

Extraction Oil & Gas

Weld County, CO (NAD83)

Rinn Valley East Pad (Sec.18-T2N-R68W)

Rinn Valley East N17-20-12N

Wellbore #1

Design: Wellbore #1

Standard Survey Report

30 July, 2018

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-12N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Well:	Rinn Valley East N17-20-12N	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	Rinn Valley East Pad (Sec.18-T2N-R68W)				
Site Position:		Northing:	1,291,282.60 usft	Latitude:	40.13204
From:	Map	Easting:	3,128,935.11 usft	Longitude:	-105.03888
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "	Grid Convergence:	0.30 °

Well	Rinn Valley East N17-20-12N					
Well Position	+N/-S	0.00 ft	Northing:	1,291,283.17 usfi	Latitude:	40.13204
	+E/-W	0.00 ft	Easting:	3,129,047.24 usfi	Longitude:	-105.03848
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,937.60 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	6/29/2018	8.48	66.52	52,020

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.00	0.00	0.00	12.87	

Survey Program	Date	7/30/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
88.00	1,577.00	Surface (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,650.00	17,846.00	MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88.00	0.81	124.27	88.00	-0.35	0.51	-0.23	0.92	0.92	0.00
150.00	0.95	140.15	149.99	-0.99	1.21	-0.70	0.45	0.23	25.61
232.00	0.59	150.33	231.98	-1.88	1.85	-1.42	0.47	-0.44	12.41
316.00	0.13	253.77	315.98	-2.28	1.97	-1.79	0.75	-0.55	123.14
401.00	0.99	80.57	400.98	-2.19	2.60	-1.55	1.32	1.01	-203.77
485.00	2.21	95.28	484.94	-2.22	4.93	-1.07	1.52	1.45	17.51
569.00	2.99	88.05	568.86	-2.29	8.74	-0.29	1.01	0.93	-8.61
654.00	5.24	83.24	653.63	-1.76	14.81	1.58	2.68	2.65	-5.66
738.00	7.18	81.52	737.14	-0.54	23.81	4.78	2.32	2.31	-2.05

