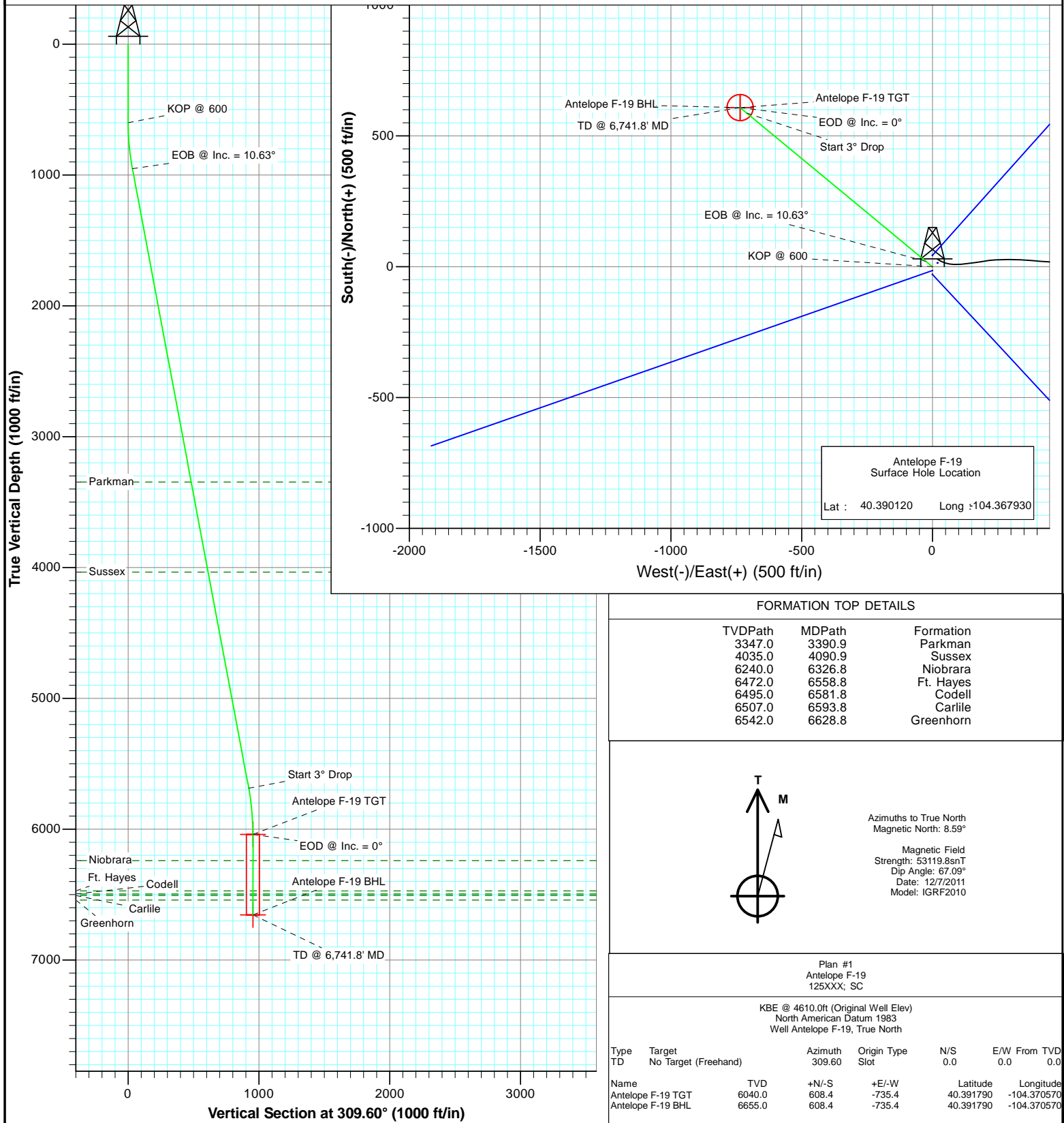


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	954.4	10.63	309.60	952.3	20.9	-25.3	3.00	309.60	32.8	
4	5772.4	10.63	309.60	5687.7	587.5	-710.1	0.00	0.00	921.6	
5	6126.8	0.00	0.00	6040.0	608.4	-735.4	3.00	180.00	954.4	Antelope F-19 TGT
6	6741.8	0.00	0.00	6655.0	608.4	-735.4	0.00	0.00	954.4	Antelope F-19 BHL



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3347.0	3390.9	Parkman
4035.0	4090.9	Sussex
6240.0	6326.8	Niobrara
6472.0	6558.8	Ft. Hayes
6495.0	6581.8	Codell
6507.0	6593.8	Carlile
6542.0	6628.8	Greenhorn



