00	11.53	156.17	5,507.71	-798.73	380.72	816.40	2.11	-2.11	0.40
5,696.00	14.14	161.28	5,595.46	-817.37	387.88	835.37	3.16	2.90	5.68
5,786.00	12.55	160.88	5,683.03	-837.02	394.61	855.33	1.77	-1.77	-0.44
5,875.00	13.74	153.92	5,769.70	-855.65	402.43	874.32	2.22	1.34	-7.82
5,965.00	12.02	149.69	5,857.43	-873.34	411.86	892.45	2.18	-1.91	-4.70
6,055.00	13.61	155.81	5,945.19	-891.10	420.93	910.63	2.32	1.77	6.80
6,145.00	12.33	153.21	6,032.90	-909.33	429.60	929.27	1.56	-1.42	-2.89
6,234.00	11.58	153.48	6,119.96	-925.81	437.87	946.13	0.85	-0.84	0.30
6,324.00	9.68	145.94	6,208.42	-940.16	446.14	960.87	2.61	-2.11	-8.38
6,413.00	9.99	153.04	6,296.12	-953.24	453.83	974.31	1.41	0.35	7.98
6,503.00	9.77	156.96	6,384.78	-967.23	460.36	988.60	0.79	-0.24	4.36
6,592.00	9.28	165.42	6,472.56	-981.12	465.12	1,002.71	1.66	-0.55	9.51
6,682.00	8.79	160.31	6,561.44	-994.62	469.27	1,016.39	1.04	-0.54	-5.68
6,771.00	7.60	162.29	6,649.53	-1,006.63	473.35	1,028.59	1.37	-1.34	2.22
6,861.00	5.83	169.39	6,738.91	-1,016.79	476.00	1,038.87	2.17	-1.97	7.89
6,975.00	4.42	179.96	6,852.46	-1,026.88	477.07	1,048.99	1.48	-1.24	9.27
7,065.00	1.94	189.61	6,942.31	-1,031.85	476.82	1,053.95	2.81	-2.76	10.72
7,155.00	1.55	128.27	7,032.28	-1,034.10	477.52	1,056.23	2.01	-0.43	-68.16
7,245.00	5.66	158.94	7,122.09	-1,039.00	480.07	1,061.25	4.89	4.57	34.08
7,334.00	15.20	170.49	7,209.52	-1,054.64	483.59	1,077.04	10.92	10.72	12.98
EXIST VERT CARR 1 30' Radius									
7,424.00	22.71	180.62	7,294.60	-1,083.70	485.35	1,106.15	9.08	8.34	11.26
EXIST VERT DUMP UU 28-5 30' Radius									
7,506.95	30.00	180.79	7,368.88	-1,120.50	484.89	1,142.88	8.79	8.79	0.20
30° Inclination @ 7506.95' MD									
7,514.00	30.62	180.80	7,374.97	-1,124.05	484.84	1,146.43	8.79	8.79	0.15
7,550.05	32.81	179.72	7,405.63	-1,143.00	484.76	1,165.36	6.27	6.07	-2.99
Cross @ 7550.05' MD - EXIST VERT DUMP UU 28-12 30' Radius									
7,604.00	36.10	178.33	7,450.11	-1,173.52	485.29	1,195.86	6.27	6.10	-2.58
7,694.00	41.10	175.86	7,520.43	-1,229.56	488.20	1,251.98	5.81	5.56	-2.74
7,783.00	48.74	183.36	7,583.45	-1,292.27	488.36	1,314.62	10.43	8.58	8.43
7,873.00	55.24	182.47	7,638.84	-1,363.05	484.78	1,385.14	7.26	7.22	-0.99

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<b>Well:</b>	Coyote Trails 33S-20-4N	<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)
7,962.00	61.87	180.89	7,685.25	-1,438.90	482.59	1,460.80	7.60	7.45	-1.78
8,052.00	64.87	177.98	7,725.59	-1,519.33	483.41	1,541.17	4.41	3.33	-3.23
8,124.70	70.00	176.49	7,753.48	-1,586.36	486.66	1,608.28	7.30	7.05	-2.05
<b>70° Inclination @ 8124.70' MD</b>									
8,141.00	71.15	176.17	7,758.90	-1,601.70	487.65	1,623.65	7.30	7.06	-1.96
8,155.24	72.10	176.16	7,763.39	-1,615.19	488.55	1,637.16	6.67	6.67	-0.05
<b>LP Coyote Trails 33S-20-4N</b>									
8,231.00	77.15	176.13	7,783.47	-1,688.04	493.46	1,710.17	6.67	6.67	-0.04