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-12N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Well:	Rinn Valley East N17-20-12N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
822.00	8.79	90.45	820.32	0.19	35.42	8.07	2.41	1.92	10.63
907.00	9.90	96.15	904.19	-0.65	49.18	10.32	1.70	1.31	6.71
990.00	11.56	100.39	985.74	-2.91	64.45	11.52	2.21	2.00	5.11
1,074.00	13.05	102.26	1,067.81	-6.44	82.00	11.98	1.84	1.77	2.23
1,159.00	14.11	103.10	1,150.43	-10.83	101.47	12.04	1.27	1.25	0.99
1,244.00	15.72	104.31	1,232.57	-16.02	122.72	11.71	1.93	1.89	1.42
1,330.00	17.16	102.48	1,315.05	-21.64	146.40	11.50	1.78	1.67	-2.13
1,414.00	19.49	102.74	1,394.78	-27.41	172.17	11.61	2.78	2.77	0.31
1,497.00	20.93	100.82	1,472.67	-33.25	200.24	12.17	1.91	1.73	-2.31
1,577.00	23.18	98.16	1,546.81	-38.17	229.86	13.97	3.08	2.81	-3.33
Tie in to Surface Surveys @ 1577'MD									
1,650.00	24.53	96.61	1,613.58	-41.95	259.14	16.80	2.04	1.85	-2.12
First MWD Survey @ 1650'MD									
1,744.00	23.20	93.84	1,699.54	-45.44	297.00	21.84	1.85	-1.41	-2.95
1,838.00	23.55	94.81	1,785.83	-48.25	334.19	27.37	0.55	0.37	1.03
1,932.00	25.23	97.85	1,871.44	-52.56	372.75	31.76	2.23	1.79	3.23
2,026.00	25.45	100.18	1,956.40	-58.87	412.47	34.45	1.09	0.23	2.48
2,120.00	26.96	98.91	2,040.73	-65.74	453.41	36.87	1.71	1.61	-1.35
2,213.00	25.81	96.31	2,124.05	-71.23	494.36	40.64	1.75	-1.24	-2.80
2,308.00	26.20	97.76	2,209.43	-76.34	535.70	44.87	0.79	0.41	1.53
2,402.00	27.22	100.05	2,293.40	-82.89	577.43	47.77	1.54	1.09	2.44
2,496.00	25.98	98.91	2,377.45	-89.83	618.94	50.25	1.43	-1.32	-1.21
2,590.00	27.00	102.04	2,461.58	-97.47	660.15	51.97	1.84	1.09	3.33
2,684.00	25.81	101.33	2,545.77	-105.94	701.08	52.83	1.31	-1.27	-0.76
2,778.00	26.82	99.13	2,630.03	-113.33	742.09	54.76	1.49	1.07	-2.34
2,872.00	25.41	98.55	2,714.44	-119.69	782.97	57.66	1.52	-1.50	-0.62
2,966.00	26.78	97.72	2,798.85	-125.54	823.90	61.08	1.51	1.46	-0.88
3,060.00	25.28	96.48	2,883.32	-130.65	864.83	65.21	1.70	-1.60	-1.32
3,154.00	26.47	95.42	2,967.89	-134.89	905.63	70.16	1.36	1.27	-1.13
3,248.00	26.73	96.31	3,051.94	-139.19	947.50	75.29	0.51	0.28	0.95
3,341.00	26.56	99.17	3,135.07	-144.80	988.81	79.01	1.39	-0.18	3.08
3,435.00	26.43	99.66	3,219.20	-151.66	1,030.18	81.54	0.27	-0.14	0.52
3,529.00	26.25	99.39	3,303.44	-158.57	1,071.32	83.97	0.23	-0.19	-0.29
3,623.00	25.67	97.50	3,387.95	-164.61	1,112.01	87.13	1.07	-0.62	-2.01
3,718.00	25.76	98.47	3,473.55	-170.34	1,152.83	90.64	0.45	0.09	1.02
3,812.00	26.38	98.91	3,557.98	-176.58	1,193.67	93.65	0.69	0.66	0.47
3,906.00	26.69	97.06	3,642.08	-182.41	1,235.25	97.22	0.94	0.33	-1.97
4,000.00	26.78	95.87	3,726.03	-187.17	1,277.27	101.94	0.58	0.10	-1.27
4,095.00	27.62	96.61	3,810.53	-191.90	1,320.43	106.95	0.95	0.88	0.78
4,189.00	25.90	96.22	3,894.46	-196.63	1,362.49	111.70	1.84	-1.83	-0.41
4,284.00	27.75	98.07	3,979.23	-201.98	1,405.02	115.95	2.14	1.95	1.95
4,378.00	25.72	97.63	4,063.18	-207.76	1,446.90	119.64	2.17	-2.16	-0.47
4,472.00	25.81	96.48	4,147.83	-212.78	1,487.45	123.78	0.54	0.10	-1.22

