



Extraction Oil & Gas

Weld County, CO (NAD83)

Sec.19-T7N-R65W

WAAG 2

Wellbore #1 / #1422516

Survey: Phoenix MWD Surveys

Standard Survey Report

17 January, 2015



Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well WAAG 2
Project:	Weld County, CO (NAD83)	TVD Reference:	WELLK @ 4919.00usft (Xtreme #7)
Site:	Sec.19-T7N-R65W	MD Reference:	WELLK @ 4919.00usft (Xtreme #7)
Well:	WAAG 2	North Reference:	True
Wellbore:	Wellbore #1 / #1422516	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Xtreme #7)	Database:	Compass 5000 RMR

Project	Weld County, CO (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec.19-T7N-R65W					
Site Position:		Northing:	1,450,756.06	usft	Latitude:	40° 34' 4.935 N	
From:	Map	Easting:	3,219,612.83	usft	Longitude:	104° 42' 34.213 W	
Position Uncertainty:		0.00	usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.51 °

Well	WAAG 2					
Well Position	+N/-S	0.00 usft	Northing:	1,450,742.96 usft	Latitude:	40° 34' 4.804 N
	+E/-W	0.00 usft	Easting:	3,219,637.56 usft	Longitude:	104° 42' 33.894 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	4,902.00 usft

Wellbore	Wellbore #1 / #1422516				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	12/15/2014	8.38	67.07	52,855

Design	Surveys (Xtreme #7)				
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	268.71	

Survey Program	Date	1/17/2015			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
147.00	11,756.00	Phoenix MWD Surveys (Wellbore #1 / #14	PHX+MWD+IGRF	PHX+MWD+IGRF v3:standard declination	

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
147.00	0.90	70.80	146.99	0.38	1.09	-1.10	0.61	0.61	0.00
First Phoenix MWD Survey									
239.00	0.90	72.80	238.98	0.83	2.46	-2.48	0.03	0.00	2.17
332.00	0.50	80.90	331.98	1.11	3.56	-3.59	0.44	-0.43	8.71
424.00	0.30	71.20	423.97	1.25	4.19	-4.21	0.23	-0.22	-10.54
516.00	0.20	70.60	515.97	1.38	4.57	-4.60	0.11	-0.11	-0.65
608.00	0.10	128.90	607.97	1.39	4.78	-4.81	0.19	-0.11	63.37
701.00	0.20	96.40	700.97	1.32	5.00	-5.03	0.14	0.11	-34.95
793.00	0.10	115.10	792.97	1.27	5.24	-5.26	0.12	-0.11	20.33
839.00	0.20	76.10	838.97	1.27	5.35	-5.38	0.30	0.22	-84.78

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Well:	WAAG 2	North Reference:	True
Wellbore:	Wellbore #1 / #1422516	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Xtreme #7)	Database:	Compass 5000 RMR