8,320.00	81.13	176.22	7,800.24	-1,775.24	499.29	1,797.55	4.47	4.47	0.10
8,410.00	87.85	176.48	7,808.87	-1,864.59	504.98	1,887.07	7.47	7.47	0.29
8,500.00	90.19	176.39	7,810.41	-1,954.40	510.58	1,977.04	2.60	2.60	-0.10
8,568.12	91.34	177.51	7,809.51	-2,022.41	514.21	2,045.15	2.35	1.69	1.64
<b>ABND VERT NIVEN GAYLE B 130' Radius</b>									
8,589.00	91.69	177.85	7,808.95	-2,043.27	515.05	2,066.02	2.35	1.69	1.64
8,678.00	94.30	179.61	7,804.30	-2,132.11	517.02	2,154.86	3.54	2.93	1.98
8,768.00	93.42	179.61	7,798.24	-2,221.91	517.63	2,244.57	0.98	-0.98	0.00
8,858.00	93.64	179.08	7,792.70	-2,311.73	518.66	2,334.34	0.64	0.24	-0.59
8,947.00	93.90	178.38	7,786.85	-2,400.51	520.63	2,423.12	0.84	0.29	-0.79
9,037.00	94.52	180.89	7,780.24	-2,490.26	521.20	2,512.78	2.87	0.69	2.79
9,127.00	93.42	181.59	7,774.01	-2,580.02	519.26	2,602.34	1.45	-1.22	0.78
9,217.00	93.06	180.36	7,768.93	-2,669.86	517.73	2,692.00	1.42	-0.40	-1.37
9,307.00	92.84	179.08	7,764.29	-2,759.74	518.17	2,781.79	1.44	-0.24	-1.42
9,397.00	92.14	179.74	7,760.38	-2,849.65	519.09	2,871.64	1.07	-0.78	0.73
9,486.00	92.22	178.86	7,757.00	-2,938.58	520.18	2,960.51	0.99	0.09	-0.99
9,576.00	91.47	178.07	7,754.10	-3,028.50	522.59	3,050.44	1.21	-0.83	-0.88
9,666.00	91.96	179.92	7,751.41	-3,118.44	524.17	3,140.35	2.13	0.54	2.06
9,756.00	92.14	181.90	7,748.19	-3,208.37	522.74	3,230.10	2.21	0.20	2.20
9,779.42	91.68	181.89	7,747.41	-3,231.76	521.97	3,253.43	1.97	-1.97	-0.04
<b>Bickler A Unit 1</b>									
9,846.00	90.37	181.86	7,746.22	-3,298.29	519.79	3,319.78	1.97	-1.97	-0.04
<b>Graeber 42-33</b>									
9,935.00	89.48	181.11	7,746.33	-3,387.26	517.48	3,408.53	1.31	-1.00	-0.84
10,025.00	91.34	179.13	7,745.69	-3,477.25	517.29	3,498.40	3.02	2.07	-2.20
10,114.00	92.75	179.04	7,742.51	-3,566.18	518.71	3,587.29	1.59	1.58	-0.10
10,205.00	92.58	178.51	7,738.28	-3,657.06	520.66	3,678.16	0.61	-0.19	-0.58
10,294.00	93.20	181.15	7,733.79	-3,745.94	520.92	3,766.94	3.04	0.70	2.97
10,384.00	93.95	180.32	7,728.18	-3,835.75	519.77	3,856.59	1.24	0.83	-0.92
10,474.00	92.58	180.67	7,723.06	-3,925.60	518.99	3,946.30	1.57	-1.52	0.39
10,563.00	89.66	182.30	7,721.32	-4,014.54	516.69	4,035.02	3.76	-3.28	1.83
10,653.00	89.53	182.39	7,721.95	-4,104.47	513.00	4,124.65	0.18	-0.14	0.10
10,742.00	87.23	182.39	7,724.47	-4,193.35	509.29	4,213.25	2.58	-2.58	0.00
10,789.32	87.32	182.02	7,726.72	-4,240.58	507.48	4,260.33	0.81	0.20	-0.79
<b>ABND VERT K &amp; R LIVESTOCK COMM 1 30' Radius</b>									
10,832.00	87.41	181.68	7,728.68	-4,283.19	506.10	4,302.83	0.81	0.20	-0.79
10,922.00	89.26	182.08	7,731.29	-4,373.10	503.15	4,392.48	2.10	2.06	0.44

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-4N
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-4N	<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)
11,012.00	89.66	181.46	7,732.14	-4,463.05	500.37	4,482.19	0.82	0.44	-0.69