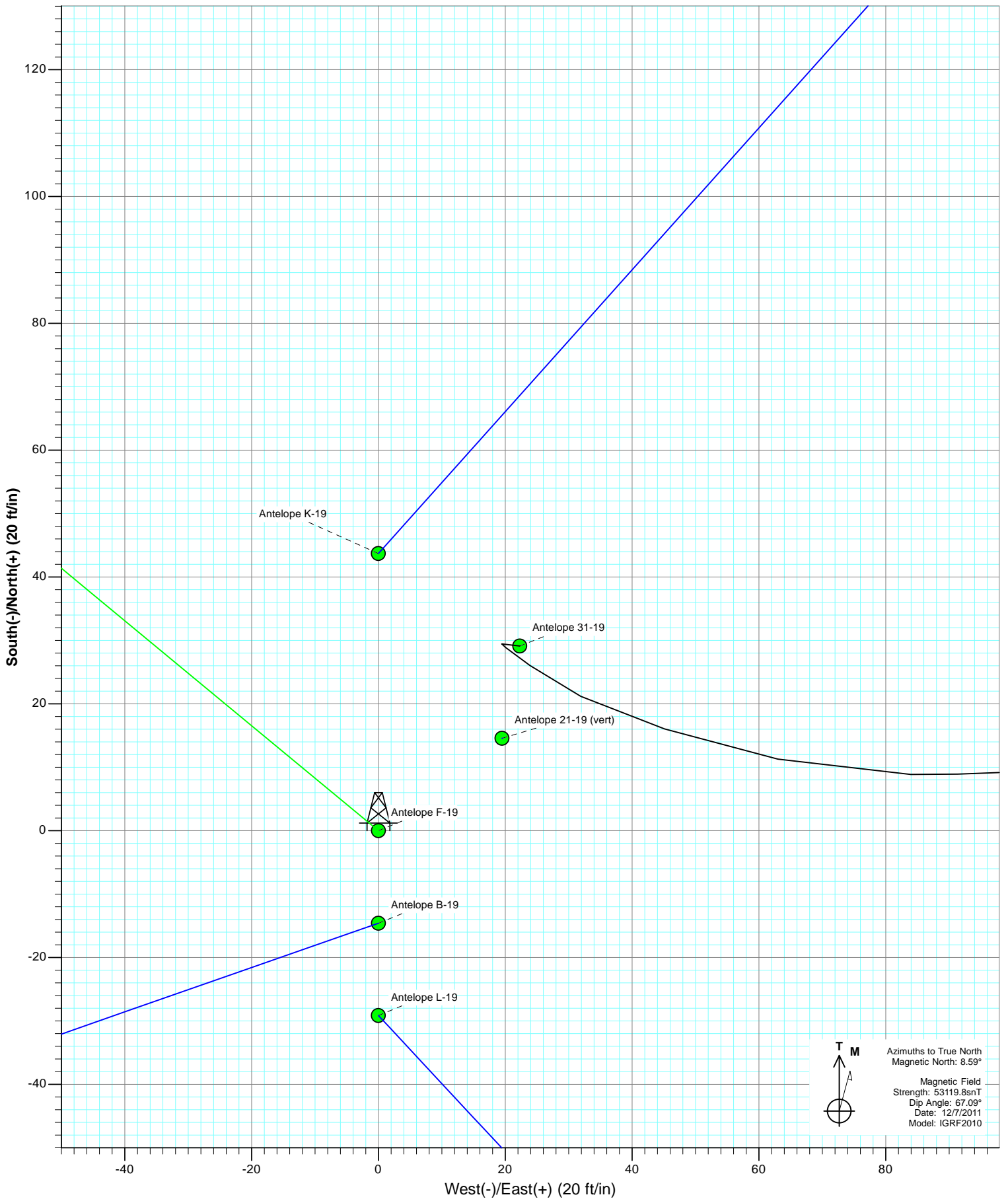
Azimuths to True North  
Magnetic North: 8.59°

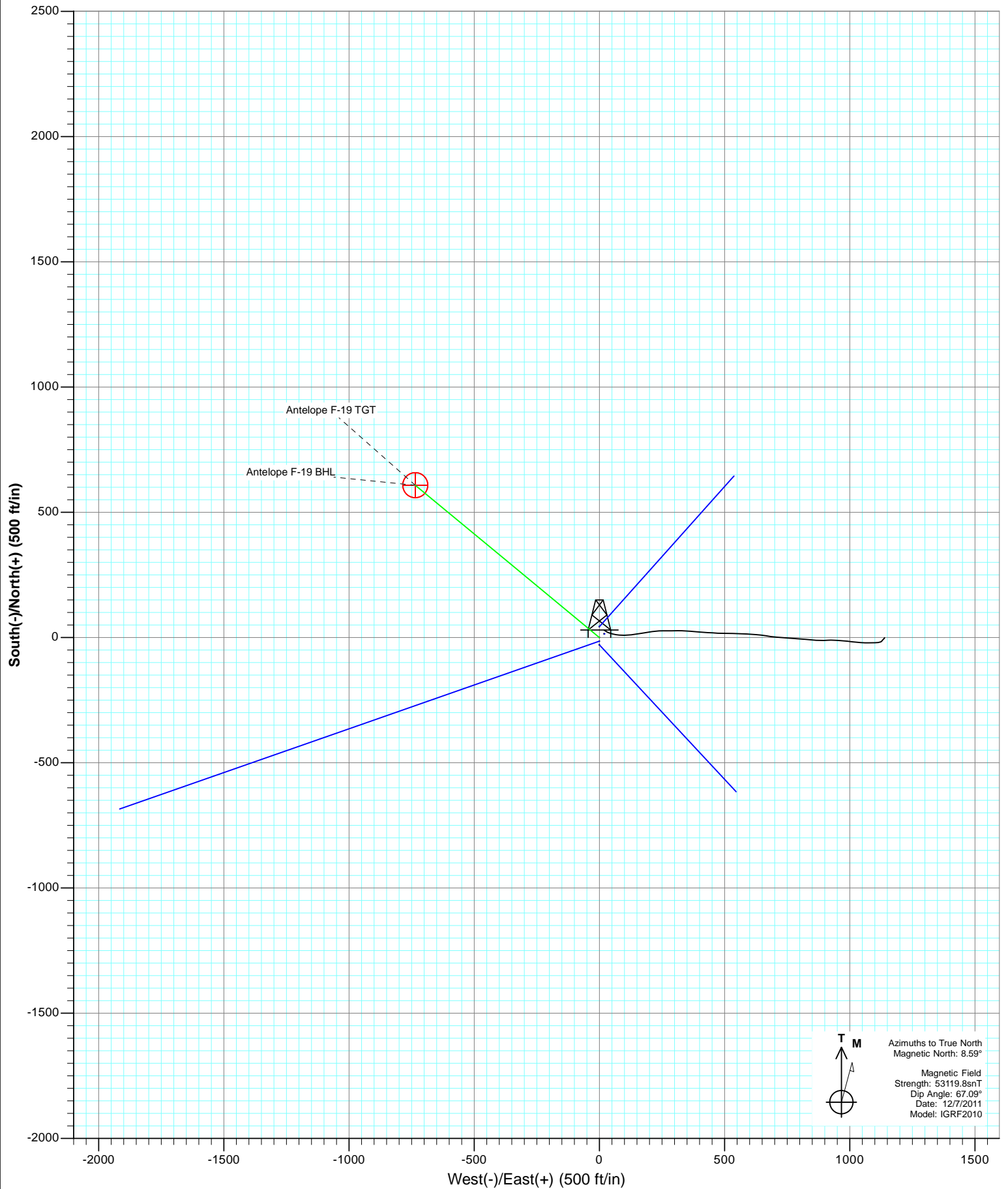
Magnetic Field  
Strength: 53119.8nT  
Dip Angle: 67.09°  
Date: 12/7/2011  
Model: IGRF2010

