

Extraction Oil & Gas

Weld County, CO (NAD83)

Sec 28-T1N-R68W Coyote Trails

Coyote Trails 33S-20-1N

Wellbore #1

Design: Wellbore #1

Standard Survey Report

11 July, 2019

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-1N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5301.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	KB @ 5301.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-1N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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:	40.017878
From:	Map	Easting:	3,138,161.85 usft	Longitude:	-105.006704
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well	Coyote Trails 33S-20-1N					
Well Position	+N/-S	0.00 usft	Northing:	1,249,778.77 usft	Latitude:	40.017977
	+E/-W	0.00 usft	Easting:	3,137,999.90 usft	Longitude:	-105.007281
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,273.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/6/2019	8.09	66.46	51,899.84194494

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	181.30	

Survey Program	Date	7/11/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
125.30	1,539.30	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,675.00	17,953.00	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	
125.30	0.66	107.04	125.30	-0.21	0.69	0.20	0.53	0.53	0.00	
212.30	0.83	121.63	212.29	-0.69	1.71	0.65	0.29	0.20	16.77	
300.30	0.62	136.48	300.28	-1.37	2.58	1.31	0.32	-0.24	16.88	
387.30	0.09	242.30	387.28	-1.74	2.84	1.68	0.75	-0.61	121.63	
474.30	0.18	259.18	474.28	-1.80	2.65	1.74	0.11	0.10	19.40	
562.30	0.13	277.90	562.28	-1.81	2.41	1.76	0.08	-0.06	21.27	
649.30	0.04	11.86	649.28	-1.77	2.32	1.71	0.16	-0.10	108.00	
736.30	0.09	350.59	736.28	-1.67	2.31	1.62	0.06	0.06	-24.45	
824.30	0.26	327.73	824.28	-1.43	2.20	1.38	0.21	0.19	-25.98	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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)
911.30	0.53	302.51	911.28	-1.05	1.75	1.01	0.36	0.31	-28.99
998.30	0.92	287.13	998.27	-0.63	0.74	0.61	0.50	0.45	-17.68
1,085.30	0.40	234.83	1,085.27	-0.60	-0.17	0.60	0.86	-0.60	-60.11
1,173.30	0.31	235.01	1,173.26	-0.91	-0.62	0.92	0.10	-0.10	0.20
1,260.30	0.62	236.15	1,260.26	-1.31	-1.20	1.34	0.36	0.36	1.31
1,347.30	0.79	232.11	1,347.25	-1.94	-2.07	1.99	0.20	0.20	-4.64
1,434.30	0.53	179.02	1,434.25	-2.71	-2.53	2.77	0.73	-0.30	-61.02
1,522.30	0.88	189.13	1,522.24	-3.78	-2.63	3.84	0.42	0.40	11.49
1,539.30	0.97	192.03	1,539.24	-4.05	-2.68	4.11	0.60	0.53	17.06
Tie into Surface Surveys									
1,675.00	1.28	207.14	1,674.91	-6.53	-3.61	6.61	0.31	0.23	11.13
First MWD Survey @ 1675' MD									
1,765.00	4.51	178.63	1,764.79	-10.96	-3.99	11.05	3.82	3.59	-31.68
1,855.00	8.44	186.96	1,854.20	-21.06	-4.70	21.16	4.48	4.37	9.26
1,944.00	11.89	195.42	1,941.80	-36.38	-7.93	36.55	4.21	3.88	9.51
2,034.00	12.15	196.43	2,029.82	-54.41	-13.08	54.69	0.37	0.29	1.12
2,124.00	12.24	193.66	2,117.79	-72.76	-18.01	73.15	0.66	0.10	-3.08
2,214.00	12.46	203.35	2,205.72	-90.95	-24.11	91.47	2.31	0.24	10.77
2,304.00	11.53	202.65	2,293.75	-108.16	-31.42	108.85	1.05	-1.03	-0.78
2,394.00	11.00	197.45	2,382.02	-124.66	-37.46	125.47	1.27	-0.59	-5.78
2,484.00	12.46	201.77	2,470.14	-141.86	-43.64	142.82	1.89	1.62	4.80
2,573.00	11.67	201.19	2,557.17	-159.17	-50.45	160.28	0.90	-0.89	-0.65
2,663.00	13.70	199.47	2,644.97	-177.71	-57.30	178.96	2.29	2.26	-1.91
2,753.00	12.90	199.17	2,732.56	-197.25	-64.15	198.65	0.89	-0.89	-0.33
2,842.00	11.71	196.43	2,819.51	-215.30	-69.97	216.82	1.49	-1.34	-3.08
2,931.00	10.56	196.08	2,906.84	-231.80	-74.78	233.43	1.29	-1.29	-0.39
3,020.00	11.84	199.56	2,994.14	-248.24	-80.10	249.99	1.63	1.44	3.91
3,290.00	11.84	202.16	3,258.40	-299.99	-99.82	302.17	0.20	0.00	0.96
3,379.00	13.83	196.74	3,345.17	-318.64	-106.33	320.96	2.61	2.24	-6.09
3,468.00	12.42	195.46	3,431.85	-338.05	-111.94	340.50	1.62	-1.58	-1.44
3,558.00	11.09	193.88	3,519.96	-355.78	-116.60	358.33	1.52	-1.48	-1.76
3,647.00	13.26	197.45	3,606.95	-373.83	-121.71	376.49	2.58	2.44	4.01
3,737.00	11.71	197.54	3,694.82	-392.39	-127.56	395.17	1.72	-1.72	0.10
3,826.00	11.36	198.06	3,782.02	-409.33	-133.00	412.24	0.41	-0.39	0.58
3,916.00	13.17	202.07	3,869.97	-427.26	-139.60	430.31	2.22	2.01	4.46
4,005.00	11.84	200.71	3,956.85	-445.20	-146.64	448.40	1.53	-1.49	-1.53
4,095.00	12.81	193.70	4,044.78	-463.53	-152.27	466.86	1.98	1.08	-7.79
4,185.00	15.69	197.93	4,132.01	-484.81	-158.38	488.27	3.40	3.20	4.70
4,275.00	14.36	195.99	4,218.93	-507.12	-165.20	510.72	1.58	-1.48	-2.16
4,364.00	12.15	195.68	4,305.55	-526.75	-170.77	530.48	2.48	-2.48	-0.35
4,453.00	10.61	189.78	4,392.80	-543.84	-174.70	547.65	2.17	-1.73	-6.63
4,543.00	11.84	193.17	4,481.08	-561.00	-178.21	564.88	1.55	1.37	3.77
4,632.00	10.61	192.86	4,568.38	-577.87	-182.11	581.85	1.38	-1.38	-0.35

