

Extraction Oil and Gas

Weld County, CO (NAD83)

Sec 21-T05N-R65W Ardrey Pad

AD Fed Dairy 20W-25-16

Wellbore #1

Design: Wellbore #1

Standard Survey Report

03 September, 2019

Survey Report

Company:	Extraction Oil and Gas	Local Co-ordinate Reference:	Well AD Fed Dairy 20W-25-16
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 4666.00usft (Ensign 147)
Site:	Sec 21-T05N-R65W Ardrey Pad	MD Reference:	KB @ 4666.00usft (Ensign 147)
Well:	AD Fed Dairy 20W-25-16	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 21-T05N-R65W Ardrey Pad						
Site Position:		Northing:	1,386,649.39	usft	Latitude:	40.391840		
From:	Lat/Long	Easting:	3,229,007.14	usft	Longitude:	-104.677830		
Position Uncertainty:	0.00	usft	Slot Radius:	13-3/16	"	Grid Convergence:	0.53	°

Well	AD Fed Dairy 20W-25-16					
Well Position	+N/-S	0.00 usft	Northing:	1,383,261.39 usft	Latitude:	40.382530
	+E/-W	0.00 usft	Easting:	3,229,411.87 usft	Longitude:	-104.676490
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,638.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	7/10/2019	7.94	66.80	52,118.30751046

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	264.40	

Survey Program	Date	9/3/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
126.00	1,561.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,625.00	19,756.00	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	
126.00	0.31	227.70	126.00	-0.23	-0.25	0.27	0.25	0.25	0.00	
213.00	0.44	216.18	213.00	-0.66	-0.62	0.68	0.17	0.15	-13.24	
300.00	0.66	185.16	299.99	-1.43	-0.87	1.00	0.42	0.25	-35.66	
388.00	1.27	201.15	387.98	-2.84	-1.26	1.53	0.75	0.69	18.17	
475.00	2.72	199.57	474.93	-5.68	-2.30	2.85	1.67	1.67	-1.82	
562.00	4.66	196.14	561.74	-11.03	-3.98	5.03	2.24	2.23	-3.94	
649.00	6.86	194.21	648.30	-19.46	-6.23	8.10	2.54	2.53	-2.22	
737.00	8.35	194.30	735.52	-30.74	-9.10	12.06	1.69	1.69	0.10	
824.00	10.02	191.93	821.40	-44.27	-12.23	16.49	1.97	1.92	-2.72	

