

Extraction Oil & Gas

Weld County, CO (NAD83)

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

Rinn Valley East N17-20-13C

Wellbore #1

Design: Wellbore #1

Standard Survey Report

26 July, 2018

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-13C
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4963.20ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4963.20ft (Patterson #346)
Well:	Rinn Valley East N17-20-13C	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 N17-20-13C					
Well Position	+N/-S	0.00 ft	Northing:	1,291,283.03 usfi	Latitude:	40.13204
	+E/-W	0.00 ft	Easting:	3,129,019.27 usfi	Longitude:	-105.03858
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,938.20 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	11.25	

Survey Program	Date	7/26/2018			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
88.00	1,575.00	Surface (Wellbore #1)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,644.00	17,796.00	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	1.89	108.68	87.98	-0.46	1.37	-0.19	2.15	2.15	0.00	
150.00	0.76	137.97	149.97	-1.10	2.62	-0.57	2.07	-1.82	47.24	
232.00	0.93	325.57	231.96	-0.95	2.61	-0.43	2.06	0.21	-210.24	
316.00	0.77	290.95	315.96	-0.19	1.69	0.15	0.63	-0.19	-41.21	
401.00	0.33	306.49	400.95	0.16	0.96	0.35	0.54	-0.52	18.28	
485.00	0.53	250.81	484.95	0.18	0.40	0.25	0.52	0.24	-66.29	
569.00	1.17	117.32	568.94	-0.34	0.80	-0.18	1.88	0.76	-158.92	
654.00	4.73	96.82	653.82	-1.16	5.05	-0.15	4.30	4.19	-24.12	
738.00	5.91	87.17	737.46	-1.36	12.81	1.17	1.76	1.40	-11.49	

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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	6.73	89.03	820.95	-1.06	22.05	3.26	1.01	0.98	2.21
907.00	8.15	98.14	905.23	-1.83	32.99	4.64	2.17	1.67	10.72
990.00	10.38	98.54	987.14	-3.77	46.21	5.31	2.69	2.69	0.48
1,074.00	11.78	97.24	1,069.58	-5.98	62.20	6.27	1.69	1.67	-1.55
1,159.00	12.83	100.09	1,152.62	-8.72	80.10	7.07	1.43	1.24	3.35
1,244.00	14.02	102.30	1,235.30	-12.57	99.46	7.07	1.52	1.40	2.60
1,330.00	15.53	103.45	1,318.45	-17.47	120.83	6.44	1.79	1.76	1.34
1,414.00	16.53	103.76	1,399.19	-22.93	143.38	5.48	1.19	1.19	0.37
1,497.00	18.47	103.20	1,478.34	-28.74	167.65	4.52	2.35	2.34	-0.67