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Survey									
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4,721.00	12.02	198.28	4,655.65	-594.66	-186.84	598.74	1.98	1.58	6.09
4,810.00	10.47	196.52	4,742.94	-611.22	-192.05	615.41	1.78	-1.74	-1.98
4,900.00	11.14	204.10	4,831.34	-626.99	-197.92	631.31	1.74	0.74	8.42
4,989.00	9.41	204.76	4,918.91	-641.45	-204.48	645.91	1.95	-1.94	0.74
5,102.00	9.46	208.60	5,030.39	-657.99	-212.80	662.64	0.56	0.04	3.40
5,191.00	11.18	196.30	5,117.95	-672.70	-218.72	677.48	3.13	1.93	-13.82
5,281.00	10.03	195.24	5,206.41	-688.63	-223.23	693.51	1.30	-1.28	-1.18
5,371.00	11.22	195.77	5,294.87	-704.62	-227.67	709.59	1.33	1.32	0.59
5,460.00	9.68	196.13	5,382.39	-720.14	-232.10	725.21	1.73	-1.73	0.40
5,549.00	10.65	196.57	5,469.99	-735.22	-236.53	740.38	1.09	1.09	0.49
5,639.00	12.99	198.33	5,558.08	-752.79	-242.08	758.08	2.63	2.60	1.96
5,729.00	12.11	196.52	5,645.93	-771.44	-247.95	776.86	1.07	-0.98	-2.01
5,818.00	10.47	194.10	5,733.20	-788.24	-252.57	793.75	1.92	-1.84	-2.72
5,908.00	11.98	196.83	5,821.48	-805.11	-257.27	810.73	1.78	1.68	3.03
5,997.00	10.34	193.13	5,908.80	-821.73	-261.76	827.45	2.01	-1.84	-4.16
6,087.00	12.11	194.54	5,997.07	-838.74	-265.96	844.54	1.99	1.97	1.57
6,177.00	10.83	194.27	6,085.27	-856.07	-270.42	861.97	1.42	-1.42	-0.30
6,266.00	12.15	194.85	6,172.49	-873.23	-274.88	879.23	1.49	1.48	0.65
6,356.00	10.56	192.16	6,260.72	-890.45	-279.04	896.53	1.86	-1.77	-2.99
6,445.00	12.02	200.88	6,348.00	-907.08	-284.06	913.28	2.52	1.64	9.80
6,535.00	10.65	196.61	6,436.25	-923.81	-289.78	930.13	1.78	-1.52	-4.74
6,624.00	8.93	192.03	6,523.95	-938.44	-293.57	944.85	2.12	-1.93	-5.15
6,714.00	7.73	190.22	6,613.00	-951.23	-296.10	957.69	1.36	-1.33	-2.01
6,804.00	6.23	190.75	6,702.33	-961.99	-298.09	968.49	1.67	-1.67	0.59
6,893.00	4.64	190.84	6,790.93	-970.27	-299.67	976.80	1.79	-1.79	0.10
6,983.00	3.45	187.00	6,880.70	-976.53	-300.68	983.09	1.36	-1.32	-4.27
7,072.00	2.65	183.43	6,969.57	-981.24	-301.13	987.81	0.92	-0.90	-4.01
7,162.00	1.99	189.69	7,059.50	-984.86	-301.52	991.43	0.78	-0.73	6.96
7,251.00	0.97	258.61	7,148.47	-986.53	-302.52	993.13	2.11	-1.15	77.44
7,341.00	1.10	261.26	7,238.46	-986.81	-304.12	993.44	0.15	0.14	2.94
7,431.00	8.09	201.37	7,328.13	-992.85	-307.28	999.55	8.44	7.77	-66.54
7,521.00	20.72	187.53	7,415.15	-1,014.63	-311.70	1,021.42	14.45	14.03	-15.38
7,610.00	28.02	182.82	7,496.17	-1,051.17	-314.79	1,058.02	8.48	8.20	-5.29
7,647.75	29.99	181.66	7,529.19	-1,069.46	-315.50	1,076.32	5.44	5.23	-3.08
30° Inclination @ 7647.75' MD									
7,700.00	32.74	180.26	7,573.80	-1,096.65	-315.94	1,103.52	5.44	5.26	-2.67
7,789.00	39.33	175.55	7,645.74	-1,148.90	-313.86	1,155.71	8.03	7.40	-5.29
7,792.32	39.57	175.46	7,648.31	-1,151.00	-313.70	1,157.81	7.36	7.14	-2.82
Cross @ 7792.32' MD									
7,879.00	45.78	173.30	7,712.01	-1,209.43	-307.88	1,216.09	7.36	7.17	-2.49
7,968.00	51.79	174.93	7,770.62	-1,276.00	-301.06	1,282.48	6.89	6.75	1.83
8,058.00	64.43	177.84	7,818.08	-1,352.10	-296.39	1,358.46	14.31	14.04	3.23
8,128.51	70.00	179.51	7,845.38	-1,417.06	-294.90	1,423.38	8.19	7.90	2.37
70° Inclination @ 8128.51' MD									

