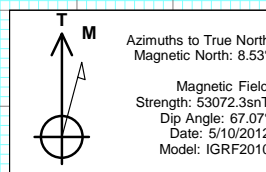
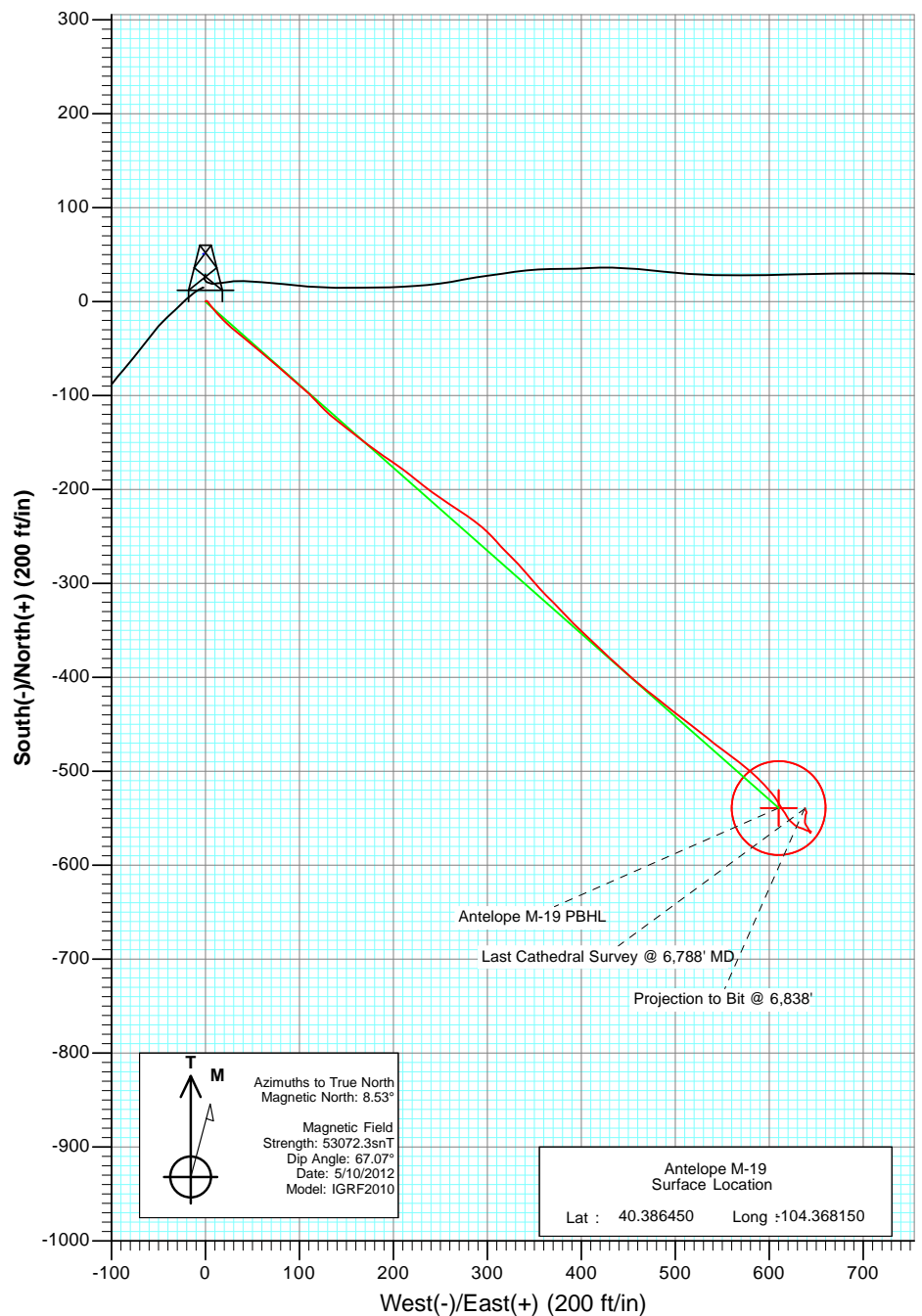
