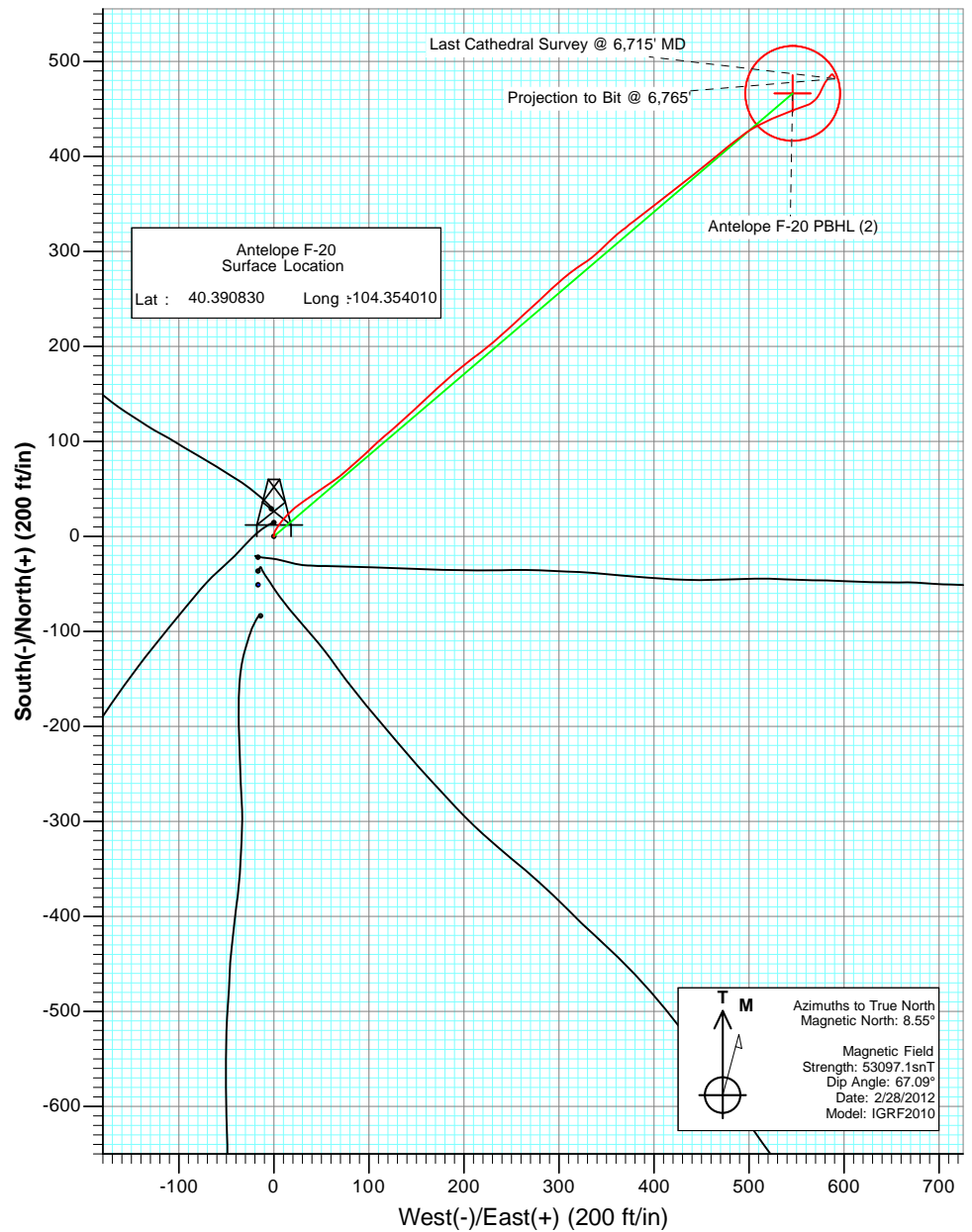
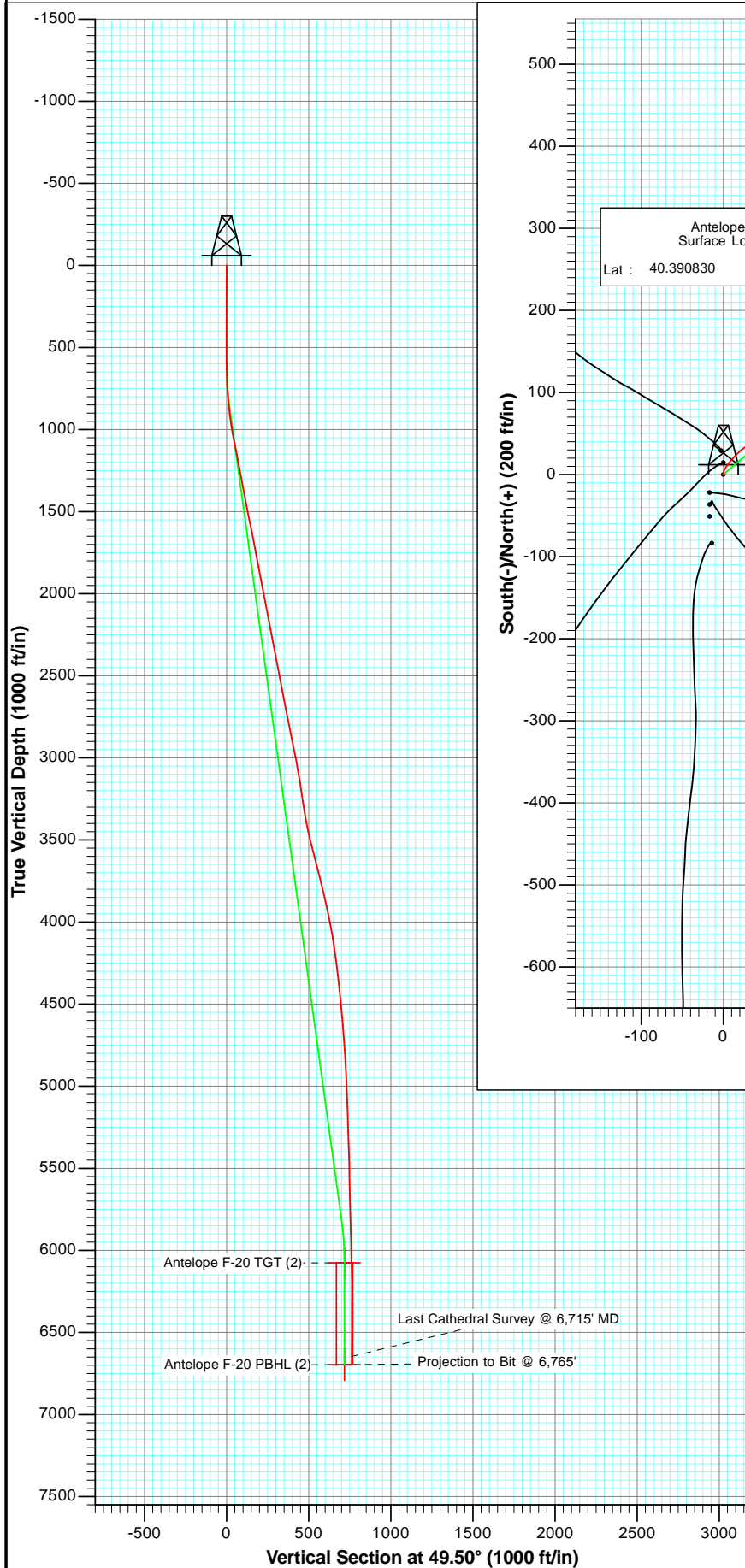