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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)
911.00	11.43	192.63	906.88	-60.09	-15.68	21.47	1.63	1.62	0.80
998.00	13.05	192.37	991.90	-78.10	-19.67	27.20	1.86	1.86	-0.30
1,086.00	12.92	190.87	1,077.65	-97.46	-23.65	33.05	0.41	-0.15	-1.70
1,173.00	13.45	190.52	1,162.36	-116.96	-27.33	38.62	0.62	0.61	-0.40
1,260.00	13.36	189.11	1,246.99	-136.84	-30.77	43.98	0.39	-0.10	-1.62
1,348.00	12.04	191.05	1,332.83	-155.88	-34.14	49.20	1.58	-1.50	2.20
1,435.00	11.87	191.13	1,417.94	-173.57	-37.61	54.37	0.20	-0.20	0.09
1,522.00	11.73	189.90	1,503.11	-191.06	-40.85	59.31	0.33	-0.16	-1.41
1,561.00	11.82	190.70	1,541.29	-198.89	-42.28	61.49	0.48	0.23	2.05
Tie into Surface Surveys									
1,625.00	11.45	189.59	1,603.97	-211.59	-44.55	65.00	0.68	-0.58	-1.73
First MWD Survey @ 1625' MD									
1,715.00	13.39	193.99	1,691.86	-230.52	-48.56	70.84	2.40	2.16	4.89
1,804.00	12.68	188.22	1,778.57	-250.19	-52.45	76.63	1.66	-0.80	-6.48
1,893.00	12.11	188.18	1,865.50	-269.09	-55.17	81.18	0.64	-0.64	-0.04
1,982.00	14.14	191.88	1,952.17	-288.97	-58.74	86.67	2.47	2.28	4.16
2,072.00	13.70	190.38	2,039.53	-310.22	-62.92	92.91	0.63	-0.49	-1.67
2,162.00	12.68	188.22	2,127.15	-330.48	-66.26	98.21	1.26	-1.13	-2.40
2,251.00	11.36	188.57	2,214.20	-348.81	-68.96	102.69	1.49	-1.48	0.39
2,340.00	13.12	195.67	2,301.18	-367.21	-72.99	108.50	2.60	1.98	7.98
2,430.00	12.59	194.92	2,388.92	-386.52	-78.28	115.64	0.62	-0.59	-0.83
2,519.00	11.67	193.51	2,475.93	-404.65	-82.88	121.99	1.09	-1.03	-1.58
2,608.00	15.16	192.93	2,562.49	-424.75	-87.59	128.64	3.92	3.92	-0.65
2,698.00	16.00	191.92	2,649.18	-448.35	-92.78	136.12	0.98	0.93	-1.12
2,787.00	14.54	189.45	2,735.04	-471.38	-97.15	142.71	1.80	-1.64	-2.78
2,876.00	13.61	188.88	2,821.37	-492.74	-100.60	148.23	1.06	-1.04	-0.64
2,966.00	12.99	187.82	2,908.95	-513.23	-103.61	153.23	0.74	-0.69	-1.18
3,056.00	12.11	185.58	2,996.80	-532.64	-105.91	157.41	1.12	-0.98	-2.49
3,145.00	11.71	189.32	3,083.89	-550.85	-108.28	161.54	0.98	-0.45	4.20
3,235.00	11.93	194.52	3,171.98	-568.87	-112.09	167.10	1.21	0.24	5.78
3,324.00	13.48	194.65	3,258.80	-587.81	-117.02	173.85	1.74	1.74	0.15
3,414.00	11.71	193.42	3,346.63	-606.84	-121.79	180.46	1.99	-1.97	-1.37
3,503.00	13.61	191.97	3,433.46	-625.87	-126.06	186.57	2.16	2.13	-1.63
3,593.00	12.59	190.07	3,521.12	-645.89	-129.97	192.41	1.23	-1.13	-2.11
3,682.00	11.45	191.26	3,608.17	-664.11	-133.39	197.60	1.31	-1.28	1.34
3,771.00	14.49	193.51	3,694.89	-683.60	-137.72	203.81	3.46	3.42	2.53
3,860.00	15.07	192.10	3,780.94	-705.74	-142.75	210.97	0.77	0.65	-1.58
3,949.00	15.25	192.76	3,866.85	-728.47	-147.76	218.18	0.28	0.20	0.74
4,039.00	13.26	189.59	3,954.07	-750.19	-152.09	224.61	2.37	-2.21	-3.52
4,128.00	12.42	191.52	4,040.85	-769.64	-155.70	230.10	1.06	-0.94	2.17
4,218.00	11.89	192.23	4,128.83	-788.18	-159.60	235.79	0.61	-0.59	0.79
4,307.00	10.83	191.30	4,216.08	-805.34	-163.18	241.03	1.21	-1.19	-1.04
4,397.00	12.73	190.51	4,304.18	-823.38	-166.65	246.24	2.12	2.11	-0.88