1,575.00	20.06	102.28	1,551.97	-34.40	192.75	3.85	2.08	2.04	-1.18
Tie in to Surface Surveys @ 1575'MD									
1,644.00	20.02	101.64	1,616.79	-39.30	215.88	3.56	0.32	-0.06	-0.93
First MWD Survey @ 1644'MD									
1,738.00	22.05	99.70	1,704.53	-45.52	249.04	3.93	2.28	2.16	-2.06
1,832.00	23.46	99.21	1,791.21	-51.49	284.90	5.07	1.51	1.50	-0.52
1,925.00	22.23	97.06	1,876.91	-56.62	320.63	7.01	1.60	-1.32	-2.31
2,019.00	23.99	100.71	1,963.37	-62.36	357.06	8.49	2.41	1.87	3.88
2,113.00	22.63	98.07	2,049.70	-68.45	393.75	9.67	1.82	-1.45	-2.81
2,207.00	23.82	98.38	2,136.08	-73.75	430.43	11.63	1.27	1.27	0.33
2,301.00	22.23	96.17	2,222.59	-78.43	466.89	14.15	1.93	-1.69	-2.35
2,395.00	23.69	97.72	2,309.14	-82.88	503.29	16.89	1.68	1.55	1.65
2,489.00	22.09	95.07	2,395.74	-86.98	539.61	19.95	2.02	-1.70	-2.82
2,584.00	23.29	98.91	2,483.39	-91.46	575.96	22.64	2.01	1.26	4.04
2,678.00	21.52	97.10	2,570.29	-96.47	611.43	24.65	2.02	-1.88	-1.93
2,772.00	22.63	101.77	2,657.41	-102.29	646.25	25.73	2.21	1.18	4.97
2,865.00	23.07	104.02	2,743.11	-110.36	681.44	24.68	1.05	0.47	2.42
2,959.00	24.79	104.11	2,829.03	-119.62	718.43	22.81	1.83	1.83	0.10
3,053.00	22.67	102.87	2,915.07	-128.47	755.20	21.31	2.32	-2.26	-1.32
3,147.00	23.29	103.14	3,001.61	-136.72	790.96	20.19	0.67	0.66	0.29
3,241.00	20.50	101.02	3,088.83	-144.10	825.22	19.64	3.08	-2.97	-2.26
3,335.00	21.83	98.77	3,176.48	-149.91	858.65	20.46	1.66	1.41	-2.39
3,429.00	23.33	99.30	3,263.28	-155.58	894.29	21.85	1.61	1.60	0.56
3,523.00	22.89	98.55	3,349.73	-161.31	930.74	23.34	0.56	-0.47	-0.80
3,617.00	23.86	100.76	3,436.02	-167.57	967.50	24.36	1.39	1.03	2.35
3,712.00	21.96	101.42	3,523.52	-174.68	1,003.79	24.47	2.02	-2.00	0.69
3,806.00	20.99	99.08	3,611.00	-180.82	1,037.64	25.06	1.38	-1.03	-2.49
3,900.00	20.06	99.74	3,699.03	-186.20	1,070.16	26.12	1.02	-0.99	0.70
3,994.00	21.21	96.17	3,787.00	-190.76	1,102.95	28.05	1.81	1.22	-3.80
4,088.00	22.63	91.59	3,874.21	-193.09	1,137.94	32.59	2.36	1.51	-4.87
4,183.00	22.18	98.69	3,962.05	-196.30	1,173.94	36.46	2.89	-0.47	7.47
4,278.00	21.70	101.07	4,050.17	-202.38	1,208.91	37.31	1.06	-0.51	2.51
4,372.00	19.13	100.40	4,138.26	-208.50	1,241.12	37.59	2.75	-2.73	-0.71
4,466.00	21.12	97.32	4,226.52	-213.44	1,273.07	38.98	2.40	2.12	-3.28