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-12N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Well:	Rinn Valley East N17-20-12N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,566.00	25.90	96.26	4,232.42	-217.33	1,528.19	128.41	0.14	0.10	-0.23
4,660.00	27.09	97.94	4,316.55	-222.53	1,569.80	132.61	1.50	1.27	1.79
4,754.00	28.28	97.63	4,399.79	-228.44	1,613.07	136.48	1.28	1.27	-0.33
4,849.00	26.65	97.54	4,484.08	-234.22	1,656.50	140.52	1.72	-1.72	-0.09
4,943.00	25.94	96.88	4,568.35	-239.45	1,697.81	144.62	0.82	-0.76	-0.70
5,037.00	24.79	96.75	4,653.29	-244.23	1,737.79	148.86	1.22	-1.22	-0.14
5,130.00	25.23	97.76	4,737.57	-249.20	1,776.79	152.70	0.66	0.47	1.09
5,225.00	27.49	98.69	4,822.68	-255.25	1,818.54	156.10	2.42	2.38	0.98
5,319.00	27.62	100.01	4,906.02	-262.31	1,861.44	158.77	0.66	0.14	1.40
5,413.00	24.92	99.04	4,990.31	-269.21	1,902.46	161.17	2.91	-2.87	-1.03
5,507.00	24.70	96.48	5,075.63	-274.54	1,941.54	164.68	1.17	-0.23	-2.72
5,695.00	24.57	96.35	5,246.52	-283.30	2,019.41	173.49	0.07	-0.07	-0.07
5,789.00	25.67	96.35	5,331.63	-287.71	2,059.07	178.01	1.17	1.17	0.00
5,883.00	23.33	95.95	5,417.16	-291.89	2,097.82	182.57	2.50	-2.49	-0.43
5,977.00	21.87	96.61	5,503.94	-295.84	2,133.73	186.72	1.58	-1.55	0.70
6,071.00	18.56	101.90	5,592.15	-300.94	2,165.77	188.88	4.02	-3.52	5.63
6,165.00	16.22	102.34	5,681.84	-306.83	2,193.24	189.25	2.49	-2.49	0.47
6,259.00	14.18	100.14	5,772.55	-311.66	2,217.40	189.92	2.25	-2.17	-2.34
6,352.00	11.62	98.86	5,863.20	-315.11	2,237.87	191.11	2.77	-2.75	-1.38
6,447.00	8.48	96.88	5,956.73	-317.43	2,254.28	192.51	3.32	-3.31	-2.08
6,541.00	6.01	96.57	6,049.97	-318.82	2,266.05	193.78	2.63	-2.63	-0.33
6,635.00	3.84	90.49	6,143.62	-319.41	2,274.09	194.99	2.37	-2.31	-6.47
6,729.00	2.08	104.33	6,237.49	-319.86	2,278.89	195.62	2.01	-1.87	14.72
6,823.00	0.40	68.32	6,331.46	-320.16	2,280.85	195.76	1.89	-1.79	-38.31
6,917.00	0.57	355.60	6,425.46	-319.57	2,281.12	196.40	0.63	0.18	-77.36
7,011.00	0.97	328.98	6,519.45	-318.42	2,280.67	197.42	0.56	0.43	-28.32
7,129.00	1.06	299.50	6,637.44	-317.03	2,279.21	198.45	0.44	0.08	-24.98
7,223.00	1.77	288.70	6,731.41	-316.14	2,277.08	198.84	0.80	0.76	-11.49
7,317.00	3.76	355.47	6,825.31	-312.60	2,275.46	201.93	3.69	2.12	71.03
7,411.00	12.73	1.55	6,918.25	-299.14	2,275.49	215.06	9.57	9.54	6.47
7,505.00	20.02	4.76	7,008.37	-272.72	2,277.11	241.18	7.81	7.76	3.41
7,599.00	28.55	2.87	7,093.98	-234.18	2,279.58	279.30	9.11	9.07	-2.01
7,614.19	30.00	2.32	7,107.23	-226.76	2,279.91	286.61	9.68	9.52	-3.65
30°Inclination @ 7614'MD									
7,678.47	36.13	0.42	7,161.07	-191.72	2,280.70	320.95	9.68	9.55	-2.95
EL Sec. 17 @ 7678'MD									
7,692.00	37.43	0.09	7,171.91	-183.62	2,280.73	328.85	9.68	9.57	-2.43
7,786.00	46.58	1.81	7,241.69	-120.79	2,281.86	390.35	9.81	9.73	1.83
7,880.00	56.74	0.71	7,299.92	-47.18	2,283.43	462.46	10.85	10.81	-1.17
7,974.00	64.16	1.42	7,346.25	34.52	2,284.97	542.45	7.92	7.89	0.76
8,037.39	70.00	1.78	7,370.93	92.86	2,286.60	599.69	9.23	9.21	0.56
70°Inclination @ 8037'MD									
8,068.00	72.82	1.94	7,380.68	121.85	2,287.54	628.17	9.23	9.21	0.53
8,162.00	76.85	1.50	7,405.27	212.52	2,290.26	717.16	4.31	4.29	-0.47

