

Extraction Oil & Gas

Weld County, CO (NAD83)

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

Rinn Valley East N17-20-9N

Wellbore #1

Design: Wellbore #1

Standard Survey Report

16 August, 2018

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-9N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4961.10ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4961.10ft (Patterson #346)
Well:	Rinn Valley East N17-20-9N	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 N17-20-9N				
Well Position	+N/-S	0.00 ft	Northing:	1,291,283.25 usft	Latitude:	40.13204
	+E/-W	0.00 ft	Easting:	3,129,131.12 usft	Longitude:	-105.03818
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,936.10 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	17.79	

Survey Program	Date	8/16/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
87.00	1,623.00	Surface (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,739.00	18,180.00	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	
87.00	0.48	138.32	87.00	-0.27	0.24	-0.19	0.55	0.55	0.00	
149.00	1.08	98.95	148.99	-0.56	0.99	-0.23	1.24	0.97	-63.50	
230.00	2.43	101.83	229.95	-1.03	3.43	0.07	1.67	1.67	3.56	
315.00	3.47	102.80	314.84	-1.97	7.70	0.48	1.22	1.22	1.14	
399.00	4.98	102.98	398.61	-3.35	13.73	1.01	1.80	1.80	0.21	
484.00	6.50	97.77	483.18	-4.83	22.09	2.15	1.89	1.79	-6.13	
567.00	8.80	97.04	565.44	-6.24	33.05	4.15	2.77	2.77	-0.88	
653.00	11.14	92.70	650.13	-7.44	47.88	7.54	2.86	2.72	-5.05	
736.00	13.30	93.83	731.25	-8.46	65.42	11.93	2.62	2.60	1.36	

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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)
821.00	14.97	93.43	813.67	-9.77	86.13	17.01	1.97	1.96	-0.47
906.00	16.40	95.73	895.51	-11.62	109.03	22.24	1.83	1.68	2.71
989.00	17.87	96.18	974.82	-14.16	133.35	27.25	1.78	1.77	0.54
1,073.00	19.63	94.39	1,054.36	-16.63	160.24	33.12	2.20	2.10	-2.13
1,157.00	21.56	96.53	1,132.99	-19.46	189.64	39.40	2.47	2.30	2.55
1,243.00	23.31	96.93	1,212.48	-23.31	222.24	45.69	2.04	2.03	0.47
1,328.00	25.64	96.16	1,289.83	-27.32	257.22	52.57	2.77	2.74	-0.91
1,413.00	25.22	94.10	1,366.60	-30.59	293.57	60.56	1.15	-0.49	-2.42
1,495.00	28.17	94.85	1,439.85	-33.47	330.29	69.03	3.62	3.60	0.91
1,582.00	29.59	95.79	1,516.03	-37.38	372.12	78.09	1.71	1.63	1.08