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Survey										
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4,560.00	22.93	96.79	4,313.66	-217.77	1,308.05	41.57	1.94	1.93	-0.56	
4,654.00	23.20	98.11	4,400.14	-222.54	1,344.56	44.00	0.62	0.29	1.40	
4,748.00	25.41	97.32	4,485.81	-227.72	1,382.90	46.40	2.38	2.35	-0.84	
4,843.00	23.33	96.35	4,572.34	-232.40	1,421.82	49.40	2.23	-2.19	-1.02	
4,936.00	24.30	95.42	4,657.42	-236.25	1,459.17	52.92	1.12	1.04	-1.00	
5,030.00	22.14	94.46	4,743.80	-239.45	1,496.09	56.98	2.33	-2.30	-1.02	
5,124.00	23.73	96.00	4,830.37	-242.81	1,532.56	60.80	1.81	1.69	1.64	
5,218.00	22.45	94.94	4,916.84	-246.33	1,569.26	64.50	1.43	-1.36	-1.13	
5,312.00	20.59	95.34	5,004.28	-249.41	1,603.60	68.18	1.98	-1.98	0.43	
5,406.00	21.83	97.80	5,091.91	-253.32	1,637.37	70.93	1.62	1.32	2.62	
5,501.00	23.24	97.72	5,179.66	-258.24	1,673.45	73.14	1.48	1.48	-0.08	
5,595.00	24.22	97.28	5,265.71	-263.17	1,710.95	75.62	1.06	1.04	-0.47	
5,689.00	20.99	94.90	5,352.48	-267.06	1,746.86	78.82	3.57	-3.44	-2.53	
5,783.00	18.03	88.59	5,441.08	-268.14	1,778.19	83.87	3.86	-3.15	-6.71	
5,876.00	15.29	91.28	5,530.17	-268.06	1,804.84	89.14	3.06	-2.95	2.89	
5,971.00	16.22	101.20	5,621.62	-270.91	1,830.38	91.32	3.00	0.98	10.44	
6,064.00	16.97	102.48	5,710.74	-276.37	1,856.38	91.04	0.90	0.81	1.38	
6,159.00	14.45	100.40	5,802.19	-281.51	1,881.58	90.92	2.72	-2.65	-2.19	
6,252.00	13.39	105.69	5,892.46	-286.51	1,903.36	90.26	1.78	-1.14	5.69	
6,346.00	11.14	103.97	5,984.31	-291.65	1,922.65	88.98	2.42	-2.39	-1.83	
6,440.00	9.24	101.33	6,076.82	-295.32	1,938.86	88.54	2.08	-2.02	-2.81	
6,534.00	7.73	100.85	6,169.79	-298.00	1,952.47	88.58	1.61	-1.61	-0.51	
6,629.00	5.92	99.74	6,264.11	-300.03	1,963.58	88.75	1.91	-1.91	-1.17	
6,723.00	3.45	106.93	6,357.79	-301.67	1,971.06	88.60	2.70	-2.63	7.65	
6,817.00	0.97	155.71	6,451.72	-303.22	1,974.10	87.67	3.09	-2.64	51.89	
6,935.00	0.93	192.06	6,569.70	-305.07	1,974.31	85.90	0.50	-0.03	30.81	
7,028.00	0.97	186.56	6,662.69	-306.59	1,974.06	84.36	0.11	0.04	-5.91	
7,123.00	0.66	212.60	6,757.68	-307.85	1,973.67	83.05	0.50	-0.33	27.41	
7,217.00	1.10	256.40	6,851.67	-308.52	1,972.50	82.17	0.82	0.47	46.60	
7,311.00	10.30	343.92	6,945.16	-300.63	1,969.29	89.27	10.97	9.79	93.11	
7,405.00	17.06	359.65	7,036.47	-278.74	1,966.88	110.28	8.15	7.19	16.73	
7,499.00	27.49	357.19	7,123.33	-243.18	1,965.72	144.92	11.14	11.10	-2.62	
7,536.10	29.98	355.17	7,155.86	-225.39	1,964.52	162.14	7.21	6.71	-5.45	
30° Inclination @ 7536'MD										
7,593.00	33.85	352.60	7,204.16	-195.49	1,961.28	190.83	7.21	6.80	-4.51	
7,603.37	34.65	353.41	7,212.73	-189.70	1,960.57	196.37	8.85	7.67	7.85	
EL Sect. 17 @ 7603'MD										
7,686.00	41.14	358.90	7,277.92	-139.13	1,957.35	245.35	8.85	7.86	6.64	
7,780.00	47.86	359.08	7,344.93	-73.29	1,956.20	309.70	7.15	7.15	0.19	
7,874.00	58.55	356.57	7,401.15	1.81	1,953.23	382.77	11.57	11.37	-2.67	
7,968.00	65.18	355.11	7,445.46	84.43	1,947.19	462.63	7.18	7.05	-1.55	
8,019.25	69.97	359.01	7,465.01	131.72	1,944.79	508.54	11.69	9.34	7.61	
70° Inclination @ 8019'MD										
8,062.00	74.02	2.08	7,478.22	172.36	1,945.19	548.47	11.69	9.48	7.18	