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8,148.00	71.54	179.95	7,851.80	-1,435.47	-294.82	1,441.77	8.19	7.91	2.26	
8,237.00	76.98	180.75	7,875.93	-1,521.09	-295.35	1,527.39	6.17	6.11	0.90	
8,326.00	79.19	182.77	7,894.31	-1,608.13	-298.03	1,614.46	3.33	2.48	2.27	
8,415.00	85.46	180.83	7,906.19	-1,696.24	-300.79	1,702.61	7.37	7.04	-2.18	
8,504.00	89.26	178.90	7,910.29	-1,785.12	-300.58	1,791.47	4.79	4.27	-2.17	
8,593.00	89.84	179.25	7,910.99	-1,874.11	-299.14	1,880.40	0.76	0.65	0.39	
8,683.00	90.19	178.63	7,910.96	-1,964.09	-297.47	1,970.32	0.79	0.39	-0.69	
8,772.00	89.79	180.22	7,910.98	-2,053.08	-296.58	2,059.27	1.84	-0.45	1.79	
8,862.00	90.37	181.27	7,910.85	-2,143.07	-297.75	2,149.26	1.33	0.64	1.17	
8,953.00	90.10	181.58	7,910.48	-2,234.04	-300.01	2,240.26	0.45	-0.30	0.34	
9,043.00	89.40	180.97	7,910.87	-2,324.02	-302.02	2,330.26	1.03	-0.78	-0.68	
9,133.00	89.44	180.61	7,911.78	-2,414.01	-303.26	2,420.25	0.40	0.04	-0.40	
9,222.00	91.43	180.92	7,911.11	-2,502.99	-304.45	2,509.24	2.26	2.24	0.35	
9,311.00	90.63	180.04	7,909.51	-2,591.97	-305.19	2,598.22	1.34	-0.90	-0.99	
9,401.00	89.66	178.59	7,909.28	-2,681.96	-304.12	2,688.16	1.94	-1.08	-1.61	
9,491.00	89.93	178.85	7,909.60	-2,771.94	-302.10	2,778.07	0.42	0.30	0.29	
9,581.00	89.40	179.51	7,910.13	-2,861.93	-300.82	2,868.00	0.94	-0.59	0.73	
9,670.00	90.01	181.01	7,910.59	-2,950.92	-301.22	2,956.98	1.82	0.69	1.69	
9,759.00	89.75	181.14	7,910.77	-3,039.91	-302.89	3,045.98	0.33	-0.29	0.15	
9,848.00	92.00	181.72	7,909.42	-3,128.86	-305.11	3,134.97	2.61	2.53	0.65	
9,938.00	92.58	181.10	7,905.82	-3,218.76	-307.32	3,224.89	0.94	0.64	-0.69	
10,028.00	89.93	182.60	7,903.85	-3,308.68	-310.23	3,314.86	3.38	-2.94	1.67	
10,117.00	90.19	181.98	7,903.75	-3,397.61	-313.78	3,403.84	0.76	0.29	-0.70	
10,206.00	89.66	181.58	7,903.87	-3,486.57	-316.55	3,492.84	0.75	-0.60	-0.45	
10,295.00	88.95	181.89	7,904.95	-3,575.52	-319.24	3,581.83	0.87	-0.80	0.35	
10,385.00	88.33	181.41	7,907.09	-3,665.46	-321.83	3,671.80	0.87	-0.69	-0.53	
10,475.00	89.62	179.12	7,908.70	-3,755.43	-322.25	3,761.76	2.92	1.43	-2.54	
10,564.00	89.26	179.07	7,909.57	-3,844.42	-320.84	3,850.69	0.41	-0.40	-0.06	
10,653.00	89.17	178.41	7,910.79	-3,933.39	-318.89	3,939.60	0.75	-0.10	-0.74	
10,742.00	89.31	177.49	7,911.97	-4,022.32	-315.70	4,028.44	1.05	0.16	-1.03	