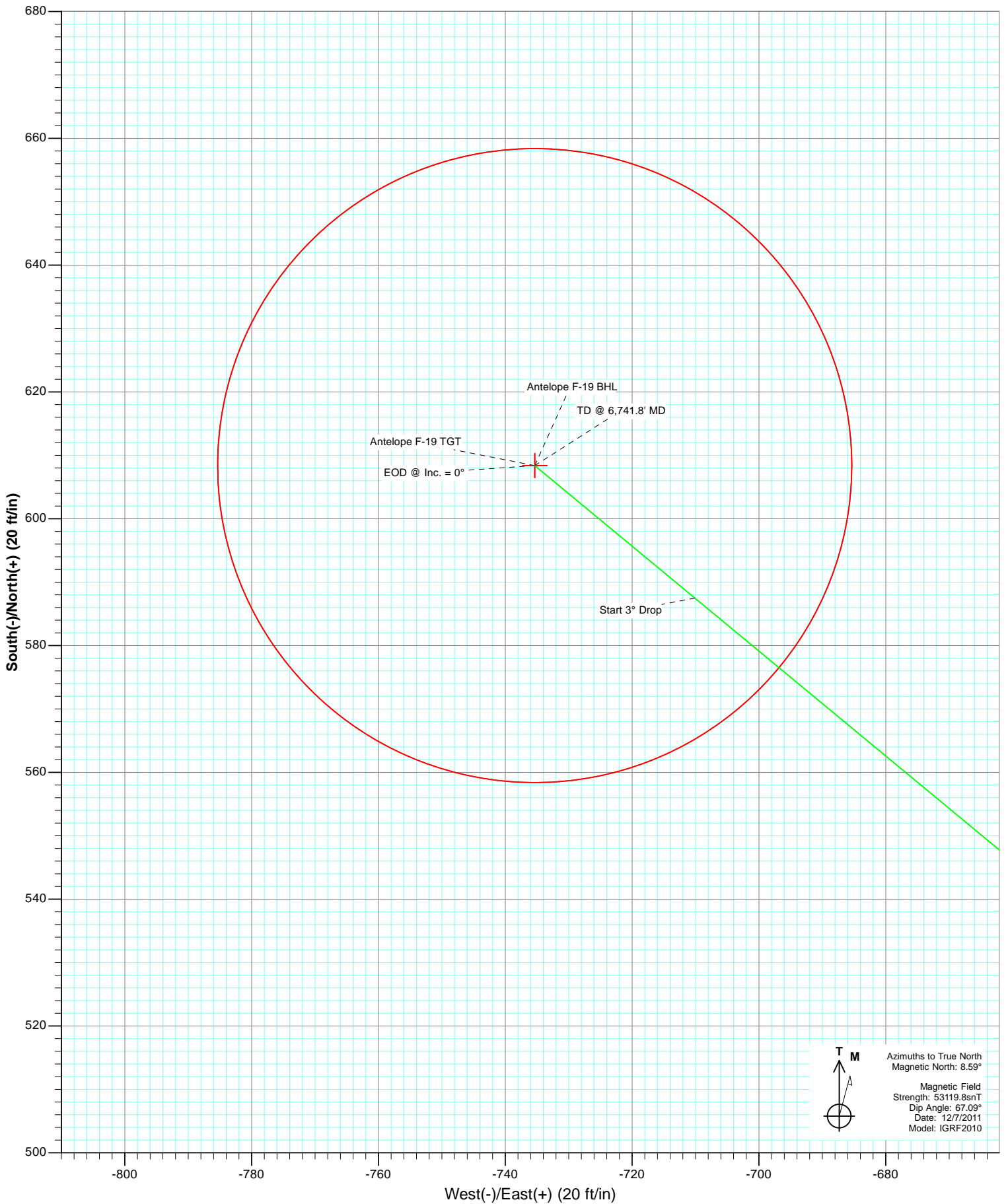
Plan #1  
Antelope F-19  
125XXX; SC

KBE @ 4610.0ft (Original Well Elev)  
North American Datum 1983  
Well Antelope F-19, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From	TVD
TD	No Target (Freehand)	309.60	Slot		0.0	0.0		0.0
Name		TVD	+N/-S	+E/-W	Latitude	Longitude		
Antelope F-19 TGT		6040.0	608.4	-735.4	40.391790	-104.370570		
Antelope F-19 BHL		6655.0	608.4	-735.4	40.391790	-104.370570		







# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site:</b>	Antelope 21-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

<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 21-19 Pad			
Site Position:		Northing:	1,386,991.60 ft	Latitude:	40.390160
From:	Lat/Long	Easting:	3,315,356.54 ft	Longitude:	-104.367860
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.73 °

Well	Antelope F-19					
Well Position	+N/-S	0.0 ft	Northing:	1,386,976.78 ft	Latitude:	40.390120
	+E/-W	0.0 ft	Easting:	3,315,337.23 ft	Longitude:	-104.367930
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,600.0 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</b>
			(°)	(°)	(nT)
	IGRF2010	12/7/2011	8.58	67.09	53,120

<b>Design</b>	Plan #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<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	309.60	