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Survey									
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4,487.00	12.28	189.54	4,392.05	-842.57	-170.04	251.50	0.55	-0.50	-1.08
4,576.00	12.28	187.12	4,479.01	-861.30	-172.78	256.05	0.58	0.00	-2.72
4,666.00	13.30	190.64	4,566.78	-880.97	-175.88	261.06	1.43	1.13	3.91
4,755.00	11.84	192.49	4,653.64	-899.95	-179.75	266.76	1.70	-1.64	2.08
4,845.00	13.30	190.47	4,741.48	-919.14	-183.62	272.49	1.69	1.62	-2.24
4,935.00	11.80	190.95	4,829.33	-938.36	-187.25	277.98	1.67	-1.67	0.53
5,024.00	13.65	189.67	4,916.14	-957.65	-190.75	283.34	2.10	2.08	-1.44
5,114.00	12.90	188.22	5,003.74	-978.06	-193.97	288.53	0.91	-0.83	-1.61
5,203.00	11.53	187.03	5,090.72	-996.72	-196.48	292.85	1.57	-1.54	-1.34
5,293.00	12.42	188.75	5,178.76	-1,015.21	-199.05	297.22	1.07	0.99	1.91
5,383.00	11.27	187.51	5,266.84	-1,033.50	-201.67	301.62	1.31	-1.28	-1.38
5,472.00	12.95	188.70	5,353.86	-1,051.98	-204.32	306.05	1.91	1.89	1.34
5,561.00	11.80	189.81	5,440.79	-1,070.80	-207.38	310.93	1.32	-1.29	1.25
5,651.00	12.37	200.16	5,528.81	-1,088.92	-212.27	317.57	2.49	0.63	11.50
5,740.00	10.87	200.60	5,615.98	-1,105.73	-218.50	325.42	1.69	-1.69	0.49
5,830.00	11.67	195.14	5,704.25	-1,122.46	-223.87	332.39	1.48	0.89	-6.07
5,920.00	13.57	184.30	5,792.08	-1,141.78	-227.04	337.43	3.37	2.11	-12.04
6,009.00	13.48	186.59	5,878.61	-1,162.50	-229.01	341.42	0.61	-0.10	2.57
6,099.00	12.33	189.23	5,966.34	-1,182.40	-231.76	346.10	1.44	-1.28	2.93
6,188.00	14.32	181.61	6,052.94	-1,202.79	-233.59	349.91	2.98	2.24	-8.56
6,279.00	13.26	182.01	6,141.32	-1,224.47	-234.27	352.71	1.17	-1.16	0.44
6,368.00	14.01	180.16	6,227.81	-1,245.44	-234.66	355.14	0.97	0.84	-2.08
6,457.00	12.28	177.73	6,314.48	-1,265.67	-234.32	356.77	2.04	-1.94	-2.73
6,547.00	13.43	184.03	6,402.22	-1,285.66	-234.67	359.08	2.01	1.28	7.00
6,636.00	12.33	195.36	6,489.00	-1,305.14	-237.92	364.21	3.09	-1.24	12.73
6,726.00	22.58	216.51	6,574.82	-1,328.38	-250.79	379.29	13.22	11.39	23.50
6,797.27	29.79	233.63	6,638.82	-1,349.93	-273.24	403.74	14.56	10.11	24.03
30° Inclination @ 6797.27' MD									
6,816.00	31.95	236.87	6,654.90	-1,355.40	-281.14	412.14	14.56	11.56	17.27
6,905.00	35.22	254.28	6,729.21	-1,375.27	-325.68	458.40	11.39	3.67	19.56
6,969.49	38.89	259.35	6,780.68	-1,384.06	-363.50	496.90	7.40	5.69	7.85
Cross @ 6969.49' MD									
6,994.00	40.34	261.06	6,799.56	-1,386.72	-378.90	512.49	7.40	5.91	7.00
7,084.00	45.47	259.87	6,865.46	-1,396.89	-439.30	573.59	5.77	5.70	-1.32
7,173.00	54.09	260.80	6,922.88	-1,408.26	-506.23	641.31	9.72	9.69	1.04
7,263.00	62.57	264.68	6,970.10	-1,417.81	-582.14	717.79	10.11	9.42	4.31
7,352.00	69.73	266.22	7,006.06	-1,424.23	-663.23	799.12	8.20	8.04	1.73
7,355.82	70.00	266.37	7,007.38	-1,424.46	-666.81	802.70	7.99	7.03	4.05
70° Inclination @ 7355.82' MD									
7,442.00	76.09	269.74	7,032.51	-1,427.22	-749.14	884.91	7.99	7.07	3.91
7,531.00	89.31	274.28	7,043.80	-1,424.07	-837.15	972.19	15.69	14.85	5.10
7,620.00	89.66	271.55	7,044.60	-1,419.55	-926.02	1,060.20	3.09	0.39	-3.07
7,709.00	90.01	271.11	7,044.85	-1,417.48	-1,014.99	1,148.54	0.63	0.39	-0.49
7,793.00	88.56	268.25	7,045.90	-1,417.95	-1,098.98	1,232.17	3.82	-1.73	-3.40