11,101.00	89.88	180.49	7,732.50	-4,552.04	498.86	4,571.00	1.12	0.25	-1.09
11,191.00	89.70	181.02	7,732.83	-4,642.03	497.67	4,660.82	0.62	-0.20	0.59
11,281.00	87.85	179.83	7,734.75	-4,732.00	497.00	4,750.65	2.44	-2.06	-1.32
11,370.00	88.33	179.26	7,737.72	-4,820.95	497.71	4,839.53	0.84	0.54	-0.64
11,460.00	88.07	178.64	7,740.54	-4,910.89	499.36	4,929.44	0.75	-0.29	-0.69
11,550.00	88.64	180.09	7,743.13	-5,000.84	500.35	5,019.34	1.73	0.63	1.61
ABND VERT BICKLER A UNIT 2 30' Radius									
11,639.00	88.51	179.30	7,745.34	-5,089.81	500.83	5,108.22	0.90	-0.15	-0.89
11,729.00	88.42	178.68	7,747.75	-5,179.77	502.41	5,198.15	0.70	-0.10	-0.69
11,820.00	90.32	179.52	7,748.75	-5,270.74	503.84	5,289.09	2.28	2.09	0.92
11,910.00	90.28	179.30	7,748.28	-5,360.74	504.77	5,379.02	0.25	-0.04	-0.24
11,999.00	89.84	178.90	7,748.19	-5,449.73	506.17	5,467.97	0.67	-0.49	-0.45
12,089.00	89.62	178.60	7,748.61	-5,539.70	508.13	5,557.93	0.41	-0.24	-0.33
ABND VERT KATS B UNIT 1 30' Radius									
12,178.00	90.72	180.18	7,748.35	-5,628.69	509.08	5,646.86	2.16	1.24	1.78
12,267.00	90.99	179.65	7,747.02	-5,717.68	509.21	5,735.75	0.67	0.30	-0.60
12,357.00	90.15	179.70	7,746.12	-5,807.68	509.72	5,825.66	0.93	-0.93	0.06
12,447.00	89.88	179.39	7,746.10	-5,897.67	510.44	5,915.59	0.46	-0.30	-0.34
12,535.00	90.10	178.82	7,746.12	-5,985.66	511.81	6,003.54	0.69	0.25	-0.65
12,624.00	90.28	178.73	7,745.82	-6,074.64	513.71	6,092.50	0.23	0.20	-0.10
12,714.00	89.17	179.74	7,746.25	-6,164.63	514.91	6,182.44	1.67	-1.23	1.12
12,804.00	89.17	179.08	7,747.56	-6,254.62	515.84	6,272.37	0.73	0.00	-0.73
12,893.00	88.95	178.60	7,749.02	-6,343.59	517.64	6,361.32	0.59	-0.25	-0.54
12,982.00	90.01	180.58	7,749.82	-6,432.57	518.28	6,450.23	2.52	1.19	2.22
12,989.43	90.02	180.57	7,749.82	-6,440.00	518.20	6,457.65	0.22	0.20	-0.10
Cross @ 12989.43' MD									
13,072.00	90.19	180.49	7,749.67	-6,522.57	517.44	6,540.08	0.22	0.20	-0.10
13,162.00	90.10	179.87	7,749.44	-6,612.57	517.16	6,629.95	0.70	-0.10	-0.69
13,251.00	89.40	181.37	7,749.83	-6,701.56	516.19	6,718.79	1.86	-0.79	1.69
13,340.00	87.98	181.77	7,751.86	-6,790.50	513.76	6,807.51	1.66	-1.60	0.45
13,428.00	87.50	180.89	7,755.33	-6,878.41	511.71	6,895.21	1.14	-0.55	-1.00
13,518.00	86.74	180.49	7,759.86	-6,968.29	510.63	6,984.93	0.95	-0.84	-0.44
13,607.00	88.56	179.13	7,763.50	-7,057.20	510.93	7,073.75	2.55	2.04	-1.53
13,696.00	88.07	178.60	7,766.12	-7,146.15	512.69	7,162.68	0.81	-0.55	-0.60
13,786.00	90.54	178.95	7,767.21	-7,236.11	514.61	7,252.63	2.77	2.74	0.39
13,876.00	90.81	179.13	7,766.15	-7,326.10	516.12	7,342.57	0.36	0.30	0.20
13,965.00	90.32	180.05	7,765.28	-7,415.09	516.76	7,431.49	1.17	-0.55	1.03
13,980.41	90.08	180.29	7,765.22	-7,430.49	516.71	7,446.88	2.21	-1.58	1.54
ABND VERT ASHER 1 30' Radius									