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8,156.00	78.52	3.71	7,500.53	263.53	1,949.81	638.79	5.07	4.79	1.73
8,249.00	86.21	1.77	7,512.88	355.52	1,954.20	729.88	8.52	8.27	-2.09
8,343.00	87.05	0.27	7,518.40	449.34	1,955.87	822.22	1.83	0.89	-1.60
8,437.00	86.08	359.70	7,524.04	543.17	1,955.84	914.25	1.20	-1.03	-0.61
8,530.00	88.29	359.96	7,528.60	636.05	1,955.57	1,005.29	2.39	2.38	0.28
8,624.00	88.16	359.48	7,531.52	730.01	1,955.11	1,097.35	0.53	-0.14	-0.51
8,718.00	92.00	357.93	7,531.38	823.96	1,952.99	1,189.09	4.41	4.09	-1.65
8,812.00	92.62	357.58	7,527.60	917.81	1,949.31	1,280.42	0.76	0.66	-0.37
8,907.00	90.63	357.14	7,524.90	1,012.67	1,944.93	1,372.60	2.15	-2.09	-0.46
9,002.00	90.37	356.74	7,524.07	1,107.53	1,939.86	1,464.65	0.50	-0.27	-0.42
9,096.00	91.16	359.43	7,522.82	1,201.46	1,936.72	1,556.16	2.98	0.84	2.86
9,190.00	90.94	359.48	7,521.09	1,295.44	1,935.83	1,648.16	0.24	-0.23	0.05
9,284.00	91.60	359.21	7,519.01	1,389.41	1,934.75	1,740.11	0.76	0.70	-0.29
9,378.00	92.22	359.17	7,515.88	1,483.35	1,933.42	1,831.99	0.66	0.66	-0.04
9,473.00	90.72	0.23	7,513.44	1,578.31	1,932.93	1,925.03	1.93	-1.58	1.12
9,567.00	91.60	0.93	7,511.54	1,672.29	1,933.88	2,017.39	1.20	0.94	0.74
9,662.00	91.30	0.62	7,509.13	1,767.25	1,935.16	2,110.77	0.45	-0.32	-0.33
9,756.00	89.13	359.65	7,508.78	1,861.24	1,935.39	2,203.00	2.53	-2.31	-1.03
9,850.00	89.31	359.48	7,510.06	1,955.23	1,934.67	2,295.05	0.26	0.19	-0.18
9,944.00	89.26	359.21	7,511.23	2,049.21	1,933.60	2,387.02	0.29	-0.05	-0.29
10,039.00	90.23	359.79	7,511.66	2,144.21	1,932.77	2,480.03	1.19	1.02	0.61
10,133.00	90.37	358.95	7,511.16	2,238.20	1,931.73	2,572.01	0.91	0.15	-0.89
10,226.00	90.90	358.73	7,510.13	2,331.18	1,929.85	2,662.83	0.62	0.57	-0.24
10,321.00	91.21	358.24	7,508.39	2,426.13	1,927.34	2,755.47	0.61	0.33	-0.52
10,414.00	91.34	359.26	7,506.32	2,519.08	1,925.31	2,846.24	1.11	0.14	1.10
10,508.00	89.44	359.30	7,505.68	2,613.07	1,924.13	2,938.19	2.02	-2.02	0.04
10,602.00	89.93	359.17	7,506.19	2,707.06	1,922.88	3,030.13	0.54	0.52	-0.14
10,696.00	89.00	357.93	7,507.07	2,801.02	1,920.50	3,121.83	1.65	-0.99	-1.32
10,790.00	90.54	359.04	7,507.45	2,894.98	1,918.01	3,213.50	2.02	1.64	1.18
10,884.00	90.54	1.02	7,506.56	2,988.97	1,918.06	3,305.69	2.11	0.00	2.11
10,979.00	90.72	0.45	7,505.52	3,083.96	1,919.28	3,399.09	0.63	0.19	-0.60
11,073.00	91.21	359.92	7,503.93	3,177.94	1,919.58	3,491.33	0.77	0.52	-0.56
11,167.00	90.54	1.90	7,502.50	3,271.92	1,921.08	3,583.79	2.22	-0.71	2.11
11,261.00	91.07	2.08	7,501.18	3,365.85	1,924.34	3,676.56	0.60	0.56	0.19
11,356.00	91.43	1.42	7,499.11	3,460.78	1,927.24	3,770.23	0.79	0.38	-0.69
11,450.00	88.82	1.72	7,498.90	3,554.74	1,929.82	3,862.89	2.79	-2.78	0.32
11,544.00	89.62	1.24	7,500.18	3,648.70	1,932.24	3,955.51	0.99	0.85	-0.51
11,638.00	90.68	1.15	7,499.93	3,742.67	1,934.20	4,048.07	1.13	1.13	-0.10
11,732.00	92.05	0.80	7,497.69	3,836.63	1,935.80	4,140.53	1.50	1.46	-0.37
11,827.00	93.59	1.15	7,493.02	3,931.50	1,937.42	4,233.89	1.66	1.62	0.37
11,921.00	92.18	1.90	7,488.29	4,025.34	1,939.92	4,326.42	1.70	-1.50	0.80
12,015.00	90.85	1.59	7,485.80	4,119.27	1,942.78	4,419.10	1.45	-1.41	-0.33
12,109.00	91.65	1.28	7,483.75	4,213.21	1,945.13	4,511.70	0.91	0.85	-0.33