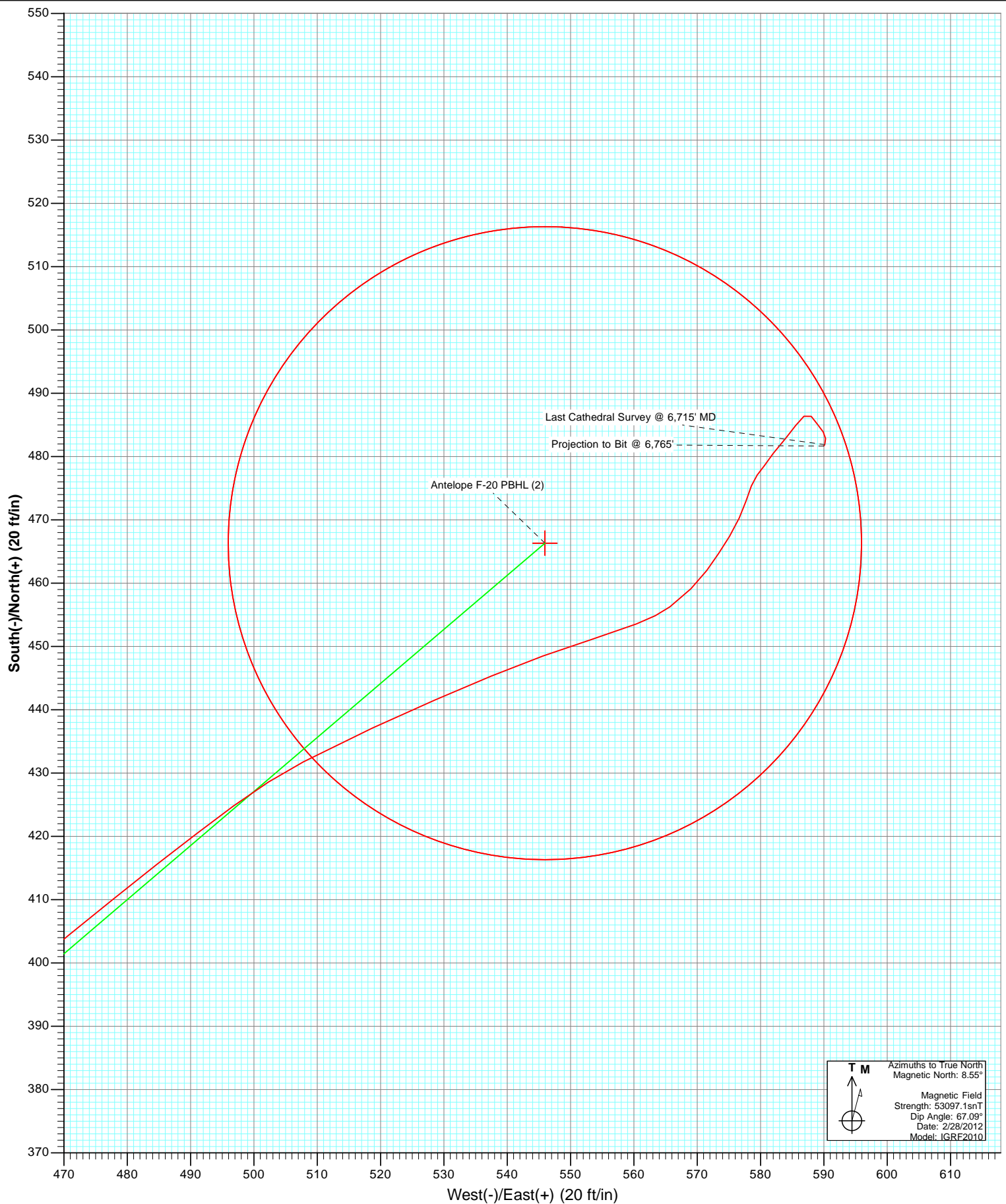
Project: Weld County
 Site: Antelope 11-20 Pad
 Well: Antelope F-20
 Wellbore: OH
 Plan: FINAL