14,054.00	88.91	181.42	7,765.87	-7,504.07	515.62	7,520.32	2.21	-1.58	1.54
14,144.00	88.20	181.06	7,768.14	-7,594.02	513.67	7,610.06	0.88	-0.79	-0.40
14,234.00	89.62	181.20	7,769.85	-7,683.99	511.89	7,699.83	1.59	1.58	0.16
14,324.00	89.09	180.54	7,770.87	-7,773.97	510.53	7,789.64	0.94	-0.59	-0.73

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-4N
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-4N	<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)
14,414.00	88.56	181.15	7,772.71	-7,863.94	509.20	7,879.44	0.90	-0.59	0.68
14,503.00	88.47	181.15	7,775.02	-7,952.89	507.42	7,968.20	0.10	-0.10	0.00
14,593.00	89.66	180.23	7,776.49	-8,042.87	506.33	8,058.01	1.67	1.32	-1.02
14,682.00	90.32	179.30	7,776.50	-8,131.87	506.70	8,146.92	1.28	0.74	-1.04
14,772.00	90.54	179.26	7,775.83	-8,221.86	507.83	8,236.86	0.25	0.24	-0.04
14,788.31	90.54	179.07	7,775.67	-8,238.17	508.07	8,253.16	1.19	0.00	-1.19
ABND VERT HULSTROM G UNIT 1 30' Radius									
14,841.28	90.54	178.43	7,775.18	-8,291.12	509.22	8,306.11	1.19	0.00	-1.19
Memorial 12-3									
14,861.00	90.54	178.20	7,774.99	-8,310.83	509.80	8,325.82	1.19	0.00	-1.19
14,951.00	90.94	177.89	7,773.83	-8,400.77	512.87	8,415.81	0.56	0.44	-0.34
15,041.00	90.46	176.08	7,772.73	-8,490.64	517.60	8,505.79	2.08	-0.53	-2.01
15,130.00	90.85	177.19	7,771.71	-8,579.48	522.83	8,594.78	1.32	0.44	1.25
15,220.00	89.09	177.45	7,771.76	-8,669.37	527.04	8,684.78	1.98	-1.96	0.29
15,310.00	89.13	176.97	7,773.16	-8,759.26	531.42	8,774.77	0.54	0.04	-0.53
15,400.00	89.04	178.82	7,774.59	-8,849.18	534.72	8,864.75	2.06	-0.10	2.06
15,490.00	88.91	178.24	7,776.20	-8,939.14	537.03	8,954.71	0.66	-0.14	-0.64
15,579.00	88.20	179.21	7,778.45	-9,028.08	539.01	9,043.64	1.35	-0.80	1.09
15,670.00	87.72	178.55	7,781.69	-9,119.01	540.79	9,134.55	0.90	-0.53	-0.73
15,759.00	88.56	179.35	7,784.58	-9,207.94	542.42	9,223.46	1.30	0.94	0.90
15,848.00	88.73	180.05	7,786.68	-9,296.92	542.88	9,312.35	0.81	0.19	0.79
15,938.00	89.17	179.04	7,788.33	-9,386.90	543.60	9,402.25	1.22	0.49	-1.12
16,028.00	89.22	178.90	7,789.59	-9,476.88	545.21	9,492.20	0.17	0.06	-0.16
16,117.00	90.15	179.70	7,790.08	-9,565.87	546.30	9,581.14	1.38	1.04	0.90
16,206.00	90.28	179.26	7,789.75	-9,654.86	547.11	9,670.07	0.52	0.15	-0.49
16,283.71	90.09	178.49	7,789.50	-9,732.55	548.63	9,747.74	1.02	-0.25	-0.99
EXIST VERT NORDSTROM 5-4 30' Radius									
16,295.00	90.06	178.38	7,789.48	-9,743.84	548.94	9,759.03	1.02	-0.25	-0.99
16,385.00	90.50	180.93	7,789.04	-9,833.83	549.48	9,848.94	2.88	0.49	2.83
16,475.00	90.72	180.45	7,788.09	-9,923.82	548.40	9,938.77	0.59	0.24	-0.53
16,564.00	90.68	180.23	7,787.00	-10,012.81	547.87	10,027.63	0.25	-0.04	-0.25
16,653.00	91.21	179.74	7,785.53	-10,101.80	547.90	10,116.51	0.81	0.60	-0.55
16,743.00	90.77	181.11	7,783.98	-10,191.78	547.23	10,206.35	1.60	-0.49	1.52
16,833.00	89.66	179.61	7,783.64	-10,281.77	546.66	10,296.21	2.07	-1.23	-1.67