10,831.00	89.44	176.96	7,912.94	-4,111.21	-311.40	4,117.21	0.61	0.15	-0.60	
10,920.00	90.06	178.94	7,913.33	-4,200.15	-308.21	4,206.05	2.33	0.70	2.22	
11,010.00	90.37	178.28	7,912.99	-4,290.12	-306.03	4,295.95	0.81	0.34	-0.73	
11,099.00	90.90	178.19	7,912.00	-4,379.07	-303.29	4,384.82	0.60	0.60	-0.10	
11,189.00	91.78	178.01	7,909.90	-4,469.00	-300.31	4,474.65	1.00	0.98	-0.20	
11,279.00	89.75	180.57	7,908.70	-4,558.97	-299.19	4,564.57	3.63	-2.26	2.84	
11,367.00	89.48	179.91	7,909.29	-4,646.97	-299.56	4,652.56	0.81	-0.31	-0.75	
11,457.00	89.04	179.82	7,910.45	-4,736.96	-299.35	4,742.52	0.50	-0.49	-0.10	
11,548.00	88.95	179.42	7,912.05	-4,827.94	-298.74	4,833.47	0.45	-0.10	-0.44	
11,636.00	89.13	179.78	7,913.52	-4,915.93	-298.13	4,921.42	0.46	0.20	0.41	
11,725.00	89.84	178.85	7,914.32	-5,004.92	-297.07	5,010.36	1.31	0.80	-1.04	
11,815.00	89.79	178.54	7,914.61	-5,094.89	-295.02	5,100.27	0.35	-0.06	-0.34	
11,905.00	89.79	178.28	7,914.94	-5,184.86	-292.52	5,190.15	0.29	0.00	-0.29	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-1N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5301.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	KB @ 5301.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-1N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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)
11,995.00	89.62	177.57	7,915.40	-5,274.80	-289.26	5,279.99	0.81	-0.19	-0.79
12,085.00	88.91	178.01	7,916.56	-5,364.72	-285.79	5,369.82	0.93	-0.79	0.49
12,174.00	90.54	180.22	7,916.99	-5,453.70	-284.42	5,458.74	3.09	1.83	2.48
12,264.00	90.81	179.78	7,915.92	-5,543.70	-284.42	5,548.71	0.57	0.30	-0.49
12,354.00	91.25	180.57	7,914.31	-5,633.68	-284.69	5,638.68	1.00	0.49	0.88
12,443.00	92.27	180.79	7,911.57	-5,722.63	-285.75	5,727.63	1.17	1.15	0.25
12,533.00	90.90	182.24	7,909.08	-5,812.56	-288.12	5,817.59	2.22	-1.52	1.61
12,622.00	89.00	181.54	7,909.16	-5,901.51	-291.06	5,906.58	2.28	-2.13	-0.79
12,712.00	89.57	180.66	7,910.28	-5,991.48	-292.79	5,996.57	1.16	0.63	-0.98
12,801.00	87.19	180.17	7,912.80	-6,080.44	-293.43	6,085.52	2.73	-2.67	-0.55
12,890.00	87.67	179.91	7,916.79	-6,169.35	-293.49	6,174.41	0.61	0.54	-0.29
12,980.00	88.07	179.12	7,920.14	-6,259.28	-292.73	6,264.30	0.98	0.44	-0.88
13,069.00	88.60	178.37	7,922.72	-6,348.22	-290.78	6,353.18	1.03	0.60	-0.84