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-12N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Well:	Rinn Valley East N17-20-12N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,256.00	85.42	359.04	7,419.75	305.30	2,290.67	807.71	9.48	9.12	-2.62
8,349.00	91.60	357.45	7,422.16	398.18	2,287.83	897.62	6.86	6.65	-1.71
8,443.00	91.43	358.51	7,419.68	492.08	2,284.51	988.43	1.14	-0.18	1.13
8,536.00	91.16	1.11	7,417.57	585.05	2,284.21	1,078.99	2.81	-0.29	2.80
8,630.00	91.65	0.98	7,415.27	679.01	2,285.92	1,170.97	0.54	0.52	-0.14
8,724.00	90.90	1.06	7,413.18	772.97	2,287.59	1,262.95	0.80	-0.80	0.09
8,818.00	90.01	0.01	7,412.43	866.96	2,288.47	1,354.77	1.46	-0.95	-1.12
8,913.00	90.85	359.79	7,411.72	961.96	2,288.30	1,447.35	0.91	0.88	-0.23
9,008.00	90.54	0.09	7,410.57	1,056.95	2,288.20	1,539.93	0.45	-0.33	0.32
9,102.00	90.94	1.86	7,409.35	1,150.92	2,289.80	1,631.91	1.93	0.43	1.88
9,196.00	90.32	1.64	7,408.32	1,244.87	2,292.67	1,724.14	0.70	-0.66	-0.23
9,290.00	89.48	0.31	7,408.48	1,338.86	2,294.27	1,816.12	1.67	-0.89	-1.41
9,384.00	89.97	359.08	7,408.93	1,432.85	2,293.77	1,907.64	1.41	0.52	-1.31
9,479.00	90.41	359.17	7,408.62	1,527.84	2,292.32	1,999.92	0.47	0.46	0.09
9,573.00	91.74	359.56	7,406.86	1,621.81	2,291.28	2,091.30	1.47	1.41	0.41
9,668.00	90.72	358.42	7,404.82	1,716.78	2,289.61	2,183.51	1.61	-1.07	-1.20
9,762.00	90.01	358.20	7,404.22	1,810.73	2,286.83	2,274.49	0.79	-0.76	-0.23
9,856.00	89.48	358.51	7,404.64	1,904.69	2,284.14	2,365.49	0.65	-0.56	0.33
9,950.00	90.46	358.90	7,404.69	1,998.67	2,282.01	2,456.63	1.12	1.04	0.41
10,045.00	89.75	358.99	7,404.51	2,093.65	2,280.26	2,548.84	0.75	-0.75	0.09
10,139.00	90.68	359.30	7,404.16	2,187.64	2,278.86	2,640.15	1.04	0.99	0.33
10,232.00	90.15	358.55	7,402.80	2,281.60	2,275.33	2,731.46	0.49	-0.28	-0.40
10,327.00	91.38	358.51	7,401.55	2,375.56	2,272.95	2,822.61	1.32	1.32	-0.04
10,420.00									
10,514.00	90.23	358.73	7,400.23	2,469.52	2,270.68	3,003.80	1.25	-1.22	0.23
10,608.00	91.30	357.85	7,398.98	2,563.47	2,267.88	3,094.77	1.47	1.14	-0.94
10,702.00	90.90	359.26	7,397.17	2,657.42	2,265.51	3,185.83	1.56	-0.43	1.50
10,796.00	91.56	358.95	7,395.16	2,751.38	2,264.04	3,277.11	0.78	0.70	-0.33
10,890.00	91.43	0.93	7,392.70	2,845.33	2,263.94	3,368.69	2.11	-0.14	2.11
10,985.00	92.22	1.06	7,389.68	2,939.28	2,265.59	3,461.61	0.84	0.83	0.14
11,079.00	90.63	0.84	7,387.34	3,033.23	2,267.15	3,553.56	1.71	-1.69	-0.23
11,173.00	91.03	0.80	7,385.98	3,127.18	2,268.50	3,645.48	0.43	0.43	-0.04
11,267.00	90.72	0.84	7,384.54	3,221.13	2,269.84	3,737.40	0.33	-0.33	0.04
11,362.00	91.91	1.20	7,382.36	3,315.08	2,271.53	3,830.35	1.31	1.25	0.38
11,456.00	90.19	0.36	7,380.64	3,408.99	2,272.81	3,922.24	2.04	-1.83	-0.89
11,550.00	90.81	0.31	7,379.82	3,502.94	2,273.36	4,014.00	0.66	0.66	-0.05
11,644.00	90.46	359.92	7,378.78	3,596.89	2,273.55	4,105.68	0.56	-0.37	-0.41
11,738.00	90.94	359.87	7,377.63	3,690.84	2,273.38	4,197.27	0.51	0.51	-0.05
11,833.00	91.83	0.05	7,375.33	3,784.79	2,273.31	4,289.84	0.96	0.94	0.19
11,927.00	90.23	0.09	7,373.65	3,878.74	2,273.42	4,381.49	1.70	-1.70	0.04
12,021.00	90.15	359.48	7,373.33	3,972.69	2,273.07	4,473.05	0.65	-0.09	-0.65
12,115.00	90.46	358.82	7,372.83	4,066.64	2,271.68	4,564.37	0.78	0.33	-0.70
12,208.00	89.66	358.20	7,372.74	4,160.59	2,269.26	4,654.46	1.09	-0.86	-0.67
12,302.00	89.31	357.54	7,373.58	4,254.54	2,265.77	4,745.26	0.79	-0.37	-0.70