1,623.00	31.14	96.42	1,551.40	-39.58	392.73	82.29	3.86	3.78	1.54
Tie in to Surface Surveys @ 1623'MD									
1,739.00	31.24	95.16	1,650.64	-45.64	452.49	94.77	0.57	0.09	-1.09
First MWD Survey @ 1739'MD									
1,832.00	33.14	96.04	1,729.34	-50.49	501.80	105.22	2.10	2.04	0.95
1,926.00	35.09	95.42	1,807.16	-55.74	554.25	116.24	2.11	2.07	-0.66
2,020.00	37.56	95.42	1,882.89	-61.00	609.68	128.17	2.63	2.63	0.00
2,114.00	38.93	95.60	1,956.71	-66.59	667.60	140.54	1.46	1.46	0.19
2,208.00	37.69	93.00	2,030.47	-70.98	725.69	154.11	2.16	-1.32	-2.77
2,302.00	37.96	96.39	2,104.73	-75.70	783.12	167.16	2.23	0.29	3.61
2,396.00	36.63	94.63	2,179.51	-81.18	839.81	179.26	1.81	-1.41	-1.87
2,490.00	37.38	96.57	2,254.58	-86.71	896.11	191.19	1.48	0.80	2.06
2,585.00	35.79	95.91	2,330.86	-92.87	952.39	202.52	1.72	-1.67	-0.69
2,678.00	37.21	95.78	2,405.61	-98.50	1,007.42	213.97	1.53	1.53	-0.14
2,772.00	35.44	93.84	2,481.35	-103.19	1,062.90	226.45	2.24	-1.88	-2.06
2,866.00	35.75	96.79	2,557.79	-108.26	1,117.36	238.26	1.86	0.33	3.14
2,960.00	36.68	98.02	2,633.63	-115.42	1,172.43	248.26	1.26	0.99	1.31
3,054.00	37.61	96.75	2,708.56	-122.71	1,228.72	258.52	1.28	0.99	-1.35
3,148.00	37.65	95.42	2,783.00	-128.80	1,285.79	270.16	0.86	0.04	-1.41
3,242.00	37.34	95.12	2,857.58	-134.05	1,342.76	282.56	0.38	-0.33	-0.32
3,336.00	36.06	95.12	2,932.95	-139.07	1,398.71	294.88	1.36	-1.36	0.00
3,430.00	36.24	95.42	3,008.85	-144.16	1,453.93	306.90	0.27	0.19	0.32
3,524.00	35.53	95.69	3,085.01	-149.49	1,508.77	318.57	0.77	-0.76	0.29
3,618.00	35.22	99.52	3,161.67	-156.68	1,562.69	328.20	2.38	-0.33	4.07
3,713.00	36.10	99.48	3,238.85	-165.82	1,617.31	336.18	0.93	0.93	-0.04
3,807.00	36.99	97.36	3,314.37	-174.01	1,672.67	345.30	1.64	0.95	-2.26
3,901.00	36.85	96.17	3,389.52	-180.66	1,728.74	356.09	0.77	-0.15	-1.27
3,995.00	36.63	96.79	3,464.85	-187.01	1,784.61	367.12	0.46	-0.23	0.66
4,089.00	36.81	94.41	3,540.20	-192.49	1,840.54	378.99	1.53	0.19	-2.53
4,183.00	36.15	91.41	3,615.79	-195.33	1,896.34	393.32	2.02	-0.70	-3.19
4,278.00	35.31	93.13	3,692.91	-197.52	1,951.76	408.17	1.38	-0.88	1.81
4,372.00	33.63	96.09	3,770.41	-201.77	2,004.78	420.32	2.52	-1.79	3.15
4,467.00	35.13	97.23	3,848.81	-208.00	2,058.06	430.66	1.72	1.58	1.20