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)
989.00	0.40	87.70	988.97	1.35	6.13	-6.16	0.14	0.13	7.73
1,082.00	0.50	90.00	1,081.97	1.36	6.86	-6.89	0.11	0.11	2.47
1,172.00	3.90	117.00	1,171.89	-0.03	9.98	-9.98	3.85	3.78	30.00
1,263.00	6.80	118.30	1,262.48	-3.99	17.48	-17.39	3.19	3.19	1.43
1,354.00	8.30	125.60	1,352.69	-10.36	27.57	-27.33	1.95	1.65	8.02
1,444.00	10.90	122.60	1,441.42	-18.73	40.02	-39.59	2.94	2.89	-3.33
1,534.00	13.90	122.60	1,529.32	-29.14	56.30	-55.63	3.33	3.33	0.00
1,625.00	15.00	116.70	1,617.44	-40.32	76.03	-75.10	2.02	1.21	-6.48
1,715.00	14.60	103.70	1,704.48	-48.25	97.46	-96.35	3.71	-0.44	-14.44
1,805.00	13.90	90.60	1,791.73	-51.05	119.30	-118.12	3.66	-0.78	-14.56
1,896.00	12.20	87.40	1,880.38	-50.72	139.83	-138.66	2.03	-1.87	-3.52
1,986.00	10.90	80.30	1,968.56	-48.86	157.72	-156.58	2.14	-1.44	-7.89
2,076.00	12.50	80.50	2,056.69	-45.82	175.72	-174.64	1.78	1.78	0.22
2,166.00	11.50	76.20	2,144.72	-42.07	194.04	-193.04	1.49	-1.11	-4.78
2,256.00	13.50	84.80	2,232.59	-38.98	213.21	-212.28	3.03	2.22	9.56
2,346.00	15.00	97.20	2,319.84	-39.48	235.24	-234.29	3.77	1.67	13.78
2,437.00	14.00	95.00	2,407.94	-41.92	257.89	-256.88	1.25	-1.10	-2.42
2,529.00	13.00	92.80	2,497.40	-43.40	279.31	-278.26	1.22	-1.09	-2.39
2,621.00	11.70	89.10	2,587.27	-43.75	298.97	-297.91	1.65	-1.41	-4.02
2,713.00	12.90	97.70	2,677.16	-44.98	318.48	-317.39	2.38	1.30	9.35
2,805.00	12.20	96.10	2,766.96	-47.39	338.32	-337.17	0.85	-0.76	-1.74
2,897.00	11.30	94.50	2,857.04	-49.13	356.98	-355.78	1.04	-0.98	-1.74
2,989.00	11.00	91.40	2,947.30	-50.06	374.74	-373.51	0.73	-0.33	-3.37
3,081.00	13.30	105.90	3,037.25	-53.17	393.69	-392.40	4.14	2.50	15.76
3,174.00	12.60	108.30	3,127.89	-59.29	413.61	-412.17	0.95	-0.75	2.58
3,266.00	11.30	106.40	3,217.89	-64.98	431.79	-430.22	1.48	-1.41	-2.07
3,358.00	10.30	104.80	3,308.26	-69.63	448.39	-446.71	1.13	-1.09	-1.74
3,450.00	13.30	106.60	3,398.31	-74.75	466.49	-464.68	3.28	3.26	1.96
3,542.00	11.70	105.60	3,488.12	-80.29	485.61	-483.68	1.75	-1.74	-1.09
3,634.00	10.50	102.60	3,578.40	-84.62	502.78	-500.75	1.45	-1.30	-3.26
3,726.00	12.60	108.20	3,668.54	-89.59	520.49	-518.35	2.59	2.28	6.09
3,818.00	10.50	108.70	3,758.67	-95.41	537.97	-535.69	2.29	-2.28	0.54
3,911.00	12.70	104.20	3,849.77	-100.63	555.91	-553.50	2.56	2.37	-4.84
4,003.00	12.50	102.50	3,939.55	-105.27	575.43	-572.92	0.46	-0.22	-1.85
4,095.00	12.80	100.00	4,029.32	-109.19	595.19	-592.58	0.68	0.33	-2.72
4,187.00	13.70	98.60	4,118.87	-112.59	616.00	-613.31	1.04	0.98	-1.52
4,279.00	13.80	98.60	4,208.23	-115.86	637.62	-634.85	0.11	0.11	0.00
4,371.00	13.50	98.20	4,297.63	-119.04	659.10	-656.25	0.34	-0.33	-0.43
4,463.00	12.50	97.10	4,387.27	-121.80	679.61	-676.69	1.12	-1.09	-1.20
4,555.00	11.70	95.40	4,477.23	-123.91	698.77	-695.81	0.95	-0.87	-1.85
4,647.00	10.50	96.00	4,567.51	-125.66	716.40	-713.39	1.31	-1.30	0.65
4,732.00	12.20	100.70	4,650.84	-128.14	732.93	-729.86	2.28	2.00	5.53
4,816.00	12.20	100.30	4,732.95	-131.37	750.38	-747.23	0.10	0.00	-0.48