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-12N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Well:	Rinn Valley East N17-20-12N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,396.00	89.75	359.30	7,374.35	4,443.90	2,263.17	4,836.28	1.93	0.47	1.87
12,490.00	89.84	359.87	7,374.69	4,537.90	2,262.49	4,927.76	0.61	0.10	0.61
12,584.00	90.59	359.74	7,374.34	4,631.90	2,262.17	5,019.33	0.81	0.80	-0.14
12,678.00	91.47	359.79	7,372.65	4,725.88	2,261.79	5,110.87	0.94	0.94	0.05
12,773.00	91.07	1.20	7,370.54	4,820.85	2,262.61	5,203.64	1.54	-0.42	1.48
12,867.00	92.44	1.64	7,367.66	4,914.77	2,264.94	5,295.72	1.53	1.46	0.47
12,961.00	91.07	1.86	7,364.78	5,008.68	2,267.81	5,387.91	1.48	-1.46	0.23
12,993.93	90.81	1.53	7,364.24	5,041.59	2,268.78	5,420.21	1.27	-0.80	-0.99
Crossing Section 17 & 8 @ 12993'MD									
13,055.00	90.32	0.93	7,363.64	5,102.65	2,270.09	5,480.03	1.27	-0.80	-0.99
13,149.00	91.43	0.31	7,362.21	5,196.63	2,271.11	5,571.87	1.35	1.18	-0.66
13,243.00	89.88	359.61	7,361.13	5,290.62	2,271.05	5,663.49	1.81	-1.65	-0.74
13,337.00	90.46	358.77	7,360.85	5,384.61	2,269.72	5,754.82	1.09	0.62	-0.89
13,431.00	91.65	358.55	7,359.12	5,478.56	2,267.52	5,845.93	1.29	1.27	-0.23
13,525.00	89.75	0.09	7,357.97	5,572.54	2,266.40	5,937.30	2.60	-2.02	1.64
13,619.00	90.50	0.09	7,357.77	5,666.54	2,266.55	6,028.97	0.80	0.80	0.00
13,713.00	91.60	0.23	7,356.05	5,760.53	2,266.81	6,120.66	1.18	1.17	0.15
13,808.00	89.31	0.93	7,355.29	5,855.51	2,267.78	6,213.47	2.52	-2.41	0.74
13,902.00	89.57	0.18	7,356.21	5,949.50	2,268.69	6,305.30	0.84	0.28	-0.80
13,995.00	90.37	359.61	7,356.26	6,042.50	2,268.52	6,395.93	1.06	0.86	-0.61
14,089.00	90.99	359.12	7,355.14	6,136.49	2,267.47	6,487.32	0.84	0.66	-0.52
14,183.00	92.75	358.33	7,352.08	6,230.41	2,265.38	6,578.42	2.05	1.87	-0.84
14,277.00	91.65	358.95	7,348.47	6,324.31	2,263.15	6,669.47	1.34	-1.17	0.66
14,371.00	88.25	359.87	7,348.55	6,418.29	2,262.19	6,760.88	3.75	-3.62	0.98
14,465.00	88.51	0.14	7,351.21	6,512.25	2,262.20	6,852.48	0.40	0.28	0.29
14,558.00	88.78	0.31	7,353.41	6,605.23	2,262.56	6,943.20	0.34	0.29	0.18
14,653.00	90.19	0.09	7,354.26	6,700.22	2,262.89	7,035.88	1.50	1.48	-0.23
14,747.00	90.72	359.96	7,353.51	6,794.22	2,262.93	7,127.53	0.58	0.56	-0.14
14,841.00	91.78	359.87	7,351.46	6,888.19	2,262.79	7,219.12	1.13	1.13	-0.10
14,935.00	91.07	359.79	7,349.13	6,982.16	2,262.51	7,310.66	0.76	-0.76	-0.09
15,029.00	91.69	359.21	7,346.86	7,076.13	2,261.69	7,402.09	0.90	0.66	-0.62
15,124.00	91.21	0.67	7,344.46	7,171.10	2,261.60	7,494.65	1.62	-0.51	1.54
15,217.00	90.10	2.03	7,343.39	7,264.06	2,263.79	7,585.77	1.89	-1.19	1.46
15,311.00	90.63	2.30	7,342.80	7,357.99	2,267.34	7,678.13	0.63	0.56	0.29
15,405.00	92.00	2.21	7,340.64	7,451.89	2,271.03	7,770.50	1.46	1.46	-0.10
15,498.00	89.84	0.93	7,339.15	7,544.84	2,273.58	7,861.68	2.70	-2.32	-1.38
15,593.00	89.97	0.40	7,339.30	7,639.83	2,274.68	7,954.53	0.57	0.14	-0.56
15,687.00	90.72	0.05	7,338.74	7,733.83	2,275.05	8,046.25	0.88	0.80	-0.37
15,781.00	90.10	0.27	7,338.06	7,827.82	2,275.32	8,137.95	0.70	-0.66	0.23
15,876.00	91.87	0.27	7,336.43	7,922.81	2,275.76	8,230.64	1.86	1.86	0.00
15,970.00	89.48	0.89	7,335.32	8,016.79	2,276.72	8,322.47	2.63	-2.54	0.66
16,064.00	90.68	1.20	7,335.19	8,110.77	2,278.43	8,414.48	1.32	1.28	0.33
16,157.00	92.27	1.24	7,332.80	8,203.72	2,280.41	8,505.53	1.71	1.71	0.04
16,251.00	90.28	0.71	7,330.71	8,297.67	2,282.01	8,597.49	2.19	-2.12	-0.56