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7,882.00	88.91	268.42	7,047.87	-1,420.54	-1,187.92	1,320.94	0.44	0.39	0.19
7,971.00	89.22	267.98	7,049.32	-1,423.33	-1,276.86	1,409.73	0.60	0.35	-0.49
8,061.00	90.01	268.20	7,049.92	-1,426.33	-1,366.81	1,499.54	0.91	0.88	0.24
8,151.00	90.46	269.04	7,049.55	-1,428.50	-1,456.78	1,589.29	1.06	0.50	0.93
8,241.00	90.28	270.63	7,048.97	-1,428.76	-1,546.77	1,678.88	1.78	-0.20	1.77
8,330.00	90.19	271.46	7,048.61	-1,427.14	-1,635.76	1,767.28	0.94	-0.10	0.93
8,420.00	89.79	272.34	7,048.62	-1,424.15	-1,725.71	1,856.51	1.07	-0.44	0.98
8,509.00	89.53	272.70	7,049.15	-1,420.24	-1,814.62	1,944.62	0.50	-0.29	0.40
8,599.00	89.70	273.40	7,049.76	-1,415.45	-1,904.49	2,033.59	0.80	0.19	0.78
8,689.00	89.79	274.11	7,050.16	-1,409.56	-1,994.29	2,122.39	0.80	0.10	0.79
8,778.00	89.79	274.64	7,050.48	-1,402.77	-2,083.03	2,210.04	0.60	0.00	0.60
8,867.00	89.84	274.77	7,050.77	-1,395.47	-2,171.73	2,297.61	0.16	0.06	0.15
8,957.00	90.06	275.21	7,050.85	-1,387.64	-2,261.39	2,386.07	0.55	0.24	0.49
9,047.00	90.15	275.34	7,050.68	-1,379.36	-2,351.01	2,474.46	0.18	0.10	0.14
9,136.00	89.75	274.59	7,050.76	-1,371.66	-2,439.68	2,561.94	0.96	-0.45	-0.84
9,225.00	89.13	272.43	7,051.63	-1,366.21	-2,528.50	2,649.81	2.52	-0.70	-2.43
9,314.00	88.16	269.83	7,053.74	-1,364.46	-2,617.45	2,738.16	3.12	-1.09	-2.92
9,404.00	89.09	269.92	7,055.90	-1,364.65	-2,707.42	2,827.73	1.04	1.03	0.10
9,494.00	89.40	269.48	7,057.08	-1,365.13	-2,797.41	2,917.33	0.60	0.34	-0.49
9,584.00	89.44	270.23	7,057.99	-1,365.35	-2,887.41	3,006.92	0.83	0.04	0.83
9,673.00	89.70	270.32	7,058.66	-1,364.93	-2,976.40	3,095.45	0.31	0.29	0.10
9,762.00	89.40	270.54	7,059.36	-1,364.26	-3,065.40	3,183.95	0.42	-0.34	0.25
9,852.00	89.31	269.96	7,060.37	-1,363.87	-3,155.39	3,273.48	0.65	-0.10	-0.64
9,941.00	88.78	270.01	7,061.86	-1,363.89	-3,244.38	3,362.04	0.60	-0.60	0.06
10,031.00	89.22	268.91	7,063.43	-1,364.74	-3,334.36	3,451.68	1.32	0.49	-1.22
10,121.00	89.66	269.52	7,064.31	-1,365.97	-3,424.34	3,541.35	0.84	0.49	0.68
10,211.00	89.31	269.44	7,065.12	-1,366.79	-3,514.34	3,631.00	0.40	-0.39	-0.09
10,299.00	89.70	269.30	7,065.88	-1,367.75	-3,602.33	3,718.66	0.47	0.44	-0.16
10,388.00	89.57	269.22	7,066.44	-1,368.90	-3,691.32	3,807.34	0.17	-0.15	-0.09
10,478.00	90.59	270.18	7,066.32	-1,369.38	-3,781.32	3,896.95	1.56	1.13	1.07
10,567.00	89.13	269.83	7,066.54	-1,369.37	-3,870.31	3,985.52	1.69	-1.64	-0.39
10,656.00	89.53	269.57	7,067.58	-1,369.83	-3,959.31	4,074.13	0.54	0.45	-0.29
10,746.00	90.15	269.66	7,067.83	-1,370.44	-4,049.30	4,163.76	0.70	0.69	0.10
10,836.00	89.93	268.95	7,067.76	-1,371.53	-4,139.30	4,253.43	0.83	-0.24	-0.79
10,925.00	90.01	268.69	7,067.81	-1,373.36	-4,228.28	4,342.17	0.31	0.09	-0.29
11,014.00	89.35	269.22	7,068.31	-1,374.99	-4,317.26	4,430.88	0.95	-0.74	0.60
11,104.00	90.72	270.71	7,068.25	-1,375.04	-4,407.25	4,520.45	2.25	1.52	1.66
11,193.00	89.93	271.02	7,067.75	-1,373.70	-4,496.24	4,608.88	0.95	-0.89	0.35
11,283.00	89.84	271.29	7,067.93	-1,371.88	-4,586.22	4,698.26	0.32	-0.10	0.30
11,373.00	89.44	271.42	7,068.49	-1,369.76	-4,676.20	4,787.59	0.47	-0.44	0.14
11,462.00	89.66	269.39	7,069.19	-1,369.13	-4,765.19	4,876.10	2.29	0.25	-2.28
11,551.00	89.70	269.66	7,069.69	-1,369.86	-4,854.18	4,964.74	0.31	0.04	0.30
11,641.00	90.01	270.18	7,069.92	-1,369.99	-4,944.18	5,054.32	0.67	0.34	0.58