13,159.00	88.86	178.63	7,924.72	-6,438.17	-288.43	6,443.05	0.41	0.29	0.29
13,161.83	88.89	178.64	7,924.77	-6,441.00	-288.36	6,445.87	1.02	1.00	0.19
Cross @ 13161.83' MD									
13,248.00	89.75	178.80	7,925.80	-6,527.14	-286.43	6,531.95	1.02	1.00	0.19
13,338.00	89.93	178.15	7,926.05	-6,617.11	-284.04	6,621.84	0.75	0.20	-0.72
13,428.00	88.11	180.97	7,927.59	-6,707.08	-283.35	6,711.77	3.73	-2.02	3.13
13,517.00	88.07	181.05	7,930.55	-6,796.01	-284.91	6,800.72	0.10	-0.04	0.09
13,607.00	88.47	181.14	7,933.27	-6,885.96	-286.63	6,890.68	0.46	0.44	0.10
13,696.00	89.04	180.44	7,935.20	-6,974.93	-287.86	6,979.65	1.01	0.64	-0.79
13,786.00	89.09	180.61	7,936.67	-7,064.91	-288.68	7,069.63	0.20	0.06	0.19
13,875.00	89.31	179.78	7,937.92	-7,153.90	-288.99	7,158.61	0.96	0.25	-0.93
13,965.00	89.00	179.38	7,939.24	-7,243.89	-288.33	7,248.56	0.56	-0.34	-0.44
14,055.00	88.47	179.20	7,941.23	-7,333.86	-287.21	7,338.48	0.62	-0.59	-0.20
14,144.00	87.67	178.54	7,944.23	-7,422.79	-285.46	7,427.35	1.17	-0.90	-0.74
14,233.00	87.76	180.13	7,947.78	-7,511.71	-284.43	7,516.22	1.79	0.10	1.79
14,323.00	91.30	182.33	7,948.51	-7,601.67	-286.36	7,606.20	4.63	3.93	2.44
14,412.00	90.59	183.04	7,947.05	-7,690.56	-290.53	7,695.16	1.13	-0.80	0.80
14,502.00	89.48	182.99	7,946.99	-7,780.43	-295.26	7,785.12	1.23	-1.23	-0.06
14,591.00	89.00	182.51	7,948.17	-7,869.32	-299.53	7,874.08	0.76	-0.54	-0.54
14,681.00	90.50	181.41	7,948.57	-7,959.26	-302.61	7,964.07	2.07	1.67	-1.22
14,771.00	90.94	180.53	7,947.43	-8,049.24	-304.13	8,054.06	1.09	0.49	-0.98
14,860.00	90.63	180.61	7,946.21	-8,138.23	-305.02	8,143.05	0.36	-0.35	0.09
14,950.00	90.59	179.95	7,945.26	-8,228.22	-305.46	8,233.03	0.73	-0.04	-0.73
15,039.00	90.46	179.20	7,944.44	-8,317.21	-304.80	8,321.98	0.86	-0.15	-0.84
15,129.00	90.63	178.41	7,943.59	-8,407.19	-302.92	8,411.89	0.90	0.19	-0.88
15,218.00	90.46	178.28	7,942.74	-8,496.15	-300.35	8,500.77	0.24	-0.19	-0.15
15,308.00	90.46	177.00	7,942.02	-8,586.07	-296.64	8,590.58	1.42	0.00	-1.42
15,398.00	89.79	176.87	7,941.82	-8,675.94	-291.83	8,680.32	0.76	-0.74	-0.14
15,488.00	88.95	176.43	7,942.81	-8,765.78	-286.57	8,770.02	1.05	-0.93	-0.49
15,576.00	89.70	180.70	7,943.85	-8,853.72	-284.37	8,857.89	4.93	0.85	4.85
15,666.00	89.17	180.97	7,944.73	-8,943.71	-285.68	8,947.88	0.66	-0.59	0.30