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-12N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4962.60ft (Patterson #346)
Well:	Rinn Valley East N17-20-12N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
16,345.00	89.35	0.14	7,331.01	8,391.67	2,282.71	8,689.28	1.16	-0.99	-0.61
16,439.00	89.84	359.96	7,331.68	8,485.67	2,282.79	8,780.93	0.56	0.52	-0.19
16,533.00	91.25	0.80	7,330.78	8,579.66	2,283.41	8,872.70	1.75	1.50	0.89
16,627.00	89.53	359.43	7,330.14	8,673.65	2,283.60	8,964.38	2.34	-1.83	-1.46
16,721.00	90.41	359.43	7,330.19	8,767.64	2,282.66	9,055.80	0.94	0.94	0.00
16,815.00	90.15	357.98	7,329.73	8,861.61	2,280.54	9,146.94	1.57	-0.28	-1.54
16,910.00	91.25	358.51	7,328.57	8,956.56	2,277.63	9,238.86	1.29	1.16	0.56
17,005.00	91.07	357.14	7,326.65	9,051.47	2,274.03	9,330.58	1.45	-0.19	-1.44
17,193.00	92.89	356.92	7,320.15	9,239.10	2,264.29	9,511.33	0.98	0.97	-0.12
17,287.00	91.12	358.55	7,316.86	9,332.96	2,260.58	9,602.01	2.56	-1.88	1.73
17,381.00	91.07	358.11	7,315.07	9,426.90	2,257.84	9,692.98	0.47	-0.05	-0.47
17,475.00	91.07	357.76	7,313.31	9,520.83	2,254.45	9,783.79	0.37	0.00	-0.37
17,569.00	90.77	356.57	7,311.80	9,614.70	2,249.81	9,874.27	1.31	-0.32	-1.27
17,663.00	90.85	356.26	7,310.47	9,708.50	2,243.93	9,964.42	0.34	0.09	-0.33
17,757.00	90.63	354.94	7,309.26	9,802.22	2,236.72	10,054.17	1.42	-0.23	-1.40
Last MWD Survey @ 17757'MD									
17,846.00	90.63	354.94	7,308.28	9,890.86	2,228.87	10,138.85	0.00	0.00	0.00
PTB @ TD @ 17846'MD (512'FNL & 1717' FWL)									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,577.00	1,546.81	-38.17	229.86	Tie in to Surface Surveys @ 1577'MD
1,650.00	1,613.58	-41.95	259.14	First MWD Survey @ 1650'MD
7,614.19	7,107.23	-226.76	2,279.91	30°Inclination @ 7614'MD
7,678.47	7,161.07	-191.72	2,280.70	EL Sec. 17 @ 7678'MD
8,037.39	7,370.93	92.86	2,286.60	70°Inclination @ 8037'MD
12,993.93	7,364.24	5,041.59	2,268.78	Crossing Section 17 & 8 @ 12993'MD
17,757.00	7,309.26	9,802.22	2,236.72	Last MWD Survey @ 17757'MD
17,846.00	7,308.28	9,890.86	2,228.87	PTB @ TD @ 17846'MD (512'FNL & 1717' FWL)

Checked By: _____ Approved By: _____ Date: _____