<b>Plan Sections</b>										
<b>Measured Depth</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical Depth</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg Rate</b>	<b>Build Rate</b>	<b>Turn Rate</b>	<b>TFO</b>	<b>Target</b>
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.00	0.00	
954.4	10.63	309.60	952.3	20.9	-25.3	3.00	3.00	0.00	309.60	
5,772.4	10.63	309.60	5,687.7	587.5	-710.1	0.00	0.00	0.00	0.00	
6,126.8	0.00	0.00	6,040.0	608.4	-735.4	3.00	-3.00	0.00	180.00	Antelope F-19 TGT
6,741.8	0.00	0.00	6,655.0	608.4	-735.4	0.00	0.00	0.00	0.00	Antelope F-19 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site:</b>	Antelope 21-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 600
700.0	3.00	309.60	700.0	1.7	-2.0	2.6	3.00	3.00	
800.0	6.00	309.60	799.6	6.7	-8.1	10.5	3.00	3.00	
900.0	9.00	309.60	898.8	15.0	-18.1	23.5	3.00	3.00	
954.4	10.63	309.60	952.3	20.9	-25.3	32.8	3.00	3.00	EOB @ Inc. = 10.63°
1,000.0	10.63	309.60	997.2	26.3	-31.7	41.2	0.00	0.00	
1,100.0	10.63	309.60	1,095.5	38.0	-46.0	59.6	0.00	0.00	
1,200.0	10.63	309.60	1,193.8	49.8	-60.2	78.1	0.00	0.00	
1,300.0	10.63	309.60	1,292.0	61.5	-74.4	96.5	0.00	0.00	
1,400.0	10.63	309.60	1,390.3	73.3	-88.6	115.0	0.00	0.00	
1,500.0	10.63	309.60	1,488.6	85.1	-102.8	133.4	0.00	0.00	
1,600.0	10.63	309.60	1,586.9	96.8	-117.0	151.9	0.00	0.00	
1,700.0	10.63	309.60	1,685.2	108.6	-131.2	170.3	0.00	0.00	
1,800.0	10.63	309.60	1,783.5	120.3	-145.5	188.8	0.00	0.00	
1,900.0	10.63	309.60	1,881.7	132.1	-159.7	207.2	0.00	0.00	
2,000.0	10.63	309.60	1,980.0	143.9	-173.9	225.7	0.00	0.00	
2,100.0	10.63	309.60	2,078.3	155.6	-188.1	244.1	0.00	0.00	
2,200.0	10.63	309.60	2,176.6	167.4	-202.3	262.6	0.00	0.00	
2,300.0	10.63	309.60	2,274.9	179.1	-216.5	281.0	0.00	0.00	
2,400.0	10.63	309.60	2,373.2	190.9	-230.7	299.5	0.00	0.00	
2,500.0	10.63	309.60	2,471.4	202.7	-245.0	317.9	0.00	0.00	
2,600.0	10.63	309.60	2,569.7	214.4	-259.2	336.4	0.00	0.00	
2,700.0	10.63	309.60	2,668.0	226.2	-273.4	354.8	0.00	0.00	
2,800.0	10.63	309.60	2,766.3	237.9	-287.6	373.3	0.00	0.00	
2,900.0	10.63	309.60	2,864.6	249.7	-301.8	391.7	0.00	0.00	
3,000.0	10.63	309.60	2,962.9	261.5	-316.0	410.2	0.00	0.00	
3,100.0	10.63	309.60	3,061.1	273.2	-330.2	428.6	0.00	0.00	
3,200.0	10.63	309.60	3,159.4	285.0	-344.5	447.1	0.00	0.00	
3,300.0	10.63	309.60	3,257.7	296.7	-358.7	465.5	0.00	0.00	
3,390.9	10.63	309.60	3,347.0	307.4	-371.6	482.3	0.00	0.00	Parkman
3,400.0	10.63	309.60	3,356.0	308.5	-372.9	484.0	0.00	0.00	
3,500.0	10.63	309.60	3,454.3	320.3	-387.1	502.4	0.00	0.00	
3,600.0	10.63	309.60	3,552.6	332.0	-401.3	520.9	0.00	0.00	
3,700.0	10.63	309.60	3,650.8	343.8	-415.5	539.3	0.00	0.00	
3,800.0	10.63	309.60	3,749.1	355.5	-429.7	557.8	0.00	0.00	
3,900.0	10.63	309.60	3,847.4	367.3	-444.0	576.2	0.00	0.00	
4,000.0	10.63	309.60	3,945.7	379.1	-458.2	594.6	0.00	0.00	
4,090.9	10.63	309.60	4,035.0	389.7	-471.1	611.4	0.00	0.00	Sussex
4,100.0	10.63	309.60	4,044.0	390.8	-472.4	613.1	0.00	0.00	
4,200.0	10.63	309.60	4,142.3	402.6	-486.6	631.5	0.00	0.00	
4,300.0	10.63	309.60	4,240.5	414.3	-500.8	650.0	0.00	0.00	
4,400.0	10.63	309.60	4,338.8	426.1	-515.0	668.4	0.00	0.00	
4,500.0	10.63	309.60	4,437.1	437.9	-529.2	686.9	0.00	0.00	
4,600.0	10.63	309.60	4,535.4	449.6	-543.5	705.3	0.00	0.00	
4,700.0	10.63	309.60	4,633.7	461.4	-557.7	723.8	0.00	0.00	
4,800.0	10.63	309.60	4,732.0	473.1	-571.9	742.2	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site:</b>	Antelope 21-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	10.63	309.60	4,830.2	484.9	-586.1	760.7	0.00	0.00	
5,000.0	10.63	309.60	4,928.5	496.7	-600.3	779.1	0.00	0.00	
5,100.0	10.63	309.60	5,026.8	508.4	-614.5	797.6	0.00	0.00	
5,200.0	10.63	309.60	5,125.1	520.2	-628.7	816.0	0.00	0.00	
5,300.0	10.63	309.60	5,223.4	531.9	-643.0	834.5	0.00	0.00	
5,400.0	10.63	309.60	5,321.7	543.7	-657.2	852.9	0.00	0.00	
5,500.0	10.63	309.60	5,419.9	555.5	-671.4	871.4	0.00	0.00	
5,600.0	10.63	309.60	5,518.2	567.2	-685.6	889.8	0.00	0.00	
5,700.0	10.63	309.60	5,616.5	579.0	-699.8	908.3	0.00	0.00	
5,772.4	10.63	309.60	5,687.7	587.5	-710.1	921.6	0.00	0.00	Start 3° Drop
5,800.0	9.80	309.60	5,714.8	590.6	-713.9	926.5	3.00	-3.00	
5,900.0	6.80	309.60	5,813.8	599.8	-725.0	941.0	3.00	-3.00	
6,000.0	3.80	309.60	5,913.3	605.7	-732.1	950.2	3.00	-3.00	
6,100.0	0.80	309.60	6,013.2	608.3	-735.2	954.2	3.00	-3.00	
6,126.8	0.00	0.00	6,040.0	608.4	-735.4	954.4	3.00	-3.00	EOD @ Inc. = 0°
6,200.0	0.00	0.00	6,113.2	608.4	-735.4	954.4	0.00	0.00	
6,300.0	0.00	0.00	6,213.2	608.4	-735.4	954.4	0.00	0.00	
6,326.8	0.00	0.00	6,240.0	608.4	-735.4	954.4	0.00	0.00	Niobrara
6,400.0	0.00	0.00	6,313.2	608.4	-735.4	954.4	0.00	0.00	
6,500.0	0.00	0.00	6,413.2	608.4	-735.4	954.4	0.00	0.00	
6,558.8	0.00	0.00	6,472.0	608.4	-735.4	954.4	0.00	0.00	Ft. Hayes
6,581.8	0.00	0.00	6,495.0	608.4	-735.4	954.4	0.00	0.00	Codell
6,593.8	0.00	0.00	6,507.0	608.4	-735.4	954.4	0.00	0.00	Carlile
6,600.0	0.00	0.00	6,513.2	608.4	-735.4	954.4	0.00	0.00	
6,628.8	0.00	0.00	6,542.0	608.4	-735.4	954.4	0.00	0.00	Greenhorn
6,700.0	0.00	0.00	6,613.2	608.4	-735.4	954.4	0.00	0.00	
6,741.8	0.00	0.00	6,655.0	608.4	-735.4	954.4	0.00	0.00	TD @ 6,741.8' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Antelope F-19 BHL	0.00	0.00	6,655.0	608.4	-735.4	1,387,575.73	3,314,594.17	40.391790	-104.370570
- plan hits target center									
- Circle (radius 50.0)									
Antelope F-19 TGT	0.00	0.00	6,040.0	608.4	-735.4	1,387,575.73	3,314,594.17	40.391790	-104.370570
- plan hits target center									
- Point									