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-1N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5301.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	KB @ 5301.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-1N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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)	
15,755.00	89.17	180.57	7,946.02	-9,032.69	-286.88	9,036.87	0.45	0.00	-0.45	
15,844.00	89.35	181.23	7,947.17	-9,121.67	-288.28	9,125.86	0.77	0.20	0.74	
15,933.00	89.75	180.97	7,947.87	-9,210.65	-289.98	9,214.86	0.54	0.45	-0.29	
16,022.00	89.57	181.27	7,948.40	-9,299.63	-291.72	9,303.85	0.39	-0.20	0.34	
16,111.00	89.57	180.53	7,949.07	-9,388.62	-293.12	9,392.85	0.83	0.00	-0.83	
16,200.00	89.62	180.53	7,949.70	-9,477.61	-293.94	9,481.84	0.06	0.06	0.00	
16,289.00	90.19	180.88	7,949.84	-9,566.61	-295.04	9,570.83	0.75	0.64	0.39	
16,378.00	90.50	180.35	7,949.31	-9,655.60	-296.00	9,659.82	0.69	0.35	-0.60	
16,468.00	90.15	180.66	7,948.80	-9,745.59	-296.79	9,749.81	0.52	-0.39	0.34	
16,557.00	91.12	179.12	7,947.81	-9,834.58	-296.62	9,838.78	2.04	1.09	-1.73	
16,646.00	91.69	178.94	7,945.63	-9,923.54	-295.11	9,927.68	0.67	0.64	-0.20	
16,736.00	89.40	180.35	7,944.77	-10,013.53	-294.55	10,017.63	2.99	-2.54	1.57	
16,825.00	89.88	179.60	7,945.33	-10,102.53	-294.52	10,106.61	1.00	0.54	-0.84	
16,914.00	90.15	180.08	7,945.31	-10,191.53	-294.27	10,195.58	0.62	0.30	0.54	
17,004.00	89.26	177.53	7,945.77	-10,281.50	-292.39	10,285.48	3.00	-0.99	-2.83	
17,093.00	88.73	178.10	7,947.33	-10,370.42	-289.00	10,374.30	0.87	-0.60	0.64	
17,182.00	88.56	177.97	7,949.44	-10,459.34	-285.95	10,463.13	0.24	-0.19	-0.15	
17,271.00	88.29	177.35	7,951.88	-10,548.23	-282.31	10,551.92	0.76	-0.30	-0.70	
17,361.00	91.30	177.84	7,952.21	-10,638.14	-278.54	10,641.72	3.39	3.34	0.54	
17,450.00	91.56	177.44	7,949.99	-10,727.04	-274.87	10,730.51	0.54	0.29	-0.45	
17,539.00	91.52	176.74	7,947.59	-10,815.89	-270.36	10,819.24	0.79	-0.04	-0.79	
17,629.00	91.69	176.69	7,945.07	-10,905.71	-265.20	10,908.92	0.20	0.19	-0.06	
17,719.00	92.71	176.87	7,941.62	-10,995.50	-260.15	10,998.57	1.15	1.13	0.20	
17,808.00	90.19	178.50	7,939.37	-11,084.39	-256.56	11,087.36	3.37	-2.83	1.83	
17,890.00	90.19	179.29	7,939.09	-11,166.37	-254.98	11,169.28	0.96	0.00	0.96	
Last MWD Survey @ 17890' MD										
17,953.00	90.19	179.29	7,938.88	-11,229.37	-254.20	11,232.24	0.00	0.00	0.00	
Projection to TD @ 17953' MD 170' FSL/ 2144' FWL										