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Survey

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4,561.00	34.78	100.01	3,925.86	-216.06	2,111.29	439.25	1.73	-0.37	2.96
4,655.00	36.54	99.57	4,002.23	-225.38	2,165.29	446.88	1.89	1.87	-0.47
4,749.00	35.84	97.36	4,078.10	-233.56	2,220.18	455.86	1.58	-0.74	-2.35
4,843.00	34.73	94.50	4,154.83	-239.18	2,274.18	467.00	2.12	-1.18	-3.04
4,938.00	34.73	94.01	4,232.91	-243.20	2,328.15	479.66	0.29	0.00	-0.52
5,031.00	36.19	93.49	4,308.66	-246.72	2,381.98	492.75	1.60	1.57	-0.56
5,125.00	37.87	94.01	4,383.70	-250.43	2,438.47	506.48	1.82	1.79	0.55
5,219.00	38.67	94.15	4,457.50	-254.57	2,496.54	520.27	0.86	0.85	0.15
5,314.00	38.40	94.01	4,531.81	-258.78	2,555.58	534.30	0.30	-0.28	-0.15
5,408.00	36.28	93.35	4,606.54	-262.45	2,612.47	548.19	2.30	-2.26	-0.70
5,502.00	35.31	94.24	4,682.78	-266.08	2,667.33	561.48	1.17	-1.03	0.95
5,596.00	33.50	96.31	4,760.34	-270.94	2,720.21	573.01	2.29	-1.93	2.20
5,690.00	31.73	94.06	4,839.51	-275.55	2,770.65	584.04	2.28	-1.88	-2.39
5,784.00	30.00	96.88	4,920.20	-280.11	2,818.65	594.35	2.40	-1.84	3.00
5,878.00	27.66	96.53	5,002.55	-285.41	2,863.66	603.06	2.50	-2.49	-0.37
5,972.00	25.41	94.72	5,086.64	-289.55	2,905.44	611.88	2.54	-2.39	-1.93
6,065.00	23.16	92.82	5,171.41	-292.09	2,943.60	621.12	2.56	-2.42	-2.04
6,160.00	21.48	97.45	5,259.29	-295.27	2,979.51	629.07	2.56	-1.77	4.87
6,253.00	18.38	96.13	5,346.71	-299.04	3,010.98	635.09	3.37	-3.33	-1.42
6,348.00	15.33	93.53	5,437.62	-301.41	3,038.41	641.21	3.31	-3.21	-2.74
6,441.00	12.90	92.74	5,527.81	-302.67	3,061.06	646.93	2.62	-2.61	-0.85
6,535.00	12.37	94.41	5,619.53	-303.94	3,081.58	651.98	0.68	-0.56	1.78
6,630.00	12.06	96.53	5,712.38	-305.85	3,101.58	656.28	0.57	-0.33	2.23
6,724.00	9.99	96.66	5,804.64	-307.92	3,119.44	659.77	2.20	-2.20	0.14
6,818.00	8.13	94.85	5,897.47	-309.43	3,134.16	662.83	2.00	-1.98	-1.93
6,912.00	6.54	90.49	5,990.69	-310.03	3,146.14	665.91	1.79	-1.69	-4.64
7,006.00	4.99	84.10	6,084.22	-309.66	3,155.56	669.14	1.78	-1.65	-6.80
7,100.00	4.02	77.09	6,177.93	-308.50	3,162.84	672.47	1.18	-1.03	-7.46
7,194.00	1.86	91.28	6,271.80	-307.80	3,167.57	674.58	2.41	-2.30	15.10
7,288.00	1.50	83.04	6,365.76	-307.68	3,170.32	675.53	0.46	-0.38	-8.77
7,382.00	1.10	66.16	6,459.73	-307.17	3,172.37	676.65	0.58	-0.43	-17.96
7,476.00	0.88	46.86	6,553.72	-306.31	3,173.72	677.88	0.42	-0.23	-20.53
7,593.00	0.80	22.10	6,670.71	-304.94	3,174.68	679.48	0.31	-0.07	-21.16
7,687.00	4.99	6.66	6,764.57	-300.27	3,175.40	684.15	4.49	4.46	-16.43
7,781.00	14.98	355.82	6,857.03	-284.05	3,174.99	699.46	10.77	10.63	-11.53
7,875.00	21.65	4.72	6,946.24	-254.62	3,175.53	727.66	7.67	7.10	9.47
7,964.16	30.00	2.75	7,026.42	-215.89	3,177.96	765.27	9.41	9.37	-2.21
30°Inclination @ 7964'MD									
7,968.00	30.36	2.69	7,029.74	-213.96	3,178.05	767.14	9.41	9.38	-1.62
7,999.85	33.82	3.36	7,056.72	-197.07	3,178.95	783.50	10.91	10.85	2.10
Enter Section 17 @ 7999'MD									
8,062.00	40.57	4.37	7,106.20	-159.61	3,181.51	819.95	10.91	10.87	1.63
8,156.00	48.34	1.15	7,173.26	-93.91	3,184.55	883.43	8.60	8.27	-3.43
8,250.00	54.79	359.56	7,231.66	-20.33	3,184.96	953.62	6.99	6.86	-1.69