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-13C
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4963.20ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4963.20ft (Patterson #346)
Well:	Rinn Valley East N17-20-13C	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)
12,202.00	91.38	0.53	7,481.30	4,306.17	1,946.60	4,603.16	0.86	-0.29	-0.81
12,296.00	91.30	359.79	7,479.10	4,400.14	1,946.86	4,695.38	0.79	-0.09	-0.79
12,390.00	92.27	359.61	7,476.17	4,494.09	1,946.37	4,787.43	1.05	1.03	-0.19
12,484.00	91.21	359.61	7,473.31	4,588.05	1,945.73	4,879.45	1.13	-1.13	0.00
12,578.00	88.42	358.55	7,473.62	4,682.02	1,944.22	4,971.33	3.18	-2.97	-1.13
12,672.00	88.42	359.92	7,476.21	4,775.98	1,942.97	5,063.23	1.46	0.00	1.46
12,767.00	88.91	359.56	7,478.42	4,870.95	1,942.54	5,156.30	0.64	0.52	-0.38
12,861.00	88.60	0.09	7,480.47	4,964.93	1,942.25	5,248.41	0.65	-0.33	0.56
12,935.45	90.42	359.43	7,481.10	5,039.37	1,941.94	5,321.36	2.60	2.45	-0.88
Crossing Sect. 17 & 8 @ 12935'MD									
12,955.00	90.90	359.26	7,480.88	5,058.92	1,941.72	5,340.49	2.60	2.45	-0.88
13,049.00	91.47	359.04	7,478.93	5,152.89	1,940.32	5,432.39	0.65	0.61	-0.23
13,143.00	90.10	359.34	7,477.64	5,246.87	1,938.99	5,524.30	1.49	-1.46	0.32
13,237.00	90.37	359.34	7,477.26	5,340.86	1,937.91	5,616.28	0.29	0.29	0.00
13,331.00	88.95	359.56	7,477.82	5,434.85	1,937.01	5,708.29	1.53	-1.51	0.23
13,425.00	90.50	359.70	7,478.27	5,528.84	1,936.40	5,800.36	1.66	1.65	0.15
13,519.00	91.21	359.74	7,476.87	5,622.83	1,935.94	5,892.45	0.76	0.76	0.04
13,613.00	91.91	359.43	7,474.31	5,716.79	1,935.26	5,984.47	0.81	0.74	-0.33
13,707.00	92.31	359.21	7,470.85	5,810.72	1,934.15	6,076.38	0.49	0.43	-0.23
13,802.00	93.33	359.04	7,466.17	5,905.60	1,932.70	6,169.15	1.09	1.07	-0.18
13,896.00	92.89	0.49	7,461.07	5,999.45	1,932.31	6,261.13	1.61	-0.47	1.54
13,989.00	91.25	1.15	7,457.71	6,092.38	1,933.64	6,352.53	1.90	-1.76	0.71
14,083.00	91.12	1.15	7,455.77	6,186.34	1,935.53	6,445.05	0.14	-0.14	0.00
14,177.00	90.50	359.56	7,454.44	6,280.33	1,936.11	6,537.35	1.82	-0.66	-1.69
14,270.00	91.21	358.51	7,453.05	6,373.30	1,934.55	6,628.23	1.36	0.76	-1.13
14,364.00	88.51	358.11	7,453.28	6,467.25	1,931.77	6,719.84	2.90	-2.87	-0.43
14,458.00	88.82	359.52	7,455.47	6,561.20	1,929.83	6,811.60	1.54	0.33	1.50
14,552.00	90.50	2.03	7,456.03	6,655.18	1,931.10	6,904.03	3.21	1.79	2.67
14,647.00	91.21	2.08	7,454.61	6,750.11	1,934.51	6,997.79	0.75	0.75	0.05
14,741.00	92.00	1.59	7,451.98	6,844.02	1,937.52	7,090.49	0.99	0.84	-0.52
14,835.00	91.69	3.57	7,448.95	6,937.87	1,941.75	7,183.36	2.13	-0.33	2.11
14,929.00	90.37	3.05	7,447.26	7,031.70	1,947.17	7,276.45	1.51	-1.40	-0.55
15,023.00	90.72	2.43	7,446.37	7,125.59	1,951.67	7,369.41	0.76	0.37	-0.66
15,117.00	91.56	1.64	7,444.50	7,219.51	1,955.00	7,462.17	1.23	0.89	-0.84
15,211.00	89.97	1.86	7,443.24	7,313.45	1,957.87	7,554.87	1.71	-1.69	0.23
15,305.00	90.77	1.15	7,442.64	7,407.42	1,960.34	7,647.51	1.14	0.85	-0.76
15,399.00	91.60	0.58	7,440.69	7,501.39	1,961.76	7,739.95	1.07	0.88	-0.61
15,492.00	90.10	0.71	7,439.31	7,594.37	1,962.81	7,831.35	1.62	-1.61	0.14
15,586.00	90.68	0.01	7,438.67	7,688.36	1,963.40	7,923.66	0.97	0.62	-0.74
15,681.00	90.50	0.23	7,437.69	7,783.36	1,963.60	8,016.87	0.30	-0.19	0.23
15,775.00	90.23	1.37	7,437.10	7,877.34	1,964.91	8,109.31	1.25	-0.29	1.21
15,870.00	90.99	1.81	7,436.08	7,972.30	1,967.55	8,202.95	0.92	0.80	0.46
15,964.00	89.31	2.16	7,435.84	8,066.24	1,970.80	8,295.72	1.83	-1.79	0.37
16,058.00	88.73	1.77	7,437.45	8,160.17	1,974.02	8,388.48	0.74	-0.62	-0.41