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Survey										
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4,901.00	11.30	99.80	4,816.16	-134.40	767.43	-764.21	1.07	-1.06	-0.59	
4,985.00	10.60	101.00	4,898.64	-137.27	783.12	-779.83	0.88	-0.83	1.43	
5,070.00	10.00	100.80	4,982.26	-140.15	798.04	-794.69	0.71	-0.71	-0.24	
5,155.00	9.30	103.00	5,066.06	-143.07	811.98	-808.56	0.93	-0.82	2.59	
5,239.00	8.60	102.40	5,149.04	-145.95	824.73	-821.24	0.84	-0.83	-0.71	
5,324.00	7.90	102.20	5,233.16	-148.55	836.65	-833.09	0.82	-0.82	-0.24	
5,408.00	6.60	100.40	5,316.49	-150.64	847.04	-843.43	1.57	-1.55	-2.14	
5,493.00	5.40	95.70	5,401.02	-151.92	855.82	-852.19	1.52	-1.41	-5.53	
5,578.00	4.40	95.00	5,485.71	-152.60	863.05	-859.40	1.18	-1.18	-0.82	
5,662.00	3.40	88.30	5,569.51	-152.81	868.75	-865.09	1.31	-1.19	-7.98	
5,747.00	2.20	87.10	5,654.41	-152.65	872.90	-869.24	1.41	-1.41	-1.41	
5,831.00	1.50	75.30	5,738.36	-152.29	875.58	-871.92	0.94	-0.83	-14.05	
5,916.00	1.30	71.10	5,823.34	-151.69	877.56	-873.93	0.26	-0.24	-4.94	
6,000.00	0.90	70.80	5,907.32	-151.17	879.09	-875.46	0.48	-0.48	-0.36	
6,085.00	0.80	75.60	5,992.31	-150.80	880.29	-876.67	0.14	-0.12	5.65	
6,170.00	0.50	125.90	6,077.31	-150.87	881.17	-877.55	0.72	-0.35	59.18	
6,254.00	0.30	155.50	6,161.31	-151.29	881.56	-877.93	0.33	-0.24	35.24	
6,339.00	0.40	203.40	6,246.31	-151.76	881.53	-877.89	0.35	0.12	56.35	
6,423.00	0.50	250.40	6,330.30	-152.15	881.07	-877.42	0.44	0.12	55.95	
6,508.00	0.40	303.50	6,415.30	-152.11	880.47	-876.82	0.48	-0.12	62.47	
6,593.00	0.40	288.30	6,500.30	-151.86	879.94	-876.30	0.12	0.00	-17.88	
6,635.00	3.70	266.50	6,542.27	-151.89	878.45	-874.81	7.93	7.86	-51.90	
6,677.00	8.20	274.20	6,584.03	-151.76	874.11	-870.47	10.86	10.71	18.33	
6,762.00	16.90	275.70	6,666.92	-150.08	855.73	-852.14	10.24	10.24	1.76	
6,847.00	25.50	272.20	6,746.10	-148.15	825.10	-821.55	10.22	10.12	-4.12	
6,931.00	32.40	272.80	6,819.56	-146.35	784.50	-781.01	8.22	8.21	0.71	
7,016.00	40.40	269.90	6,887.92	-145.29	734.13	-730.67	9.62	9.41	-3.41	
7,100.00	48.90	267.30	6,947.63	-146.83	675.18	-671.70	10.35	10.12	-3.10	
7,185.00	56.60	267.90	6,999.04	-149.64	607.63	-604.11	9.08	9.06	0.71	
7,270.00	60.40	267.10	7,043.45	-152.81	535.24	-531.66	4.54	4.47	-0.94	
7,354.00	64.40	265.20	7,082.36	-157.83	460.99	-457.32	5.17	4.76	-2.26	
7,439.00	67.60	264.90	7,116.93	-164.54	383.63	-379.83	3.78	3.76	-0.35	
7,523.00	72.30	264.30	7,145.72	-171.97	305.10	-301.15	5.64	5.60	-0.71	
7,608.00	78.00	266.20	7,167.49	-178.75	223.26	-219.18	7.05	6.71	2.24	
7,692.00	82.80	273.40	7,181.52	-179.00	140.51	-136.45	10.20	5.71	8.57	
7,716.00	85.80	274.70	7,183.90	-177.31	116.70	-112.68	13.61	12.50	5.42	
7,830.00	90.20	277.60	7,187.88	-165.11	3.46	0.26	4.62	3.86	2.54	
7,922.00	91.10	278.00	7,186.84	-152.62	-87.68	91.09	1.07	0.98	0.43	
8,014.00	91.70	278.40	7,184.59	-139.50	-178.71	181.81	0.78	0.65	0.43	
8,106.00	92.10	277.10	7,181.54	-127.11	-269.82	272.61	1.48	0.43	-1.41	
8,199.00	91.10	275.20	7,178.94	-117.15	-362.24	364.79	2.31	-1.08	-2.04	
8,291.00	88.40	274.00	7,179.34	-109.77	-453.93	456.29	3.21	-2.93	-1.30	
8,383.00	87.60	270.70	7,182.55	-106.00	-545.79	548.04	3.69	-0.87	-3.59	