16,923.00	89.84	179.04	7,784.03	-10,371.77	547.72	10,386.14	0.66	0.20	-0.63
17,012.00	90.15	178.82	7,784.04	-10,460.75	549.38	10,475.10	0.43	0.35	-0.25
17,102.00	90.23	178.38	7,783.74	-10,550.72	551.58	10,565.07	0.50	0.09	-0.49
17,192.00	90.41	177.36	7,783.24	-10,640.66	554.93	10,655.07	1.15	0.20	-1.13
17,192.70	90.41	177.37	7,783.23	-10,641.36	554.96	10,655.77	1.52	0.49	1.44
EXIST VERT NORDSTROM 2-4 30' Radius									
17,281.00	90.85	178.64	7,782.26	-10,729.60	558.03	10,744.05	1.52	0.49	1.44
17,367.63	89.92	179.57	7,781.68	-10,816.21	559.38	10,830.63	1.52	-1.08	1.08
EXIST VERT WEBBER H UNIT 1 30' Radius									
17,371.00	89.88	179.61	7,781.69	-10,819.58	559.41	10,833.99	1.52	-1.08	1.08

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Coyote Trails 33S-20-4N
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Site:</b>	Sec 28-T1N-R68W Coyote Trails	<b>MD Reference:</b>	kb @ 5299.00usft (Ensign 147)
<b>Well:</b>	Coyote Trails 33S-20-4N	<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)
17,461.00	90.01	178.90	7,781.77	-10,909.57	560.58	10,923.94	0.80	0.14	-0.79
17,550.00	89.75	178.42	7,781.96	-10,998.55	562.66	11,012.91	0.61	-0.29	-0.54
17,639.00	89.26	178.24	7,782.73	-11,087.51	565.25	11,101.88	0.59	-0.55	-0.20
17,692.00	88.95	177.63	7,783.56	-11,140.47	567.16	11,154.87	1.29	-0.58	-1.15
<b>Last MWD Survey @ 17692.00' MD</b>									
17,751.00	88.95	177.63	7,784.64	-11,199.41	569.60	11,213.86	0.00	0.00	0.00
<b>Projection to TD @ 17751' MD 200.8' FSL/ 2193.6' FEL - PBHL Coyote Trails 33S-20-4N</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
30° Inclination @ 7506.9 - hit/miss target - Shape - Point	0.00	0.00	7,368.88	-1,120.49	484.89	1,248,660.93	3,138,545.07	40.01490	-105.00536
Cross @ 7550.05' MD - actual wellpath hits target center - Point	0.00	0.00	7,405.63	-1,143.00	484.76	1,248,638.42	3,138,545.06	40.01484	-105.00536
Cross @ 12989.43' MD - actual wellpath hits target center - Point	0.00	0.00	7,749.82	-6,440.00	518.20	1,243,341.69	3,138,607.95	40.00030	-105.00524
70° Inclination @ 8124.7 - actual wellpath misses target center by 0.01usft at 8124.70usft MD (7753.48 TVD, -1586.36 N, 486.66 E) - Point	0.00	0.00	7,753.48	-1,586.36	486.66	1,248,195.08	3,138,549.42	40.01362	-105.00535

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
117.00	116.99	-0.59	0.97	First MWD Survey @ 117' MD
7,506.95	7,368.88	-1,120.50	484.89	30° Inclination @ 7506.95' MD
7,550.05	7,405.63	-1,143.00	484.76	Cross @ 7550.05' MD
8,124.70	7,753.48	-1,586.36	486.66	70° Inclination @ 8124.70' MD
12,989.43	7,749.82	-6,440.00	518.20	Cross @ 12989.43' MD
17,692.00	7,783.56	-11,140.47	567.16	Last MWD Survey @ 17692.00' MD
17,751.00	7,784.64	-11,199.41	569.60	Projection to TD @ 17751' MD 200.8' FSL/ 2193.6' FEL

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