Survey Report

Company:	Extraction Oil and Gas	Local Co-ordinate Reference:	Well AD Fed Dairy 20W-25-16
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 4666.00usft (Ensign 147)
Site:	Sec 21-T05N-R65W Ardrey Pad	MD Reference:	KB @ 4666.00usft (Ensign 147)
Well:	AD Fed Dairy 20W-25-16	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)
11,730.00	90.46	270.41	7,069.55	-1,369.53	-5,033.18	5,142.85	0.57	0.51	0.26
11,819.00	89.84	270.93	7,069.32	-1,368.49	-5,122.17	5,231.31	0.91	-0.70	0.58
11,909.00	90.06	271.20	7,069.40	-1,366.82	-5,212.16	5,320.71	0.39	0.24	0.30
11,999.00	89.57	271.37	7,069.69	-1,364.80	-5,302.13	5,410.06	0.58	-0.54	0.19
12,088.00	90.01	272.65	7,070.02	-1,361.68	-5,391.08	5,498.27	1.52	0.49	1.44
12,177.00	90.10	272.17	7,069.93	-1,357.94	-5,480.00	5,586.40	0.55	0.10	-0.54
12,267.00	89.75	270.49	7,070.05	-1,355.85	-5,569.97	5,675.74	1.91	-0.39	-1.87
12,356.00	89.66	269.52	7,070.51	-1,355.84	-5,658.97	5,764.31	1.09	-0.10	-1.09
12,375.03	89.68	269.14	7,070.62	-1,356.06	-5,678.00	5,783.27	2.00	0.10	-2.00
Cross @ 12375.03' MD									
12,446.00	89.75	267.72	7,070.97	-1,358.01	-5,748.94	5,854.06	2.00	0.10	-2.00
12,535.00	89.84	266.66	7,071.29	-1,362.37	-5,837.83	5,942.95	1.20	0.10	-1.19
12,625.00	89.93	266.53	7,071.47	-1,367.71	-5,927.67	6,032.89	0.18	0.10	-0.14
12,715.00	89.93	266.40	7,071.58	-1,373.26	-6,017.50	6,122.83	0.14	0.00	-0.14
12,805.00	89.53	268.03	7,072.00	-1,377.64	-6,107.39	6,212.71	1.86	-0.44	1.81
12,895.00	89.48	270.18	7,072.78	-1,379.04	-6,197.37	6,302.40	2.39	-0.06	2.39
12,984.00	89.70	270.36	7,073.42	-1,378.62	-6,286.36	6,390.93	0.32	0.25	0.20
13,074.00	89.62	270.23	7,073.95	-1,378.16	-6,376.36	6,480.45	0.17	-0.09	-0.14
13,164.00	89.70	270.14	7,074.49	-1,377.87	-6,466.36	6,569.99	0.13	0.09	-0.10
13,253.00	89.57	270.32	7,075.05	-1,377.51	-6,555.36	6,658.53	0.25	-0.15	0.20