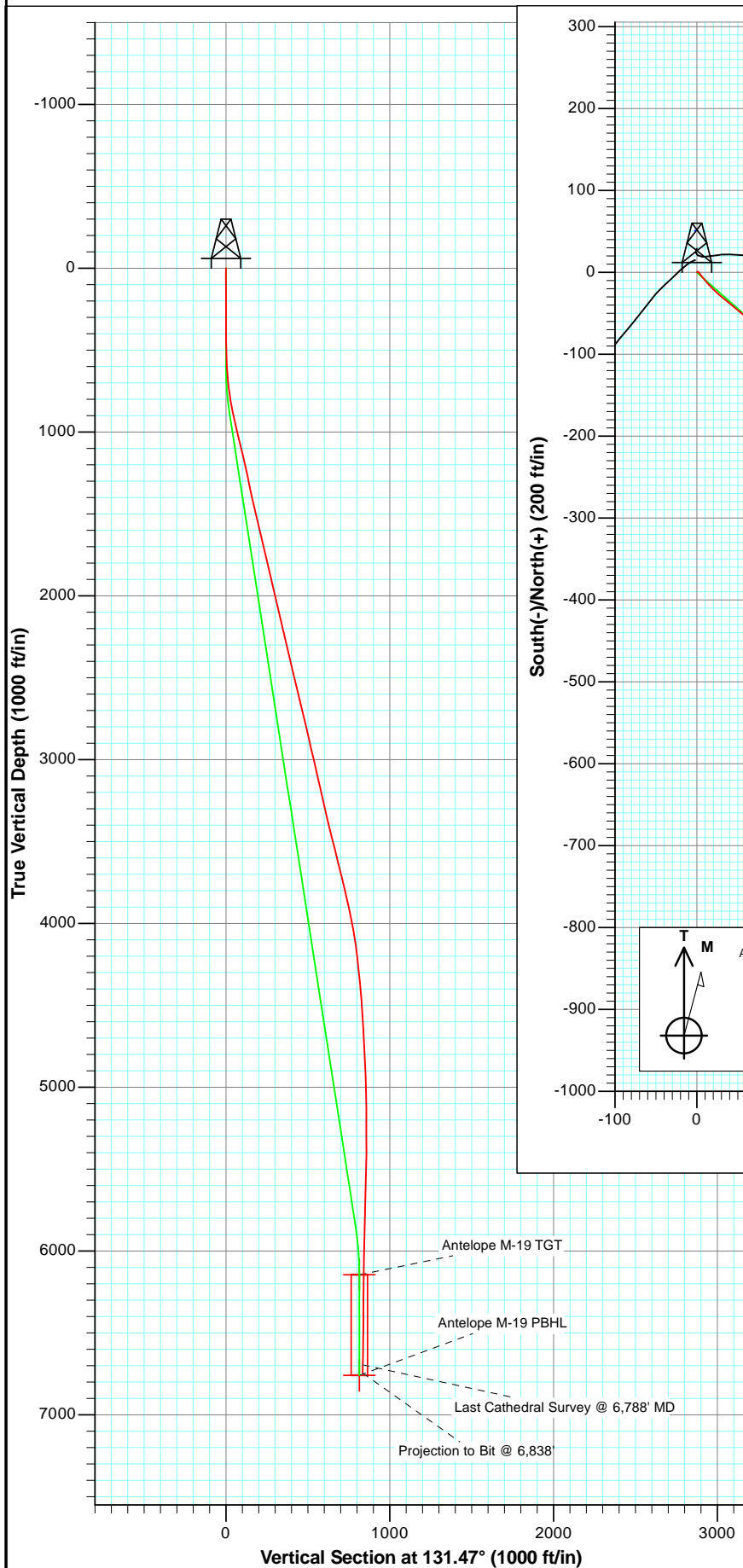