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Coyote Trails 33S-20-1N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5301.00usft (Ensign 147)
Site:	Sec 28-T1N-R68W Coyote Trails	MD Reference:	KB @ 5301.00usft (Ensign 147)
Well:	Coyote Trails 33S-20-1N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

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 @ 7647.7 - actual wellpath misses target center by 0.01usft at 7647.75usft MD (7529.19 TVD, -1069.46 N, -315.50 E) - Point	0.00	0.00	7,529.19	-1,069.46	-315.52	1,248,707.58	3,137,690.33	40.015041	-105.008408
Cross @ 7792.32' MD - actual wellpath hits target center - Point	0.00	0.00	7,648.30	-1,151.00	-313.70	1,248,626.05	3,137,692.61	40.014817	-105.008401
70° Inclination @ 8128.5 - actual wellpath misses target center by 0.01usft at 8128.51usft MD (7845.38 TVD, -1417.06 N, -294.90 E) - Point	0.00	0.00	7,845.38	-1,417.06	-294.89	1,248,360.10	3,137,712.88	40.014087	-105.008334
Cross @ 13161.83' MD - actual wellpath hits target center - Point	0.00	0.00	7,924.77	-6,441.00	-288.36	1,243,336.27	3,137,747.33	40.000295	-105.008311

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,539.30	1,539.24	-4.05	-2.68	Tie into Surface Surveys	
1,675.00	1,674.91	-6.53	-3.61	First MWD Survey @ 1675' MD	
7,647.75	7,529.19	-1,069.46	-315.50	30° Inclination @ 7647.75' MD	
7,792.32	7,648.31	-1,151.00	-313.70	Cross @ 7792.32' MD	
8,128.51	7,845.38	-1,417.06	-294.90	70° Inclination @ 8128.51' MD	
13,161.83	7,924.77	-6,441.00	-288.36	Cross @ 13161.83' MD	
17,890.00	7,939.09	-11,166.37	-254.98	Last MWD Survey @ 17890' MD	
17,953.00	7,938.88	-11,229.37	-254.20	Projection to TD @ 17953' MD 170' FSL/ 2144' FWL	

Checked By: _____	Approved By: _____	Date: _____
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