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8,344.00	63.59	359.08	7,279.76	60.32	3,183.98	1,030.12	9.37	9.36	-0.51
8,437.00	67.48	358.68	7,318.27	144.94	3,182.32	1,110.18	4.20	4.18	-0.43
8,472.73	70.00	359.18	7,331.22	178.23	3,181.70	1,141.69	7.17	7.05	1.40
70°Inclination @ 8472'MD									
8,531.00	74.11	359.96	7,349.17	233.65	3,181.29	1,194.34	7.17	7.06	1.34
8,625.00	83.16	358.60	7,367.68	325.70	3,180.12	1,281.63	9.73	9.63	-1.45
8,719.00	88.69	358.02	7,374.36	419.39	3,177.35	1,369.99	5.92	5.88	-0.62
8,814.00	89.31	358.33	7,376.01	514.32	3,174.33	1,459.47	0.73	0.65	0.33
8,908.00	90.63	357.71	7,376.06	608.26	3,171.08	1,547.93	1.55	1.40	-0.66
9,002.00	92.31	358.73	7,373.65	702.18	3,168.16	1,636.46	2.09	1.79	1.09
9,096.00	91.56	359.70	7,370.48	796.12	3,166.87	1,725.51	1.30	-0.80	1.03
9,191.00	90.59	359.92	7,368.70	891.10	3,166.56	1,815.86	1.05	-1.02	0.23
9,285.00	91.12	359.56	7,367.29	985.09	3,166.13	1,905.22	0.68	0.56	-0.38
9,379.00	89.93	358.95	7,366.43	1,079.07	3,164.91	1,994.34	1.42	-1.27	-0.65
9,474.00	90.46	357.89	7,366.11	1,174.04	3,162.29	2,083.97	1.25	0.56	-1.12
9,568.00	90.59	358.11	7,365.25	1,267.97	3,159.01	2,172.41	0.27	0.14	0.23
9,663.00	90.41	357.71	7,364.42	1,362.91	3,155.54	2,261.75	0.46	-0.19	-0.42
9,756.00	90.46	357.36	7,363.71	1,455.82	3,151.54	2,348.99	0.38	0.05	-0.38
9,850.00	89.66	358.07	7,363.61	1,549.74	3,147.80	2,437.28	1.14	-0.85	0.76
9,945.00	90.46	0.49	7,363.51	1,644.73	3,146.60	2,527.36	2.68	0.84	2.55
10,039.00	90.23	359.83	7,362.95	1,738.72	3,146.87	2,616.95	0.74	-0.24	-0.70
10,133.00	90.54	1.72	7,362.32	1,832.71	3,148.14	2,706.83	2.04	0.33	2.01
10,227.00	90.99	0.98	7,361.06	1,926.67	3,150.35	2,796.98	0.92	0.48	-0.79
10,321.00	90.19	1.06	7,360.09	2,020.65	3,152.03	2,886.97	0.86	-0.85	0.09
10,415.00	89.40	359.52	7,360.43	2,114.65	3,152.50	2,976.62	1.84	-0.84	-1.64
10,509.00	90.32	1.06	7,360.66	2,208.64	3,152.98	3,066.27	1.91	0.98	1.64
10,603.00	89.40	359.56	7,360.89	2,302.64	3,153.49	3,155.92	1.87	-0.98	-1.60
10,696.00	91.38	1.68	7,360.26	2,395.62	3,154.49	3,244.77	3.12	2.13	2.28
10,791.00	91.43	0.75	7,357.93	2,490.57	3,156.50	3,335.79	0.98	0.05	-0.98
10,885.00	92.31	0.40	7,354.86	2,584.51	3,157.45	3,425.53	1.01	0.94	-0.37
10,980.00	91.87	358.64	7,351.39	2,679.44	3,156.65	3,515.68	1.91	-0.46	-1.85
11,074.00	90.41	358.20	7,349.52	2,773.39	3,154.06	3,604.34	1.62	-1.55	-0.47
11,168.00	90.72	356.26	7,348.60	2,867.27	3,149.52	3,692.35	2.09	0.33	-2.06
11,262.00	91.03	354.45	7,347.16	2,960.94	3,141.91	3,779.22	1.95	0.33	-1.93
11,356.00	90.99	352.25	7,345.50	3,054.29	3,131.02	3,864.78	2.34	-0.04	-2.34
11,451.00	91.69	352.12	7,343.28	3,148.38	3,118.11	3,950.43	0.75	0.74	-0.14
11,545.00	90.37	352.21	7,341.59	3,241.49	3,105.30	4,035.17	1.41	-1.40	0.10
11,639.00	90.32	354.50	7,341.03	3,334.85	3,094.42	4,120.75	2.44	-0.05	2.44
11,733.00	89.97	356.52	7,340.79	3,428.55	3,087.06	4,207.72	2.18	-0.37	2.15
11,828.00	89.88	358.11	7,340.91	3,523.45	3,082.61	4,296.72	1.68	-0.09	1.67
11,921.00	89.44	359.96	7,341.47	3,616.43	3,081.05	4,384.78	2.04	-0.47	1.99
12,015.00	89.70	359.30	7,342.17	3,710.42	3,080.44	4,474.09	0.75	0.28	-0.70
12,109.00	88.51	1.11	7,343.64	3,804.40	3,080.78	4,563.69	2.30	-1.27	1.93