13,343.00	89.57	270.41	7,075.73	-1,376.94	-6,645.35	6,748.04	0.10	0.00	0.10
13,433.00	89.40	270.36	7,076.54	-1,376.33	-6,735.35	6,837.55	0.20	-0.19	-0.06
13,522.00	89.70	270.63	7,077.24	-1,375.56	-6,824.34	6,926.04	0.45	0.34	0.30
13,612.00	89.48	270.32	7,077.88	-1,374.82	-6,914.33	7,015.53	0.42	-0.24	-0.34
13,701.00	89.53	270.05	7,078.65	-1,374.53	-7,003.33	7,104.07	0.31	0.06	-0.30
13,791.00	89.26	270.18	7,079.60	-1,374.35	-7,093.32	7,193.62	0.33	-0.30	0.14
13,880.00	88.95	269.17	7,080.99	-1,374.86	-7,182.31	7,282.23	1.19	-0.35	-1.13
13,969.00	89.57	269.57	7,082.14	-1,375.83	-7,271.30	7,370.89	0.83	0.70	0.45
14,059.00	88.16	268.11	7,083.92	-1,377.66	-7,361.26	7,460.60	2.25	-1.57	-1.62
14,148.00	88.47	269.52	7,086.54	-1,379.50	-7,450.20	7,549.29	1.62	0.35	1.58
14,238.00	88.69	271.73	7,088.77	-1,378.51	-7,540.16	7,638.73	2.47	0.24	2.46
14,328.00	88.51	271.42	7,090.97	-1,376.04	-7,630.10	7,727.99	0.40	-0.20	-0.34
14,417.00	88.38	270.85	7,093.38	-1,374.28	-7,719.05	7,816.35	0.66	-0.15	-0.64
14,507.00	88.78	272.12	7,095.61	-1,371.95	-7,808.99	7,905.63	1.48	0.44	1.41
14,596.00	88.38	271.51	7,097.82	-1,369.13	-7,897.91	7,993.86	0.82	-0.45	-0.69
14,686.00	88.56	271.68	7,100.22	-1,366.62	-7,987.85	8,083.12	0.28	0.20	0.19
14,775.00	88.82	271.42	7,102.26	-1,364.22	-8,076.79	8,171.40	0.41	0.29	-0.29
14,865.00	89.40	271.24	7,103.65	-1,362.13	-8,166.76	8,260.73	0.67	0.64	-0.20
14,954.00	88.60	271.02	7,105.21	-1,360.37	-8,255.72	8,349.10	0.93	-0.90	-0.25
15,044.00	89.22	271.42	7,106.92	-1,358.46	-8,345.69	8,438.45	0.82	0.69	0.44
15,133.00	88.86	271.60	7,108.41	-1,356.11	-8,434.64	8,526.75	0.45	-0.40	0.20
15,223.00	89.40	271.29	7,109.78	-1,353.84	-8,524.60	8,616.06	0.69	0.60	-0.34
15,312.00	89.31	270.63	7,110.78	-1,352.35	-8,613.59	8,704.47	0.75	-0.10	-0.74
15,402.00	89.93	271.73	7,111.38	-1,350.50	-8,703.56	8,793.84	1.40	0.69	1.22