OH Antelope F-20 125199/148055 SC						
kbe @ 4661.0ft North American Datum 1983 Well Antelope F-20, True North						
Type	Target	Antelope F-20 PBHL (2)	Azimuth	Origin Type	N/S	E/W
			49.50	Slot	0.0	0.0
						From TVD
						0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Antelope F-20 TGT (2)	6076.0	466.3	545.9	40.392110	-104.352050	
Antelope F-20 PBHL (2)	6696.0	466.3	545.9	40.392110	-104.352050	



Project: Weld County
Site: Antelope 11-20 Pad
Well: Antelope F-20
Wellbore: OH
Plan: FINAL



Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well Antelope F-20
Project:	Weld County	TVD Reference:	kbe @ 4661.0ft
Site:	Antelope 11-20 Pad	MD Reference:	kbe @ 4661.0ft
Well:	Antelope F-20	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	USA EDM 5000 Multi Users DB

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

Site		Antelope 11-20 Pad			
Site Position:		Northing:	1,387,248.61 ft	Latitude:	40.390730
From:	Lat/Long	Easting:	3,319,197.55 ft	Longitude:	-104.354060
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.74 °

Well	Antelope F-20					
Well Position	+N/-S	0.0 ft	Northing:	1,387,285.19 ft	Latitude:	40.390830
	+E/-W	0.0 ft	Easting:	3,319,211.01 ft	Longitude:	-104.354010
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,651.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/28/2012	8.55	67.09	53,097

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	49.50	

Survey Program	Date	3/16/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
525.0	6,765.0	Survey #1 (OH)	MWD	Geolink MWD	