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site:</b>	Antelope 21-19 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #1		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,390.9	3,347.0	Parkman				
4,090.9	4,035.0	Sussex				
6,326.8	6,240.0	Niobrara				
6,558.8	6,472.0	Ft. Hayes				
6,581.8	6,495.0	Codell				
6,593.8	6,507.0	Carlile				
6,628.8	6,542.0	Greenhorn				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
600.0	600.0	0.0	0.0	KOP @ 600
954.4	952.3	20.9	-25.3	EOB @ Inc. = 10.63°
5,772.4	5,687.7	587.5	-710.1	Start 3° Drop
6,126.8	6,040.0	608.4	-735.4	EOD @ Inc. = 0°
6,741.8	6,655.0	608.4	-735.4	TD @ 6,741.8' MD



# **Bonanza Creek Energy Operating Company, LLC**

**Weld County**

**Antelope 21-19 Pad**

**Antelope F-19**

**OH**

**Plan #1**

## **Anticollision Report**

**08 December, 2011**

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	12/8/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	6,741.8	Plan #1 (OH)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Antelope 21-19 Pad						
Antelope 21-19 (vert) - DD - Plan #1	0.0	4.0	24.3			
Antelope 21-19 (vert) - DD - Plan #1	600.0	604.0	24.3	24.3	10,000.000	CC, ES
Antelope 31-19 - DD - DD	0.0	4.0	36.7			
Antelope 31-19 - DD - DD	528.5	532.6	35.1	35.1	10,000.000	CC, ES
Antelope B-19 - OH - Plan #1	0.0	0.0	14.6			
Antelope B-19 - OH - Plan #1	600.0	600.0	14.6	14.6	10,000.000	CC, ES
Antelope K-19 - OH - Plan #1	0.0	0.0	43.7			
Antelope K-19 - OH - Plan #1	600.0	600.0	43.7	43.7	10,000.000	CC, ES
Antelope L-19 - OH - Plan #1	0.0	85.0	29.1			
Antelope L-19 - OH - Plan #1	500.0	585.0	29.1	29.1	10,000.000	CC, ES

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 21-19 Pad - Antelope 21-19 (vert) - DD - Plan #1												Offset Site Error: 0.0 ft	
Survey Program: 0-MWD												Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
0.0	0.0	4.0	4.0	0.0	0.0	53.24	14.6	19.5	24.3				
100.0	100.0	104.0	104.0	0.2	0.2	53.24	14.6	19.5	24.3	24.3	0.00	N/A	N/A CC, ES
200.0	200.0	204.0	204.0	0.3	0.3	53.24	14.6	19.5	24.3	24.3	0.00	N/A	
300.0	300.0	304.0	304.0	0.5	0.5	53.24	14.6	19.5	24.3	24.3	0.00	N/A	
400.0	400.0	404.0	404.0	0.7	0.7	53.24	14.6	19.5	24.3	24.3	0.00	N/A	
500.0	500.0	504.0	504.0	0.9	0.9	53.24	14.6	19.5	24.3	24.3	0.00	N/A	
600.0	600.0	604.0	604.0	1.0	1.0	53.24	14.6	19.5	24.3	24.3	0.00	N/A	
700.0	700.0	704.0	704.0	1.2	1.2	109.44	14.6	19.5	25.1	25.1	0.00	N/A	
800.0	799.6	803.6	803.6	1.4	1.4	124.27	14.6	19.5	28.7	28.7	0.00	N/A	
900.0	898.8	902.8	902.8	1.6	1.6	140.70	14.6	19.5	37.6	37.6	0.00	N/A	
1,000.0	997.2	1,001.2	1,001.2	1.9	1.7	152.86	14.6	19.5	52.6	52.6	0.00	N/A	
1,100.0	1,095.5	1,099.5	1,099.5	2.2	1.9	159.80	14.6	19.5	69.5	69.5	0.00	N/A	
1,200.0	1,193.8	1,197.8	1,197.8	2.6	2.1	163.98	14.6	19.5	87.1	87.1	0.00	N/A	
1,300.0	1,292.0	1,296.0	1,296.0	2.9	2.2	166.76	14.6	19.5	105.0	105.0	0.00	N/A	
1,400.0	1,390.3	1,394.3	1,394.3	3.3	2.4	168.73	14.6	19.5	123.0	123.0	0.00	N/A	
1,500.0	1,488.6	1,492.6	1,492.6	3.6	2.6	170.19	14.6	19.5	141.2	141.2	0.00	N/A	
1,600.0	1,586.9	1,590.9	1,590.9	4.0	2.8	171.32	14.6	19.5	159.4	159.4	0.00	N/A	
1,700.0	1,685.2	1,689.2	1,689.2	4.3	2.9	172.22	14.6	19.5	177.7	177.7	0.00	N/A	
1,800.0	1,783.5	1,787.5	1,787.5	4.7	3.1	172.95	14.6	19.5	196.0	196.0	0.00	N/A	
1,900.0	1,881.7	1,885.7	1,885.7	5.0	3.3	173.55	14.6	19.5	214.3	214.3	0.00	N/A	
2,000.0	1,980.0	1,984.0	1,984.0	5.4	3.4	174.06	14.6	19.5	232.6	232.6	0.00	N/A	
2,100.0	2,078.3	2,082.3	2,082.3	5.8	3.6	174.50	14.6	19.5	251.0	251.0	0.00	N/A	
2,200.0	2,176.6	2,180.6	2,180.6	6.1	3.8	174.88	14.6	19.5	269.4	269.4	0.00	N/A	
2,300.0	2,274.9	2,278.9	2,278.9	6.5	4.0	175.20	14.6	19.5	287.7	287.7	0.00	N/A	
2,400.0	2,373.2	2,377.2	2,377.2	6.8	4.1	175.49	14.6	19.5	306.1	306.1	0.00	N/A	
2,500.0	2,471.4	2,475.4	2,475.4	7.2	4.3	175.75	14.6	19.5	324.5	324.5	0.00	N/A	
2,600.0	2,569.7	2,573.7	2,573.7	7.6	4.5	175.98	14.6	19.5	342.9	342.9	0.00	N/A	
2,700.0	2,668.0	2,672.0	2,672.0	7.9	4.6	176.18	14.6	19.5	361.3	361.3	0.00	N/A	
2,800.0	2,766.3	2,770.3	2,770.3	8.3	4.8	176.37	14.6	19.5	379.7	379.7	0.00	N/A	
2,900.0	2,864.6	2,868.6	2,868.6	8.7	5.0	176.54	14.6	19.5	398.2	398.2	0.00	N/A	
3,000.0	2,962.9	2,966.9	2,966.9	9.0	5.2	176.69	14.6	19.5	416.6	416.6	0.00	N/A	
3,100.0	3,061.1	3,065.1	3,065.1	9.4	5.3	176.83	14.6	19.5	435.0	435.0	0.00	N/A	
3,200.0	3,159.4	3,163.4	3,163.4	9.8	5.5	176.96	14.6	19.5	453.4	453.4	0.00	N/A	
3,300.0	3,257.7	3,261.7	3,261.7	10.1	5.7	177.08	14.6	19.5	471.8	471.8	0.00	N/A	
3,400.0	3,356.0	3,360.0	3,360.0	10.5	5.8	177.19	14.6	19.5	490.3	490.3	0.00	N/A	