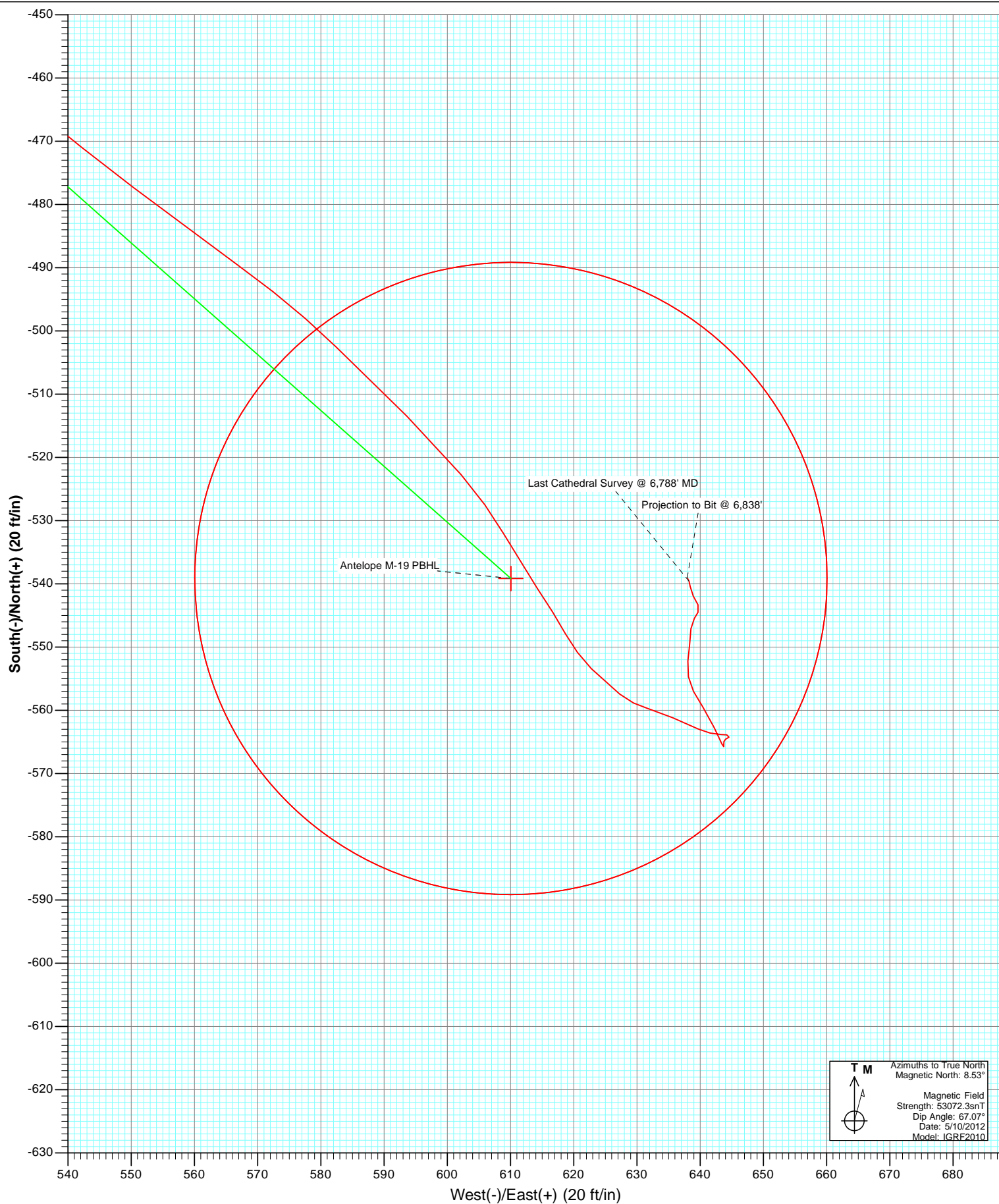


Project: Weld County  
 Site: Antelope 22-19 Pad  
 Well: Antelope M-19  
 Wellbore: OH  
 Plan: FINAL



Antelope M-19  
 Surface Location  
 Lat : 40.386450 Long :104.368150

OH Antelope M-19 125245/154355; SC							
KBE @ 4695.0ft (Original Well Elev) North American Datum 1983 Well Antelope M-19, True North							
Type	Target	Antelope M-19 PBHL	Azimuth	Origin	Type	N/S	E/W
Target	Target		131.47	Slot		0.0	0.0
		TVD	+N/-S	+E/-W	Latitude		
Name		Antelope M-19 TGT	6145.0	-539.1	610.1	40.384970	-104.365960
		Antelope M-19 PBHL	6759.0	-539.1	610.1	40.384970	-104.365960
				Longitude		From TVD	
				0.0		0.0	



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope M-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4695.0ft (Original Well Elev)
<b>Site:</b>	Antelope 22-19 Pad	<b>MD Reference:</b>	KBE @ 4695.0ft (Original Well Elev)
<b>Well:</b>	Antelope M-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	Weld County		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		Antelope 22-19 Pad			
Site Position:		Northing:	1,385,671.89 ft	Latitude:	40.386540
From:	Lat/Long	Easting:	3,315,289.82 ft	Longitude:	-104.368160
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.73 °

Well	Antelope M-19					
Well Position	+N/-S	0.0 ft	Northing:	1,385,639.14 ft	Latitude:	40.386450
	+E/-W	0.0 ft	Easting:	3,315,293.02 ft	Longitude:	-104.368150
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,685.0 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	5/10/2012	8.53	67.07	53,072

<b>Design</b>	OH				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Direction</b>	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	131.47	