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	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
525.0	0.10	233.90	525.0	-0.3	-0.4	-0.5	0.02	0.02		
620.0	1.10	6.10	620.0	0.6	-0.3	0.1	1.23	1.05		
714.0	2.80	19.10	713.9	3.7	0.5	2.8	1.86	1.81		
808.0	4.80	31.50	807.7	9.2	3.3	8.5	2.29	2.13		
903.0	7.10	39.60	902.2	17.1	9.1	18.0	2.57	2.42		
998.0	9.40	46.90	996.2	26.9	18.5	31.6	2.66	2.42		
1,092.0	11.80	55.60	1,088.6	37.6	32.1	48.8	3.06	2.55		
1,186.0	11.60	55.80	1,180.7	48.3	47.8	67.8	0.22	-0.21		
1,280.0	10.10	55.60	1,273.0	58.3	62.4	85.4	1.60	-1.60		
1,375.0	11.00	48.40	1,366.4	69.0	76.1	102.7	1.68	0.95		
1,469.0	10.20	48.70	1,458.8	80.5	89.1	120.0	0.85	-0.85		
1,564.0	12.20	45.40	1,552.0	93.1	102.5	138.4	2.21	2.11		

Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well Antelope F-20
Project:	Weld County	TVD Reference:	kbe @ 4661.0ft
Site:	Antelope 11-20 Pad	MD Reference:	kbe @ 4661.0ft
Well:	Antelope F-20	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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
1,658.0	11.30	50.80	1,644.0	105.9	116.7	157.5	1.51	-0.96	
1,752.0	10.30	48.50	1,736.3	117.3	130.2	175.1	1.16	-1.06	
1,846.0	11.60	46.80	1,828.6	129.3	143.3	193.0	1.42	1.38	
1,940.0	10.30	46.10	1,920.9	141.6	156.3	210.8	1.39	-1.38	
2,035.0	11.50	48.70	2,014.2	153.7	169.5	228.8	1.36	1.26	
2,129.0	10.50	47.70	2,106.5	165.7	182.9	246.7	1.08	-1.06	
2,224.0	11.20	50.80	2,199.8	177.3	196.5	264.6	0.96	0.74	
2,319.0	9.30	52.10	2,293.2	187.9	209.7	281.5	2.01	-2.00	
2,414.0	11.00	53.00	2,386.7	198.1	223.0	298.2	1.80	1.79	
2,508.0	11.80	47.90	2,478.9	209.9	237.3	316.7	1.37	0.85	
2,602.0	10.30	46.80	2,571.2	222.1	250.5	334.7	1.61	-1.60	
2,696.0	12.30	48.50	2,663.3	234.5	264.1	353.1	2.16	2.13	
2,790.0	11.60	46.10	2,755.3	247.7	278.4	372.6	0.91	-0.74	
2,885.0	10.70	47.20	2,848.5	260.3	291.8	390.9	0.97	-0.95	
2,979.0	10.90	49.50	2,940.8	272.0	305.0	408.5	0.51	0.21	
3,073.0	10.70	56.00	3,033.2	282.6	319.0	426.1	1.31	-0.21	
3,168.0	9.70	54.70	3,126.7	292.2	332.8	442.8	1.08	-1.05	
3,263.0	8.10	43.40	3,220.5	301.7	343.9	457.5	2.49	-1.68	
3,357.0	9.20	49.00	3,313.5	311.4	354.2	471.6	1.47	1.17	
3,452.0	10.90	49.70	3,407.0	322.2	366.7	488.1	1.79	1.79	
3,546.0	14.10	53.00	3,498.8	334.9	382.7	508.5	3.49	3.40	
3,641.0	14.40	51.50	3,590.8	349.2	401.1	531.8	0.50	0.32	
3,735.0	14.60	52.40	3,681.8	363.7	419.7	555.3	0.32	0.21	
3,830.0	13.90	52.00	3,773.9	378.0	438.2	578.7	0.74	-0.74	
3,924.0	12.80	50.70	3,865.4	391.6	455.1	600.4	1.21	-1.17	
4,019.0	11.70	50.60	3,958.2	404.4	470.7	620.5	1.16	-1.16	
4,114.0	10.20	51.90	4,051.5	415.7	484.8	638.6	1.60	-1.58	
4,208.0	8.30	53.60	4,144.3	424.8	496.8	653.7	2.04	-2.02	
4,302.0	7.70	62.30	4,237.3	431.8	507.8	666.6	1.44	-0.64	
4,397.0	6.90	65.50	4,331.6	437.1	518.6	678.3	0.94	-0.84	
4,492.0	6.30	66.30	4,425.9	441.6	528.6	688.7	0.64	-0.63	
4,585.0	5.60	67.60	4,518.4	445.3	537.5	697.9	0.77	-0.75	
4,679.0	5.10	70.00	4,612.0	448.5	545.6	706.2	0.58	-0.53	
4,774.0	4.60	72.70	4,706.7	451.1	553.2	713.7	0.58	-0.53	
4,869.0	4.50	69.20	4,801.4	453.5	560.4	720.7	0.31	-0.11	
4,962.0	2.90	53.30	4,894.2	456.3	565.7	726.4	2.03	-1.72	
5,056.0	2.50	44.40	4,988.1	459.1	569.0	730.9	0.62	-0.43	
5,151.0	2.10	37.00	5,083.0	462.0	571.5	734.6	0.52	-0.42	
5,247.0	1.80	32.50	5,179.0	464.7	573.4	737.8	0.35	-0.31	
5,342.0	2.10	32.30	5,273.9	467.4	575.1	740.9	0.32	0.32	
5,436.0	1.90	23.10	5,367.8	470.3	576.6	743.9	0.40	-0.21	
5,530.0	1.60	20.20	5,461.8	473.0	577.7	746.5	0.33	-0.32	
5,624.0	1.50	19.10	5,555.8	475.4	578.6	748.7	0.11	-0.11	
5,719.0	0.90	42.70	5,650.7	477.1	579.5	750.5	0.81	-0.63	
5,814.0	1.30	33.80	5,745.7	478.5	580.6	752.3	0.46	0.42	
5,908.0	1.70	37.60	5,839.7	480.5	582.0	754.6	0.44	0.43	
6,002.0	2.00	40.80	5,933.6	482.9	583.9	757.6	0.34	0.32	
6,096.0	1.20	32.80	6,027.6	484.9	585.5	760.2	0.88	-0.85	
6,190.0	1.20	51.60	6,121.6	486.4	586.9	762.1	0.42	0.00	
6,285.0	0.90	149.60	6,216.6	486.3	588.0	763.0	1.68	-0.32	
6,379.0	1.00	134.10	6,310.6	485.1	589.0	762.9	0.29	0.11	
6,473.0	0.90	153.20	6,404.6	483.9	589.9	762.8	0.35	-0.11	
6,567.0	0.50	172.60	6,498.5	482.8	590.3	762.4	0.49	-0.43	

Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well Antelope F-20
Project:	Weld County	TVD Reference:	kbe @ 4661.0ft
Site:	Antelope 11-20 Pad	MD Reference:	kbe @ 4661.0ft
Well:	Antelope F-20	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	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
6,715.0	0.30	215.40	6,646.5	481.9	590.1	761.7	0.23	-0.14	Last Cathedral Survey @ 6,715' MD
6,765.0	0.30	215.40	6,696.5	481.7	590.0	761.5	0.00	0.00	Projection to Bit @ 6,765'

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 F-20 TGT (2) - actual wellpath misses target center by 44.6ft at 6143.5ft MD (6075.1 TVD, 485.7 N, 586.1 E) - Point	0.00	0.00	6,076.0	466.3	545.9	1,387,758.54	3,319,750.88	40.392110	-104.352050
Antelope F-20 PBHL - actual wellpath misses target center by 46.6ft at 6764.7ft MD (6696.2 TVD, 481.7 N, 590.0 E) - Circle (radius 50.0)	0.00	0.00	6,696.0	466.3	545.9	1,387,758.54	3,319,750.88	40.392110	-104.352050
Antelope F-20 TGT - actual wellpath misses target center by 44.6ft at 6143.5ft MD (6075.1 TVD, 485.7 N, 586.1 E) - Point	0.00	0.00	6,076.0	466.3	545.9	1,387,758.54	3,319,750.88	40.392110	-104.352050
Antelope F-20 PBHL (2) - actual wellpath misses target center by 46.6ft at 6764.7ft MD (6696.2 TVD, 481.7 N, 590.0 E) - Circle (radius 50.0)	0.00	0.00	6,696.0	466.3	545.9	1,387,758.54	3,319,750.88	40.392110	-104.352050

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
6,715.0	6,646.5	481.9	590.1	Last Cathedral Survey @ 6,715' MD
6,765.0	6,696.5	481.7	590.0	Projection to Bit @ 6,765'

Checked By: _____ Approved By: _____ Date: _____