Survey Report

Company:	Extraction Oil and Gas	Local Co-ordinate Reference:	Well AD Fed Dairy 20W-25-16
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 4666.00usft (Ensign 147)
Site:	Sec 21-T05N-R65W Ardrey Pad	MD Reference:	KB @ 4666.00usft (Ensign 147)
Well:	AD Fed Dairy 20W-25-16	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)
15,491.00	89.97	271.37	7,111.45	-1,348.09	-8,792.53	8,882.14	0.41	0.04	-0.40
15,580.00	89.53	271.33	7,111.84	-1,346.00	-8,881.50	8,970.49	0.50	-0.49	-0.04
15,669.00	89.48	270.58	7,112.61	-1,344.51	-8,970.49	9,058.90	0.84	-0.06	-0.84
15,759.00	88.33	271.90	7,114.33	-1,342.57	-9,060.45	9,148.24	1.94	-1.28	1.47
15,849.00	87.05	270.54	7,117.96	-1,340.65	-9,150.35	9,237.53	2.07	-1.42	-1.51
15,939.00	87.05	270.71	7,122.59	-1,339.67	-9,240.22	9,326.88	0.19	0.00	0.19
16,028.00	88.69	270.71	7,125.90	-1,338.57	-9,329.15	9,415.27	1.84	1.84	0.00
16,118.00	90.94	271.64	7,126.19	-1,336.72	-9,419.13	9,504.64	2.71	2.50	1.03
16,207.00	88.82	269.61	7,126.38	-1,335.75	-9,508.11	9,593.10	3.30	-2.38	-2.28
16,296.00	89.35	270.85	7,127.80	-1,335.39	-9,597.10	9,681.63	1.52	0.60	1.39
16,386.00	89.22	270.63	7,128.92	-1,334.23	-9,687.08	9,771.07	0.28	-0.14	-0.24
16,475.00	89.13	270.05	7,130.20	-1,333.70	-9,776.07	9,859.58	0.66	-0.10	-0.65
16,565.00	89.22	270.27	7,131.50	-1,333.45	-9,866.06	9,949.12	0.26	0.10	0.24
16,655.00	89.48	270.67	7,132.52	-1,332.71	-9,956.05	10,038.61	0.53	0.29	0.44
16,744.00	89.48	270.63	7,133.33	-1,331.70	-10,045.04	10,127.07	0.04	0.00	-0.04
16,834.00	89.53	271.29	7,134.10	-1,330.20	-10,135.03	10,216.48	0.74	0.06	0.73
16,923.00	89.44	271.20	7,134.90	-1,328.26	-10,224.00	10,304.84	0.14	-0.10	-0.10
17,014.00	89.48	271.29	7,135.76	-1,326.29	-10,314.98	10,395.19	0.11	0.04	0.10
17,103.00	89.17	270.23	7,136.81	-1,325.11	-10,403.96	10,483.63	1.24	-0.35	-1.19
17,193.00	89.35	270.67	7,137.97	-1,324.40	-10,493.95	10,573.12	0.53	0.20	0.49
17,282.00	89.70	271.20	7,138.71	-1,322.95	-10,582.94	10,661.54	0.71	0.39	0.60
17,371.00	89.93	270.76	7,139.00	-1,321.42	-10,671.92	10,749.95	0.56	0.26	-0.49
17,461.00	89.93	270.45	7,139.11	-1,320.47	-10,761.92	10,839.42	0.34	0.00	-0.34
17,551.00	90.15	270.71	7,139.04	-1,319.56	-10,851.91	10,928.90	0.38	0.24	0.29
17,635.59	89.86	270.47	7,139.04	-1,318.70	-10,936.50	11,013.00	0.45	-0.34	-0.29
Cross @ 17635.59' MD									
17,641.00	89.84	270.45	7,139.05	-1,318.65	-10,941.91	11,018.38	0.45	-0.34	-0.29
17,730.00	89.97	270.58	7,139.20	-1,317.85	-11,030.90	11,106.87	0.21	0.15	0.15
17,819.00	89.88	270.45	7,139.32	-1,317.05	-11,119.90	11,195.36	0.18	-0.10	-0.15
17,908.00	89.88	270.67	7,139.50	-1,316.18	-11,208.90	11,283.85	0.25	0.00	0.25
17,998.00	89.84	270.85	7,139.72	-1,314.99	-11,298.89	11,373.29	0.20	-0.04	0.20
18,087.00	89.84	270.54	7,139.97	-1,313.91	-11,387.88	11,461.76	0.35	0.00	-0.35
18,176.00	90.01	271.33	7,140.09	-1,312.46	-11,476.87	11,550.18	0.91	0.19	0.89
18,266.00	89.88	270.85	7,140.17	-1,310.74	-11,566.85	11,639.56	0.55	-0.14	-0.53
18,356.00	91.03	271.77	7,139.46	-1,308.69	-11,656.82	11,728.90	1.64	1.28	1.02
18,446.00	91.56	272.34	7,137.43	-1,305.46	-11,746.74	11,818.08	0.86	0.59	0.63
18,536.00	90.68	271.46	7,135.67	-1,302.48	-11,836.67	11,907.29	1.38	-0.98	-0.98
18,625.00	89.48	271.02	7,135.54	-1,300.55	-11,925.65	11,995.65	1.44	-1.35	-0.49
18,715.00	88.82	269.92	7,136.88	-1,299.81	-12,015.63	12,085.13	1.43	-0.73	-1.22
18,805.00	89.66	270.67	7,138.07	-1,299.35	-12,105.62	12,174.65	1.25	0.93	0.83
18,895.00	90.06	270.80	7,138.29	-1,298.20	-12,195.62	12,264.10	0.47	0.44	0.14
18,985.00	90.19	271.68	7,138.09	-1,296.25	-12,285.59	12,353.46	0.99	0.14	0.98
19,075.00	89.53	270.54	7,138.31	-1,294.50	-12,375.57	12,442.84	1.46	-0.73	-1.27