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-9N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4961.10ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4961.10ft (Patterson #346)
Well:	Rinn Valley East N17-20-9N	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)
12,203.00	88.60	0.75	7,346.01	3,898.36	3,082.30	4,653.62	0.39	0.10	-0.38
12,297.00	88.82	0.01	7,348.13	3,992.33	3,082.93	4,743.29	0.82	0.23	-0.79
12,391.00	89.00	359.43	7,349.91	4,086.32	3,082.47	4,832.64	0.65	0.19	-0.62
12,485.00	91.43	0.14	7,349.56	4,180.31	3,082.11	4,922.03	2.69	2.59	0.76
12,578.00	92.40	359.92	7,346.45	4,273.25	3,082.16	5,010.55	1.07	1.04	-0.24
12,673.00	91.83	2.25	7,342.95	4,368.17	3,083.96	5,101.47	2.52	-0.60	2.45
12,767.00	90.01	3.93	7,341.44	4,462.01	3,089.03	5,192.37	2.63	-1.94	1.79
12,861.00	90.63	3.31	7,340.91	4,555.82	3,094.96	5,283.51	0.93	0.66	-0.66
13,049.00	90.28	3.13	7,339.42	4,743.52	3,105.52	5,465.46	0.21	-0.19	-0.10
13,143.00	90.15	2.47	7,339.07	4,837.40	3,110.11	5,556.26	0.72	-0.14	-0.70
13,237.00	89.84	2.39	7,339.08	4,931.32	3,114.10	5,646.91	0.34	-0.33	-0.09
13,332.00	90.50	0.75	7,338.79	5,026.28	3,116.70	5,738.12	1.86	0.69	-1.73
13,353.51	90.45	0.59	7,338.62	5,047.79	3,116.95	5,758.68	0.78	-0.23	-0.74
Crossing Sect. 17/8 @ 13353'MD									
13,426.00	90.28	0.05	7,338.15	5,120.27	3,117.36	5,827.82	0.78	-0.23	-0.74
13,520.00	92.75	359.92	7,335.67	5,214.23	3,117.33	5,917.29	2.63	2.63	-0.14
13,614.00	92.84	359.30	7,331.09	5,308.12	3,116.69	6,006.49	0.67	0.10	-0.66
13,709.00	91.25	0.98	7,327.69	5,403.05	3,116.93	6,096.95	2.43	-1.67	1.77
13,803.00	92.49	0.01	7,324.63	5,496.99	3,117.74	6,186.65	1.67	1.32	-1.03
13,896.00	90.37	359.74	7,322.31	5,589.96	3,117.53	6,275.11	2.30	-2.28	-0.29
13,990.00	90.77	358.46	7,321.37	5,683.94	3,116.06	6,364.15	1.43	0.43	-1.36
14,084.00	90.15	0.53	7,320.62	5,777.93	3,115.23	6,453.39	2.30	-0.66	2.20
14,178.00	90.81	0.58	7,319.83	5,871.92	3,116.14	6,543.17	0.70	0.70	0.05
14,272.00	90.59	0.27	7,318.68	5,965.91	3,116.84	6,632.88	0.40	-0.23	-0.33
14,365.00	89.93	0.49	7,318.26	6,058.91	3,117.45	6,721.62	0.75	-0.71	0.24
14,459.00	90.01	0.27	7,318.31	6,152.91	3,118.08	6,811.31	0.25	0.09	-0.23
14,554.00	89.88	0.01	7,318.40	6,247.91	3,118.31	6,901.84	0.31	-0.14	-0.27
14,649.00	90.41	359.96	7,318.16	6,342.90	3,118.29	6,992.29	0.56	0.56	-0.05
14,742.00	91.34	359.56	7,316.74	6,435.89	3,117.90	7,080.71	1.09	1.00	-0.43
14,837.00	91.78	359.39	7,314.15	6,530.85	3,117.03	7,170.87	0.50	0.46	-0.18
14,931.00	90.19	359.12	7,312.54	6,624.83	3,115.80	7,259.98	1.72	-1.69	-0.29
15,025.00	88.86	1.46	7,313.32	6,718.81	3,116.28	7,349.62	2.86	-1.41	2.49
15,119.00	88.78	1.42	7,315.25	6,812.76	3,118.64	7,439.80	0.10	-0.09	-0.04
15,213.00	90.10	0.93	7,316.17	6,906.74	3,120.57	7,529.87	1.50	1.40	-0.52
15,307.00	89.84	0.67	7,316.22	7,000.73	3,121.88	7,619.77	0.39	-0.28	-0.28
15,400.00	91.25	0.45	7,315.34	7,093.72	3,122.79	7,708.59	1.53	1.52	-0.24
15,494.00	91.25	0.05	7,313.28	7,187.69	3,123.20	7,798.20	0.43	0.00	-0.43
15,588.00	90.94	359.39	7,311.49	7,281.68	3,122.74	7,887.54	0.78	-0.33	-0.70
15,683.00	91.30	358.68	7,309.63	7,376.64	3,121.14	7,977.48	0.84	0.38	-0.75
15,777.00	90.59	0.14	7,308.08	7,470.62	3,120.17	8,066.67	1.73	-0.76	1.55
15,871.00	89.09	1.99	7,308.34	7,564.60	3,121.92	8,156.69	2.53	-1.60	1.97
15,966.00	89.40	1.59	7,309.60	7,659.54	3,124.89	8,248.01	0.53	0.33	-0.42
16,060.00	89.57	0.75	7,310.44	7,753.52	3,126.81	8,338.07	0.91	0.18	-0.89
16,153.00	89.84	2.61	7,310.92	7,846.47	3,129.53	8,427.42	2.02	0.29	2.00