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 21-19 Pad - Antelope 31-19 - DD - DD													Offset Site Error:	0.0 ft
Survey Program: 468-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)		Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
0.0	0.0	4.0	4.0	0.0	0.0	37.41	29.1	22.3	36.7					
100.0	100.0	104.1	104.1	0.2	0.2	37.22	29.2	22.1	36.6	36.6	0.00	N/A		
200.0	200.0	204.1	204.1	0.3	0.4	36.67	29.2	21.7	36.4	36.4	0.00	N/A		
300.0	300.0	304.1	304.1	0.5	0.5	35.76	29.3	21.1	36.1	36.1	0.00	N/A		
400.0	400.0	404.2	404.2	0.7	0.7	34.47	29.4	20.2	35.6	35.6	0.00	N/A		
500.0	500.0	504.1	504.1	0.9	0.9	33.24	29.4	19.3	35.2	35.2	0.00	N/A		
528.5	528.5	532.6	532.5	0.9	0.9	33.73	29.2	19.5	35.1	35.1	0.00	N/A CC, ES		
600.0	600.0	604.0	604.0	1.0	1.0	37.42	28.0	21.4	35.2	35.2	0.00	N/A		
700.0	700.0	703.0	702.7	1.2	1.2	102.77	23.9	27.0	36.5	36.5	0.00	N/A		
800.0	799.6	798.9	797.8	1.4	1.4	125.04	18.6	37.8	47.7	47.7	0.00	N/A		
900.0	898.8	891.5	889.0	1.6	1.7	139.90	13.8	53.0	72.4	72.4	0.00	N/A		
1,000.0	997.2	981.9	977.4	1.9	2.0	147.75	9.7	71.9	107.6	107.6	0.00	N/A		
1,100.0	1,095.5	1,072.0	1,065.1	2.2	2.4	150.57	9.0	92.4	145.5	145.5	0.00	N/A		
1,200.0	1,193.8	1,157.7	1,147.8	2.6	2.7	151.28	10.3	114.8	186.2	186.2	0.00	N/A		
1,300.0	1,292.0	1,242.4	1,228.6	2.9	3.2	151.17	13.0	139.9	229.8	229.8	0.00	N/A		
1,400.0	1,390.3	1,333.7	1,315.4	3.3	3.7	150.86	16.8	167.8	274.2	274.2	0.00	N/A		
1,500.0	1,488.6	1,428.8	1,406.2	3.6	4.1	150.64	20.8	195.9	317.5	317.5	0.00	N/A		
1,600.0	1,586.9	1,530.9	1,504.4	4.0	4.6	150.58	25.1	223.4	358.4	358.4	0.00	N/A		
1,700.0	1,685.2	1,626.9	1,597.6	4.3	5.1	150.97	26.8	246.5	397.2	397.2	0.00	N/A		
1,800.0	1,783.5	1,713.2	1,681.3	4.7	5.5	151.46	26.9	267.5	436.5	436.5	0.00	N/A		
1,900.0	1,881.7	1,800.8	1,766.0	5.0	5.9	151.88	26.8	289.7	476.8	476.8	0.00	N/A		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 21-19 Pad - Antelope B-19 - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Distance		Total		Separation		Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	180.00	-14.6	0.0	14.6					
100.0	100.0	100.0	100.0	0.2	0.2	180.00	-14.6	0.0	14.6	14.6	0.00	N/A		
200.0	200.0	200.0	200.0	0.3	0.3	180.00	-14.6	0.0	14.6	14.6	0.00	N/A		
300.0	300.0	300.0	300.0	0.5	0.5	180.00	-14.6	0.0	14.6	14.6	0.00	N/A		
400.0	400.0	400.0	400.0	0.7	0.7	180.00	-14.6	0.0	14.6	14.6	0.00	N/A		
500.0	500.0	500.0	500.0	0.9	0.9	180.00	-14.6	0.0	14.6	14.6	0.00	N/A		
600.0	600.0	600.0	600.0	1.0	1.0	180.00	-14.6	0.0	14.6	14.6	0.00	N/A CC, ES		
700.0	700.0	699.7	699.6	1.2	1.2	-128.05	-15.4	-2.5	17.1	17.1	0.00	N/A		
800.0	799.6	799.0	798.6	1.4	1.4	-125.28	-18.0	-9.8	24.7	24.7	0.00	N/A		
900.0	898.8	897.5	896.3	1.6	1.6	-123.08	-22.2	-21.8	37.5	37.5	0.00	N/A		
1,000.0	997.2	994.9	992.1	1.9	1.9	-121.31	-28.0	-38.4	54.9	54.9	0.00	N/A		
1,100.0	1,095.5	1,091.2	1,085.8	2.2	2.3	-117.65	-35.3	-59.3	75.2	75.2	0.00	N/A		
1,200.0	1,193.8	1,185.9	1,176.8	2.6	2.8	-113.16	-44.0	-84.2	98.3	98.3	0.00	N/A		
1,300.0	1,292.0	1,278.7	1,264.5	2.9	3.3	-108.68	-54.0	-112.6	124.8	124.8	0.00	N/A		
1,400.0	1,390.3	1,369.1	1,348.5	3.3	3.9	-104.54	-65.0	-144.2	154.8	154.8	0.00	N/A		
1,500.0	1,488.6	1,462.2	1,433.9	3.6	4.6	-100.98	-77.3	-179.2	187.6	187.6	0.00	N/A		
1,600.0	1,586.9	1,556.1	1,520.0	4.0	5.2	-98.45	-89.6	-214.6	220.8	220.8	0.00	N/A		
1,700.0	1,685.2	1,650.1	1,606.1	4.3	5.9	-96.57	-102.0	-250.0	254.4	254.4	0.00	N/A		
1,800.0	1,783.5	1,744.0	1,692.2	4.7	6.6	-95.14	-114.4	-285.4	288.1	288.1	0.00	N/A		
1,900.0	1,881.7	1,837.9	1,778.4	5.0	7.3	-94.00	-126.8	-320.8	321.9	321.9	0.00	N/A		
2,000.0	1,980.0	1,931.8	1,864.5	5.4	8.0	-93.08	-139.1	-356.1	355.9	355.9	0.00	N/A		
2,100.0	2,078.3	2,025.8	1,950.6	5.8	8.7	-92.32	-151.5	-391.5	389.9	389.9	0.00	N/A		
2,200.0	2,176.6	2,119.7	2,036.7	6.1	9.4	-91.68	-163.9	-426.9	424.0	424.0	0.00	N/A		
2,300.0	2,274.9	2,213.6	2,122.8	6.5	10.1	-91.13	-176.3	-462.3	458.1	458.1	0.00	N/A		