<b>Survey Program</b>	<b>Date</b>	5/16/2012			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
47.0	6,838.0	Survey #1 (OH)	MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
47.0	0.40	29.30	47.0	0.1	0.1	0.0	0.85	0.85		
148.0	0.20	95.20	148.0	0.4	0.4	0.0	0.36	-0.20		
240.0	0.50	24.40	240.0	0.8	0.8	0.0	0.51	0.33		
333.0	0.30	151.80	333.0	0.9	1.0	0.2	0.78	-0.22		
426.0	0.80	111.80	426.0	0.5	1.8	1.0	0.65	0.54		
494.0	0.40	137.80	494.0	0.1	2.4	1.7	0.70	-0.59		
589.0	3.00	145.00	588.9	-2.1	4.0	4.4	2.74	2.74		
683.0	5.80	141.00	682.7	-7.9	8.4	11.5	2.99	2.98		
777.0	8.40	137.30	775.9	-16.6	16.1	23.0	2.81	2.77		
872.0	11.10	130.40	869.5	-27.6	27.7	39.1	3.09	2.84		
966.0	14.10	129.50	961.3	-40.8	43.5	59.6	3.20	3.19		
1,061.0	13.40	130.00	1,053.5	-55.2	60.8	82.1	0.75	-0.74		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope M-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4695.0ft (Original Well Elev)
<b>Site:</b>	Antelope 22-19 Pad	<b>MD Reference:</b>	KBE @ 4695.0ft (Original Well Elev)
<b>Well:</b>	Antelope M-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,156.0	13.10	130.90	1,146.0	-69.3	77.4	103.9	0.38	-0.32	
1,250.0	12.30	131.00	1,237.7	-82.9	93.0	124.6	0.85	-0.85	
1,344.0	10.90	131.80	1,329.8	-95.4	107.2	143.5	1.50	-1.49	
1,439.0	14.30	137.60	1,422.5	-110.0	121.8	164.1	3.81	3.58	
1,533.0	13.50	127.80	1,513.8	-125.3	138.3	186.6	2.64	-0.85	
1,627.0	11.70	128.60	1,605.5	-138.0	154.4	207.1	1.92	-1.91	
1,721.0	14.00	127.50	1,697.1	-150.9	170.9	228.0	2.46	2.45	
1,815.0	13.50	123.60	1,788.4	-163.9	189.0	250.2	1.12	-0.53	
1,909.0	12.40	125.80	1,880.0	-175.8	206.4	271.1	1.28	-1.17	
2,004.0	14.30	129.40	1,972.5	-189.3	223.7	293.0	2.18	2.00	
2,099.0	13.20	126.20	2,064.8	-203.1	241.5	315.5	1.41	-1.16	
2,193.0	13.60	123.80	2,156.2	-215.6	259.4	337.1	0.73	0.43	
2,288.0	12.70	122.90	2,248.7	-227.5	277.4	358.5	0.97	-0.95	
2,382.0	13.30	130.20	2,340.3	-240.1	294.4	379.5	1.86	0.64	
2,477.0	12.70	139.60	2,432.9	-255.1	309.5	400.8	2.31	-0.63	
2,571.0	14.60	134.00	2,524.2	-271.2	324.7	422.9	2.46	2.02	
2,665.0	13.70	140.00	2,615.4	-287.9	340.4	445.7	1.83	-0.96	
2,759.0	13.80	137.60	2,706.7	-304.7	355.1	467.9	0.62	0.11	
2,854.0	12.90	134.60	2,799.1	-320.6	370.3	489.7	1.20	-0.95	
2,948.0	12.30	137.00	2,890.8	-335.3	384.6	510.2	0.85	-0.64	
3,043.0	13.50	133.30	2,983.5	-350.3	399.5	531.3	1.53	1.26	
3,137.0	12.40	133.40	3,075.1	-364.7	414.9	552.4	1.17	-1.17	
3,232.0	13.80	133.50	3,167.6	-379.5	430.5	573.9	1.47	1.47	
3,326.0	11.60	132.00	3,259.3	-393.6	445.7	594.6	2.37	-2.34	
3,420.0	13.90	129.10	3,351.0	-407.0	461.4	615.3	2.54	2.45	
3,515.0	14.20	129.20	3,443.1	-421.6	479.3	638.3	0.32	0.32	
3,610.0	13.90	128.00	3,535.3	-436.0	497.3	661.4	0.44	-0.32	
3,704.0	14.00	127.00	3,626.5	-449.8	515.3	684.0	0.28	0.11	
3,799.0	14.00	129.10	3,718.7	-463.9	533.4	706.9	0.53	0.00	
3,893.0	12.60	127.50	3,810.2	-477.3	550.4	728.5	1.54	-1.49	
3,988.0	12.60	125.70	3,902.9	-489.7	567.0	749.2	0.41	0.00	