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-9N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4961.10ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4961.10ft (Patterson #346)
Well:	Rinn Valley East N17-20-9N	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)
16,247.00	90.01	1.33	7,311.04	7,940.42	3,132.76	8,517.86	1.37	0.18	-1.36
16,341.00	91.12	0.71	7,310.12	8,034.40	3,134.44	8,607.85	1.35	1.18	-0.66
16,435.00	90.99	0.84	7,308.38	8,128.37	3,135.71	8,697.73	0.20	-0.14	0.14
16,529.00	91.12	1.64	7,306.65	8,222.33	3,137.74	8,787.82	0.86	0.14	0.85
16,623.00	90.63	1.90	7,305.22	8,316.28	3,140.65	8,878.16	0.59	-0.52	0.28
16,717.00	91.16	1.86	7,303.75	8,410.21	3,143.73	8,968.54	0.57	0.56	-0.04
16,812.00	90.68	1.28	7,302.22	8,505.16	3,146.33	9,059.75	0.79	-0.51	-0.61
16,907.00	90.77	0.93	7,301.02	8,600.14	3,148.16	9,150.75	0.38	0.09	-0.37
17,001.00	91.25	0.18	7,299.37	8,694.12	3,149.07	9,240.51	0.95	0.51	-0.80
17,095.00	90.59	0.05	7,297.86	8,788.11	3,149.26	9,330.06	0.72	-0.70	-0.14
17,189.00	90.81	359.48	7,296.71	8,882.10	3,148.88	9,419.44	0.65	0.23	-0.61
17,283.00	91.52	358.90	7,294.80	8,976.07	3,147.55	9,508.52	0.98	0.76	-0.62
17,377.00	91.25	0.53	7,292.52	9,070.04	3,147.08	9,597.85	1.76	-0.29	1.73
17,471.00	90.59	0.75	7,291.02	9,164.02	3,148.13	9,687.66	0.74	-0.70	0.23
17,565.00	90.85	3.13	7,289.83	9,257.95	3,151.31	9,778.07	2.55	0.28	2.53
17,659.00	91.43	3.05	7,287.96	9,351.79	3,156.38	9,868.98	0.62	0.62	-0.09
17,754.00	91.91	2.34	7,285.19	9,446.65	3,160.84	9,960.66	0.90	0.51	-0.75
17,848.00	90.68	2.08	7,283.07	9,540.55	3,164.47	10,051.18	1.34	-1.31	-0.28
17,941.00	91.38	1.06	7,281.40	9,633.50	3,167.01	10,140.47	1.33	0.75	-1.10
18,035.00	91.60	1.15	7,278.95	9,727.45	3,168.83	10,230.48	0.25	0.23	0.10
18,112.00	92.09	0.49	7,276.48	9,804.40	3,169.93	10,304.09	1.07	0.64	-0.86
Last MWD Survey @ 18112'MD									
18,180.00	92.09	0.49	7,274.00	9,872.36	3,170.51	10,368.97	0.00	0.00	0.00
PTB @ TD @ 18180'MD (510'FNL & 2742' FWL)									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,623.00	1,551.40	-39.58	392.73	Tie in to Surface Surveys @ 1623'MD
1,739.00	1,650.64	-45.64	452.49	First MWD Survey @ 1739'MD
7,964.16	7,026.42	-215.89	3,177.96	30°Inclination @ 7964'MD
7,999.85	7,056.72	-197.07	3,178.95	Enter Section 17 @ 7999'MD
8,472.73	7,331.22	178.23	3,181.70	70°Inclination @ 8472'MD
13,353.51	7,338.62	5,047.79	3,116.95	Crossing Sect. 17/8 @ 13353'MD
18,112.00	7,276.48	9,804.40	3,169.93	Last MWD Survey @ 18112'MD
18,180.00	7,274.00	9,872.36	3,170.51	PTB @ TD @ 18180'MD (510'FNL & 2742' FWL)

Checked By: _____ Approved By: _____ Date: _____