2,400.0	2,373.2	2,307.5	2,209.0	6.8	10.9	-90.66	-188.6	-497.7	492.2	492.2	0.00	N/A		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 21-19 Pad - Antelope K-19 - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total	Separation	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	43.7	0.0	43.7					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	43.7	0.0	43.7	43.7	0.00	N/A		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	43.7	0.0	43.7	43.7	0.00	N/A		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	43.7	0.0	43.7	43.7	0.00	N/A		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	43.7	0.0	43.7	43.7	0.00	N/A		
500.0	500.0	500.0	500.0	0.9	0.9	0.00	43.7	0.0	43.7	43.7	0.00	N/A		
600.0	600.0	600.0	600.0	1.0	1.0	0.00	43.7	0.0	43.7	43.7	0.00	N/A CC, ES		
700.0	700.0	698.2	698.1	1.2	1.2	55.15	45.6	1.7	44.1	44.1	0.00	N/A		
800.0	799.6	795.6	795.2	1.4	1.4	68.29	51.2	6.7	47.1	47.1	0.00	N/A		
900.0	898.8	891.3	890.2	1.6	1.6	85.09	60.2	14.8	56.6	56.6	0.00	N/A		
1,000.0	997.2	988.3	986.0	1.9	1.9	99.97	71.4	24.8	73.2	73.2	0.00	N/A		
1,100.0	1,095.5	1,085.3	1,081.8	2.2	2.1	109.69	82.6	34.8	93.2	93.2	0.00	N/A		
1,200.0	1,193.8	1,182.3	1,177.7	2.6	2.4	115.90	93.8	44.8	114.9	114.9	0.00	N/A		
1,300.0	1,292.0	1,279.3	1,273.5	2.9	2.7	120.13	104.9	54.8	137.5	137.5	0.00	N/A		
1,400.0	1,390.3	1,376.3	1,369.3	3.3	3.0	123.16	116.1	64.8	160.6	160.6	0.00	N/A		
1,500.0	1,488.6	1,473.3	1,465.2	3.6	3.3	125.43	127.3	74.8	184.0	184.0	0.00	N/A		
1,600.0	1,586.9	1,570.3	1,561.0	4.0	3.6	127.18	138.5	84.8	207.7	207.7	0.00	N/A		
1,700.0	1,685.2	1,667.3	1,656.8	4.3	3.9	128.58	149.7	94.8	231.4	231.4	0.00	N/A		
1,800.0	1,783.5	1,764.3	1,752.6	4.7	4.2	129.72	160.8	104.8	255.3	255.3	0.00	N/A		
1,900.0	1,881.7	1,861.2	1,848.5	5.0	4.5	130.66	172.0	114.8	279.3	279.3	0.00	N/A		
2,000.0	1,980.0	1,958.2	1,944.3	5.4	4.8	131.45	183.2	124.7	303.3	303.3	0.00	N/A		
2,100.0	2,078.3	2,055.2	2,040.1	5.8	5.1	132.13	194.4	134.7	327.4	327.4	0.00	N/A		
2,200.0	2,176.6	2,152.2	2,135.9	6.1	5.4	132.71	205.6	144.7	351.5	351.5	0.00	N/A		
2,300.0	2,274.9	2,249.2	2,231.8	6.5	5.7	133.22	216.7	154.7	375.6	375.6	0.00	N/A		
2,400.0	2,373.2	2,346.2	2,327.6	6.8	6.0	133.67	227.9	164.7	399.8	399.8	0.00	N/A		
2,500.0	2,471.4	2,443.2	2,423.4	7.2	6.4	134.07	239.1	174.7	424.0	424.0	0.00	N/A		
2,600.0	2,569.7	2,540.2	2,519.2	7.6	6.7	134.42	250.3	184.7	448.2	448.2	0.00	N/A		
2,700.0	2,668.0	2,637.2	2,615.1	7.9	7.0	134.74	261.4	194.7	472.4	472.4	0.00	N/A		
2,800.0	2,766.3	2,734.2	2,710.9	8.3	7.3	135.03	272.6	204.7	496.6	496.6	0.00	N/A		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 21-19 Pad - Antelope L-19 - OH - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance					Separation Factor	Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis			
0.0	0.0	85.0	85.0	0.0	0.1	-180.00	-29.1	0.0	29.1					
100.0	100.0	185.0	185.0	0.2	0.3	-180.00	-29.1	0.0	29.1	29.1	0.00	N/A		
200.0	200.0	285.0	285.0	0.3	0.5	-180.00	-29.1	0.0	29.1	29.1	0.00	N/A		
300.0	300.0	385.0	385.0	0.5	0.7	-180.00	-29.1	0.0	29.1	29.1	0.00	N/A		
400.0	400.0	485.0	485.0	0.7	0.8	-180.00	-29.1	0.0	29.1	29.1	0.00	N/A		
500.0	500.0	585.0	585.0	0.9	1.0	-180.00	-29.1	0.0	29.1	29.1	0.00	N/A CC, ES		
600.0	600.0	684.0	684.0	1.0	1.2	177.64	-30.5	1.3	30.5	30.5	0.00	N/A		
700.0	700.0	782.1	781.8	1.2	1.4	-141.45	-35.5	5.9	38.1	38.1	0.00	N/A		
800.0	799.6	878.0	877.0	1.4	1.6	-152.42	-43.9	13.8	55.6	55.6	0.00	N/A		
900.0	898.8	973.7	971.7	1.6	1.8	-159.89	-54.5	23.6	81.9	81.9	0.00	N/A		
1,000.0	997.2	1,068.4	1,065.2	1.9	2.1	-164.42	-64.9	33.3	113.3	113.3	0.00	N/A		
1,100.0	1,095.5	1,162.8	1,158.6	2.2	2.4	-167.16	-75.4	43.0	145.8	145.8	0.00	N/A		
1,200.0	1,193.8	1,257.2	1,251.9	2.6	2.6	-168.89	-85.8	52.7	178.4	178.4	0.00	N/A		
1,300.0	1,292.0	1,351.6	1,345.2	2.9	2.9	-170.09	-96.2	62.4	211.2	211.2	0.00	N/A		
1,400.0	1,390.3	1,446.0	1,438.5	3.3	3.2	-170.97	-106.6	72.1	244.1	244.1	0.00	N/A		
1,500.0	1,488.6	1,540.4	1,531.8	3.6	3.5	-171.64	-117.1	81.8	276.9	276.9	0.00	N/A		
1,600.0	1,586.9	1,634.8	1,625.1	4.0	3.8	-172.17	-127.5	91.5	309.8	309.8	0.00	N/A		
1,700.0	1,685.2	1,729.2	1,718.5	4.3	4.1	-172.59	-137.9	101.2	342.8	342.8	0.00	N/A		
1,800.0	1,783.5	1,823.6	1,811.8	4.7	4.3	-172.95	-148.3	110.9	375.7	375.7	0.00	N/A		
1,900.0	1,881.7	1,918.0	1,905.1	5.0	4.6	-173.24	-158.8	120.6	408.6	408.6	0.00	N/A		
2,000.0	1,980.0	2,012.4	1,998.4	5.4	4.9	-173.49	-169.2	130.4	441.6	441.6	0.00	N/A		
2,100.0	2,078.3	2,106.8	2,091.7	5.8	5.2	-173.71	-179.6	140.1	474.5	474.5	0.00	N/A		

# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope F-19
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 21-19 Pad	<b>MD Reference:</b>	KBE @ 4610.0ft (Original Well Elev)
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<b>Reference Well:</b>	Antelope F-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	OH	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #1	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 4610.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

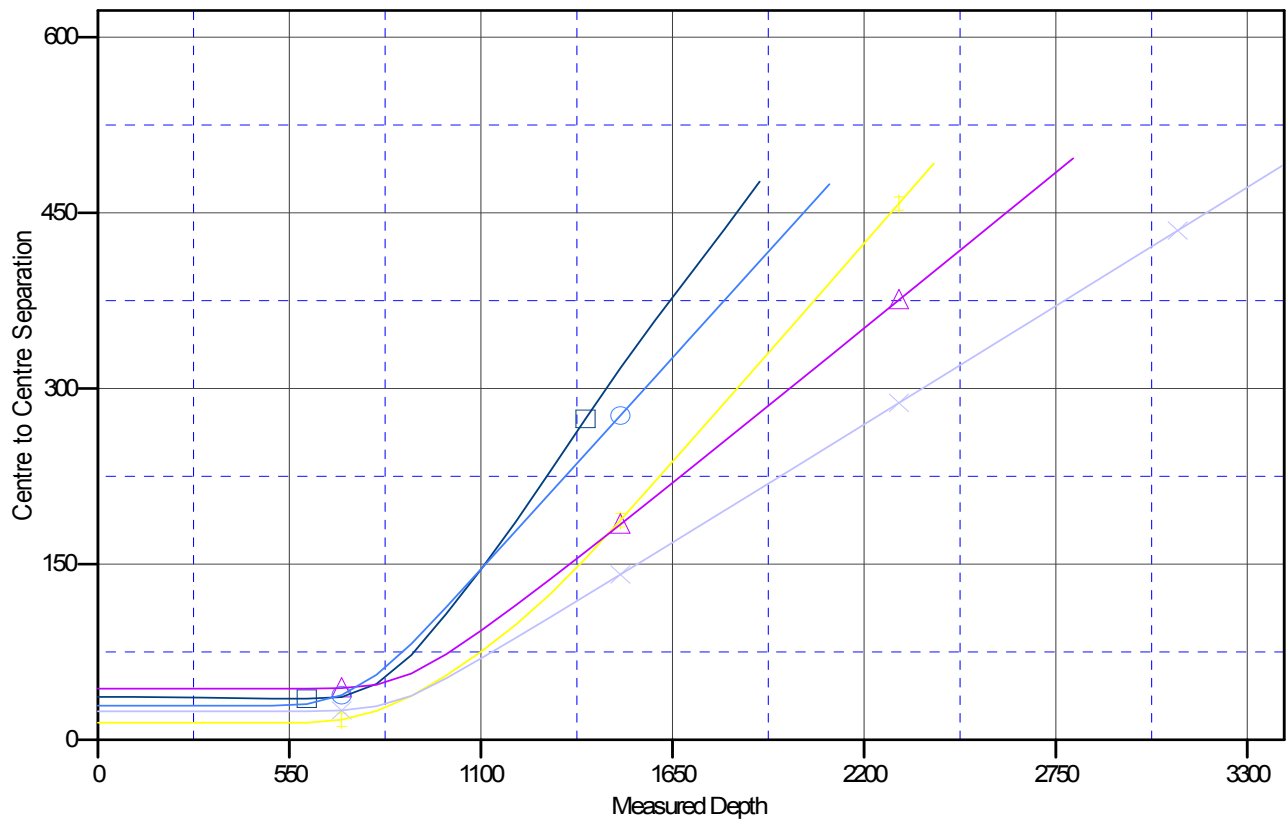
Central Meridian is -105.500000 °

Coordinates are relative to: Antelope F-19

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.73°

### Ladder Plot



### LEGEND

- Antelope B-19, OH, Plan #1 V0
- Antelope 31-19, DD, DD V0
- Antelope L-19, OH, Plan #1 V0
- Antelope 21-19 (vert), DD, Plan #1 V0
- Antelope K-19, OH, Plan #1 V0