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8,475.00	88.50	270.80	7,185.68	-104.80	-637.73	639.92	0.98	0.98	0.11
8,567.00	88.30	269.50	7,188.25	-104.55	-729.69	731.86	1.43	-0.22	-1.41
8,659.00	88.90	269.90	7,190.50	-105.04	-821.66	823.81	0.78	0.65	0.43
8,751.00	88.70	269.50	7,192.43	-105.52	-913.64	915.78	0.49	-0.22	-0.43
8,844.00	89.50	270.10	7,193.89	-105.84	-1,006.62	1,008.75	1.08	0.86	0.65
8,936.00	90.20	270.50	7,194.13	-105.36	-1,098.62	1,100.71	0.88	0.76	0.43
9,028.00	90.90	270.60	7,193.25	-104.48	-1,190.61	1,192.66	0.77	0.76	0.11
9,120.00	90.20	269.20	7,192.36	-104.64	-1,282.60	1,284.64	1.70	-0.76	-1.52
9,212.00	90.90	269.30	7,191.48	-105.84	-1,374.59	1,376.63	0.77	0.76	0.11
9,304.00	89.70	268.60	7,191.00	-107.53	-1,466.57	1,468.62	1.51	-1.30	-0.76
9,396.00	87.60	269.10	7,193.17	-109.37	-1,558.52	1,560.59	2.35	-2.28	0.54
9,488.00	87.80	269.60	7,196.86	-110.42	-1,650.44	1,652.51	0.58	0.22	0.54
9,580.00	88.20	269.90	7,200.07	-110.82	-1,742.39	1,744.44	0.54	0.43	0.33
9,672.00	88.60	270.10	7,202.64	-110.82	-1,834.35	1,836.38	0.49	0.43	0.22
9,757.00	88.80	270.60	7,204.57	-110.30	-1,919.33	1,921.32	0.63	0.24	0.59
9,842.00	89.00	271.00	7,206.20	-109.11	-2,004.30	2,006.25	0.53	0.24	0.47
9,926.00	89.30	271.20	7,207.44	-107.50	-2,088.28	2,090.17	0.43	0.36	0.24
10,011.00	89.80	271.80	7,208.11	-105.28	-2,173.24	2,175.06	0.92	0.59	0.71
10,095.00	89.90	272.00	7,208.33	-102.49	-2,257.20	2,258.93	0.27	0.12	0.24
10,180.00	90.20	269.90	7,208.26	-101.08	-2,342.18	2,343.86	2.50	0.35	-2.47
10,264.00	91.40	270.30	7,207.08	-100.93	-2,426.17	2,427.83	1.51	1.43	0.48
10,349.00	92.20	270.60	7,204.41	-100.27	-2,511.13	2,512.75	1.01	0.94	0.35
10,434.00	91.50	270.10	7,201.67	-99.75	-2,596.08	2,597.67	1.01	-0.82	-0.59
10,518.00	91.60	267.50	7,199.40	-101.51	-2,680.02	2,681.63	3.10	0.12	-3.10
10,603.00	92.00	267.20	7,196.73	-105.43	-2,764.89	2,766.56	0.59	0.47	-0.35
10,687.00	90.70	266.80	7,194.75	-109.83	-2,848.75	2,850.50	1.62	-1.55	-0.48
10,772.00	89.20	266.40	7,194.82	-114.87	-2,933.60	2,935.44	1.83	-1.76	-0.47
10,857.00	88.80	268.80	7,196.31	-118.43	-3,018.50	3,020.40	2.86	-0.47	2.82
10,941.00	89.10	270.40	7,197.85	-119.02	-3,102.48	3,104.38	1.94	0.36	1.90
11,026.00	89.90	270.70	7,198.59	-118.20	-3,187.48	3,189.33	1.01	0.94	0.35
11,110.00	89.10	270.20	7,199.32	-117.54	-3,271.47	3,273.29	1.12	-0.95	-0.60
11,195.00	89.60	270.50	7,200.28	-117.02	-3,356.46	3,358.25	0.69	0.59	0.35
11,280.00	88.00	270.50	7,202.06	-116.28	-3,441.44	3,443.18	1.88	-1.88	0.00
11,364.00	88.00	270.60	7,205.00	-115.47	-3,525.38	3,527.09	0.12	0.00	0.12
11,449.00	88.50	271.30	7,207.59	-114.06	-3,610.33	3,611.98	1.01	0.59	0.82
11,533.00	89.10	272.00	7,209.35	-111.65	-3,694.28	3,695.85	1.10	0.71	0.83
11,618.00	88.00	271.30	7,211.50	-109.20	-3,779.21	3,780.71	1.53	-1.29	-0.82
11,702.00	88.20	270.60	7,214.29	-107.81	-3,863.15	3,864.60	0.87	0.24	-0.83
11,756.00	88.60	270.60	7,215.79	-107.24	-3,917.13	3,918.55	0.74	0.74	0.00
Last Phoenix MWD Survey									
11,822.00	88.60	270.60	7,217.41	-106.55	-3,983.11	3,984.50	0.00	0.00	0.00
Projection to TD									

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well WAAG 2
Project:	Weld County, CO (NAD83)	TVD Reference:	WELLK @ 4919.00usft (Xtreme #7)
Site:	Sec.19-T7N-R65W	MD Reference:	WELLK @ 4919.00usft (Xtreme #7)
Well:	WAAG 2	North Reference:	True
Wellbore:	Wellbore #1 / #1422516	Survey Calculation Method:	Minimum Curvature
Design:	Surveys (Xtreme #7)	Database:	Compass 5000 RMR

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
147.00	146.99	0.38	1.09	First Phoenix MWD Survey
11,756.00	7,215.79	-107.24	-3,917.13	Last Phoenix MWD Survey
11,822.00	7,217.41	-106.55	-3,983.11	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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