Survey Report

Company:	Extraction Oil and Gas	Local Co-ordinate Reference:	Well AD Fed Dairy 20W-25-16
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 4666.00usft (Ensign 147)
Site:	Sec 21-T05N-R65W Ardrey Pad	MD Reference:	KB @ 4666.00usft (Ensign 147)
Well:	AD Fed Dairy 20W-25-16	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)
19,165.00	89.48	270.71	7,139.09	-1,293.52	-12,465.57	12,532.30	0.20	-0.06	0.19
19,253.00	90.32	270.80	7,139.25	-1,292.36	-12,553.56	12,619.76	0.96	0.95	0.10
19,343.00	89.53	271.64	7,139.36	-1,290.45	-12,643.54	12,709.12	1.28	-0.88	0.93
19,432.00	89.93	271.42	7,139.78	-1,288.07	-12,732.50	12,797.43	0.51	0.45	-0.25
19,521.00	90.19	271.29	7,139.69	-1,285.97	-12,821.48	12,885.78	0.33	0.29	-0.15
19,611.00	90.01	270.71	7,139.53	-1,284.40	-12,911.46	12,975.18	0.67	-0.20	-0.64
19,700.00	90.37	271.55	7,139.24	-1,282.64	-13,000.44	13,063.56	1.03	0.40	0.94
19,721.00	90.41	271.82	7,139.09	-1,282.02	-13,021.43	13,084.39	1.30	0.19	1.29
Last MWD Survey @ 19721' MD									
19,756.00	90.41	271.82	7,138.84	-1,280.91	-13,056.42	13,119.10	0.00	0.00	0.00
Projection to TD @ 19756' MD 540' FSL/ 2118.5' FEL									

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 @ 6797.2 - actual wellpath misses target center by 0.34usft at 6797.27usft MD (6638.82 TVD, -1349.93 N, -273.24 E) - Point	0.00	0.00	6,638.75	-1,350.25	-273.15	1,381,908.67	3,229,151.28	40.378824	-104.677471
Cross @ 6969.49' MD - actual wellpath hits target center - Point	0.00	0.00	6,780.68	-1,384.06	-363.50	1,381,874.02	3,229,061.24	40.378731	-104.677795
70° Inclination @ 7355.8 - actual wellpath hits target center - Point	0.00	0.00	7,007.38	-1,424.46	-666.81	1,381,830.80	3,228,758.32	40.378620	-104.678884
Cross @ 12375.03' MD - actual wellpath hits target center - Point	0.00	0.00	7,070.62	-1,356.06	-5,678.00	1,381,852.66	3,223,746.71	40.378806	-104.696871
Cross @ 17635.59' MD - actual wellpath hits target center - Point	0.00	0.00	7,139.04	-1,318.70	-10,936.50	1,381,841.19	3,218,488.09	40.378904	-104.715746

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,561.00	1,541.29	-198.89	-42.28	Tie into Surface Surveys
1,625.00	1,603.97	-211.59	-44.55	First MWD Survey @ 1625' MD
6,797.27	6,638.82	-1,349.93	-273.24	30° Inclination @ 6797.27' MD
6,969.49	6,780.68	-1,384.06	-363.50	Cross @ 6969.49' MD
7,355.82	7,007.38	-1,424.46	-666.81	70° Inclination @ 7355.82' MD
12,375.03	7,070.62	-1,356.06	-5,678.00	Cross @ 12375.03' MD
17,635.59	7,139.04	-1,318.70	-10,936.50	Cross @ 17635.59' MD
19,721.00	7,139.09	-1,282.02	-13,021.43	Last MWD Survey @ 19721' MD
19,756.00	7,138.84	-1,280.91	-13,056.42	Projection to TD @ 19756' MD 540' FSL/ 2118.5' FEL

Survey Report

Company:	Extraction Oil and Gas	Local Co-ordinate Reference:	Well AD Fed Dairy 20W-25-16
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 4666.00usft (Ensign 147)
Site:	Sec 21-T05N-R65W Ardrey Pad	MD Reference:	KB @ 4666.00usft (Ensign 147)
Well:	AD Fed Dairy 20W-25-16	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

Checked By: _____ Approved By: _____ Date: _____