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Rinn Valley East N17-20-13C
Project:	Weld County, CO (NAD83)	TVD Reference:	KB=25 @ 4963.20ft (Patterson #346)
Site:	Rinn Valley East Pad (Sec.18-T2N-R68W)	MD Reference:	KB=25 @ 4963.20ft (Patterson #346)
Well:	Rinn Valley East N17-20-13C	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)
16,151.00	90.59	1.72	7,438.00	8,253.12	1,976.86	8,480.20	2.00	2.00	-0.05
16,245.00	93.06	1.64	7,435.00	8,347.03	1,979.61	8,572.83	2.63	2.63	-0.09
16,339.00	91.87	0.93	7,430.96	8,440.91	1,981.72	8,665.33	1.47	-1.27	-0.76
16,433.00	90.37	0.71	7,429.12	8,534.88	1,983.06	8,757.76	1.61	-1.60	-0.23
16,527.00	89.93	0.98	7,428.88	8,628.87	1,984.45	8,850.21	0.55	-0.47	0.29
16,621.00	88.78	0.80	7,429.94	8,722.85	1,985.91	8,942.67	1.24	-1.22	-0.19
16,715.00	91.38	0.84	7,429.80	8,816.84	1,987.25	9,035.11	2.77	2.77	0.04
16,809.00	88.07	0.36	7,430.26	8,910.82	1,988.24	9,127.48	3.56	-3.52	-0.51
16,904.00	89.40	359.79	7,432.35	9,005.79	1,988.36	9,220.65	1.52	1.40	-0.60
16,999.00	89.79	359.08	7,433.02	9,100.78	1,987.42	9,313.64	0.85	0.41	-0.75
17,093.00	93.15	359.17	7,430.61	9,194.73	1,985.99	9,405.50	3.58	3.57	0.10
17,187.00	92.14	358.46	7,426.28	9,288.61	1,984.05	9,497.19	1.31	-1.07	-0.76
17,281.00	90.63	357.93	7,424.00	9,382.53	1,981.09	9,588.73	1.70	-1.61	-0.56
17,375.00	91.69	357.67	7,422.10	9,476.44	1,977.48	9,680.14	1.16	1.13	-0.28
17,469.00	93.06	357.45	7,418.21	9,570.27	1,973.48	9,771.38	1.48	1.46	-0.23
17,563.00	87.80	357.98	7,417.50	9,664.16	1,969.73	9,862.74	5.62	-5.60	0.56
17,657.00	89.22	357.89	7,419.94	9,758.06	1,966.35	9,954.18	1.51	1.51	-0.10
17,734.00	91.38	358.02	7,419.54	9,835.01	1,963.60	10,029.11	2.81	2.81	0.17
Last MWD Survey @ 17734'MD									
17,796.00	91.38	358.02	7,418.05	9,896.95	1,961.46	10,089.45	0.00	0.00	0.00
PTB @ TD @ 17796'MD (512'FNL & 1422'FWL)									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,575.00	1,551.97	-34.40	192.75	Tie in to Surface Surveys @ 1575'MD
1,644.00	1,616.79	-39.30	215.88	First MWD Survey @ 1644'MD
7,536.10	7,155.86	-225.39	1,964.52	30° Inclination @ 7536'MD
7,603.37	7,212.73	-189.70	1,960.57	EL Sect. 17 @ 7603'MD
8,019.25	7,465.01	131.72	1,944.79	70° Inclination @ 8019'MD
12,935.45	7,481.10	5,039.37	1,941.94	Crossing Sect. 17 & 8 @ 12935'MD
17,734.00	7,419.54	9,835.01	1,963.60	Last MWD Survey @ 17734'MD
17,796.00	7,418.05	9,896.95	1,961.46	PTB @ TD @ 17796'MD (512'FNL & 1422'FWL)

Checked By: _____	Approved By: _____	Date: _____
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