4,083.0	11.70	134.20	3,995.7	-502.5	582.3	769.1	2.11	-0.95	
4,177.0	7.60	134.60	4,088.4	-513.5	593.6	784.8	4.36	-4.36	
4,271.0	7.80	139.50	4,181.6	-522.7	602.2	797.3	0.73	0.21	
4,366.0	6.30	150.20	4,275.8	-532.1	608.9	808.7	2.09	-1.58	
4,460.0	5.90	146.30	4,369.3	-540.6	614.2	818.2	0.61	-0.43	
4,555.0	4.40	150.80	4,463.9	-547.8	618.7	826.4	1.63	-1.58	
4,649.0	4.10	135.60	4,557.7	-553.4	622.8	833.1	1.24	-0.32	
4,743.0	3.30	127.40	4,651.5	-557.4	627.3	839.2	1.02	-0.85	
4,838.0	2.60	104.90	4,746.3	-559.7	631.5	843.8	1.41	-0.74	
4,932.0	2.80	114.70	4,840.2	-561.2	635.7	847.9	0.53	0.21	
5,025.0	2.60	113.30	4,933.1	-562.9	639.7	852.1	0.23	-0.22	
5,120.0	2.00	90.80	5,028.1	-563.8	643.3	855.4	1.13	-0.63	
5,215.0	0.70	225.40	5,123.0	-564.3	644.6	856.6	2.67	-1.37	
5,311.0	0.20	305.40	5,219.0	-564.6	644.0	856.4	0.72	-0.52	
5,405.0	0.60	193.90	5,313.0	-564.9	643.8	856.5	0.74	0.43	
5,499.0	0.40	165.70	5,407.0	-565.7	643.7	857.0	0.33	-0.21	
5,593.0	1.00	333.40	5,501.0	-565.3	643.4	856.5	1.48	0.64	
5,688.0	2.40	335.50	5,596.0	-562.8	642.2	853.9	1.47	1.47	
5,783.0	2.20	325.90	5,690.9	-559.5	640.4	850.3	0.46	-0.21	
5,877.0	1.30	336.00	5,784.9	-557.0	639.0	847.6	1.01	-0.96	
5,971.0	1.70	344.60	5,878.8	-554.7	638.2	845.5	0.49	0.43	
6,065.0	1.40	14.20	5,972.8	-552.2	638.1	843.8	0.90	-0.32	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope M-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4695.0ft (Original Well Elev)
<b>Site:</b>	Antelope 22-19 Pad	<b>MD Reference:</b>	KBE @ 4695.0ft (Original Well Elev)
<b>Well:</b>	Antelope M-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,159.0	1.70	359.00	6,066.8	-549.7	638.3	842.3	0.54	0.32	
6,254.0	1.50	12.20	6,161.7	-547.1	638.6	840.8	0.44	-0.21	
6,348.0	0.60	34.70	6,255.7	-545.5	639.1	840.1	1.04	-0.96	
6,442.0	0.80	26.10	6,349.7	-544.5	639.7	839.9	0.24	0.21	
6,536.0	0.80	334.10	6,443.7	-543.3	639.7	839.1	0.75	0.00	
6,630.0	1.10	329.00	6,537.7	-541.9	638.9	837.6	0.33	0.32	
6,725.0	0.90	358.70	6,632.7	-540.4	638.4	836.3	0.58	-0.21	
6,788.0	0.70	332.70	6,695.7	-539.6	638.2	835.6	0.65	-0.32	Last Cathedral Survey @ 6,788' MD
6,838.0	0.70	332.70	6,745.7	-539.0	638.0	835.0	0.00	0.00	Projection to Bit @ 6,838'

Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Antelope M-19 PBHL - actual wellpath misses target center by 30.9ft at 6838.0ft MD (6745.7 TVD, -539.0 N, 638.0 E) - Circle (radius 50.0)	0.00	0.00	6,759.0	-539.1	610.1	1,385,107.82	3,315,909.93	40.384970	-104.365960
Antelope M-19 TGT - actual wellpath misses target center by 29.6ft at 6237.4ft MD (6145.2 TVD, -547.5 N, 638.5 E) - Point	0.00	0.00	6,145.0	-539.1	610.1	1,385,107.82	3,315,909.93	40.384970	-104.365960

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
6,788.0	6,695.7	-539.6	638.2	Last Cathedral Survey @ 6,788' MD	
6,838.0	6,745.7	-539.0	638.0	Projection to Bit @ 6,838'	

Checked By: _____	Approved By: _____	Date: _____
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