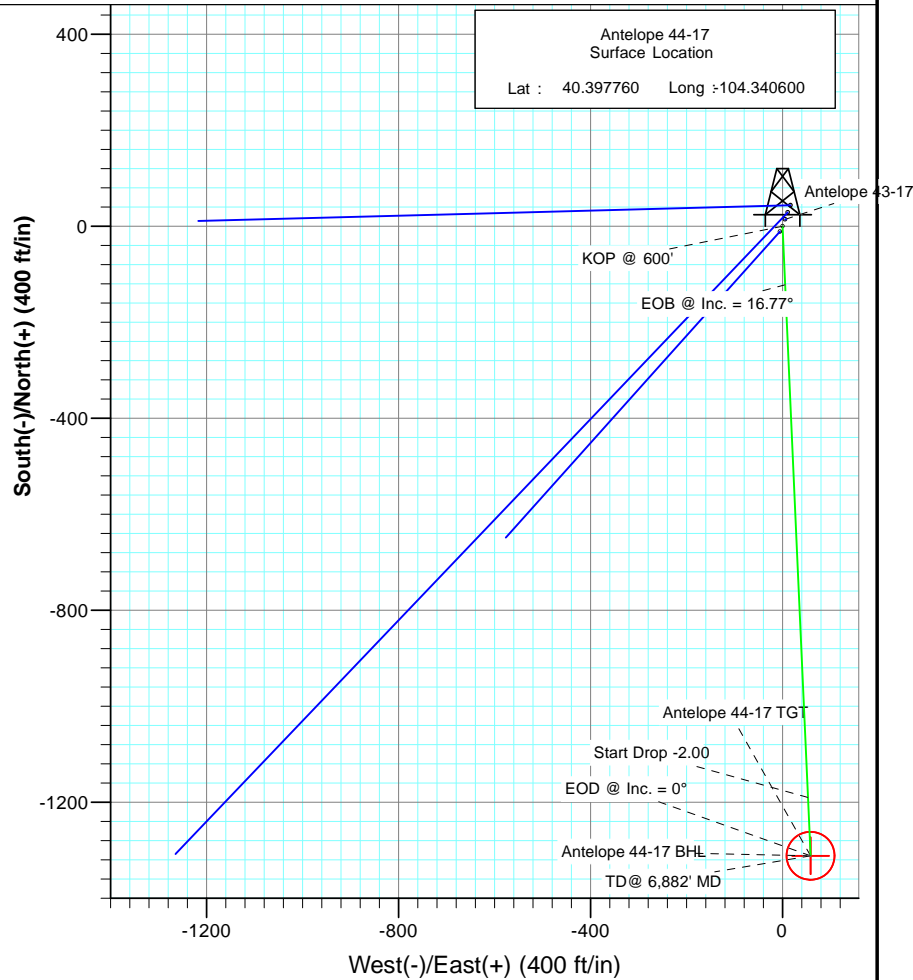


SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target	
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0		
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0		
3	1438.7	16.77	177.45	1426.8	-121.8	5.4	2.00	177.45	121.9		
4	5142.8	16.77	177.45	4973.2	-1189.7	53.1	0.00	0.00	1190.9		
5	5981.5	0.00	0.00	5800.0	-1311.4	58.5	2.00	180.00	1312.8	Antelope 44-17 TGT	
6	6881.5	0.00	0.00	6700.0	-1311.4	58.5	0.00	0.00	1312.8	Antelope 44-17 BHL	



**FORMATION TOP DETAILS**

TVDPath	MDPath	Formation
6252.0	6433.5	Niobrara



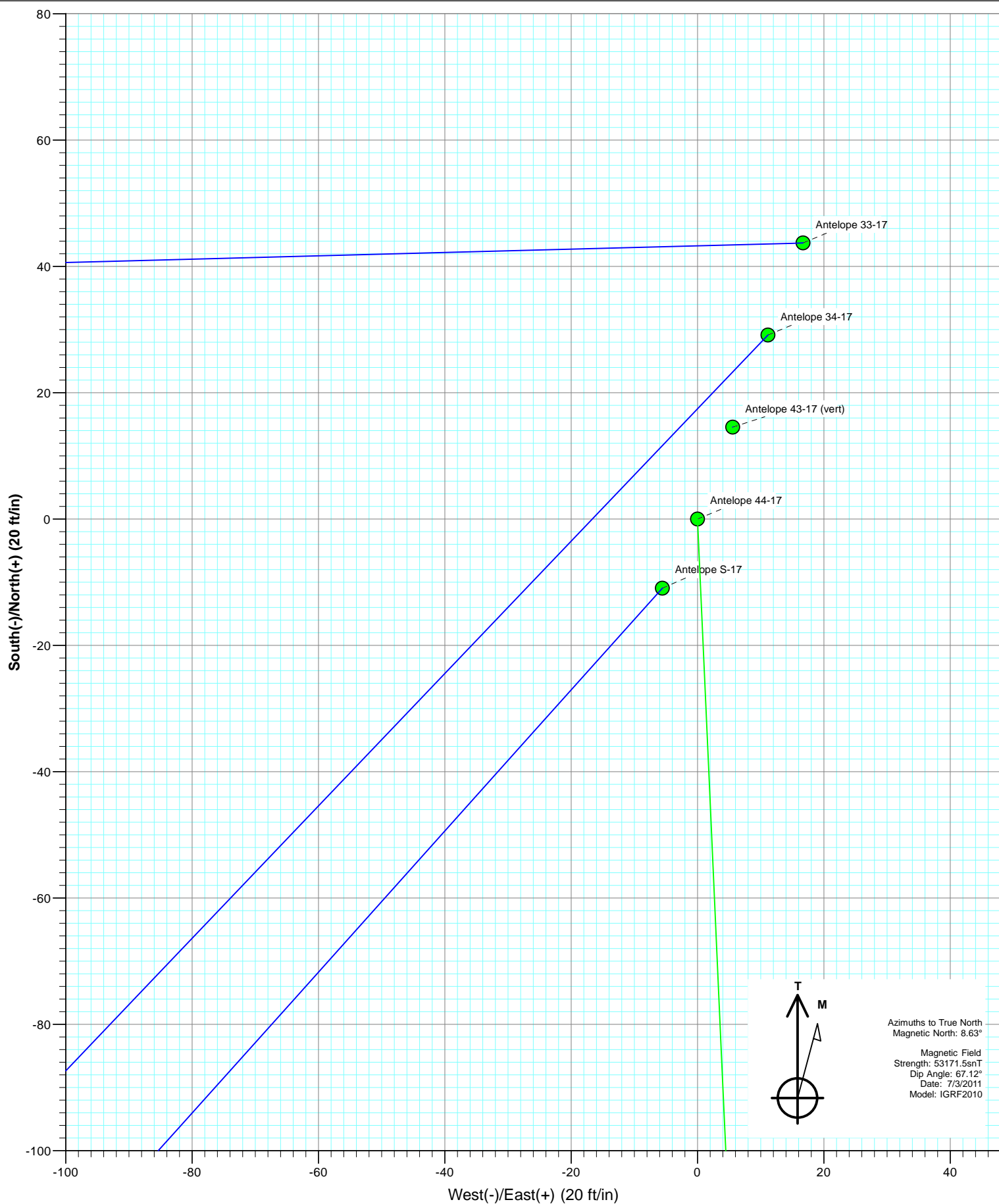
Azimuths to True North  
Magnetic North: 8.63°

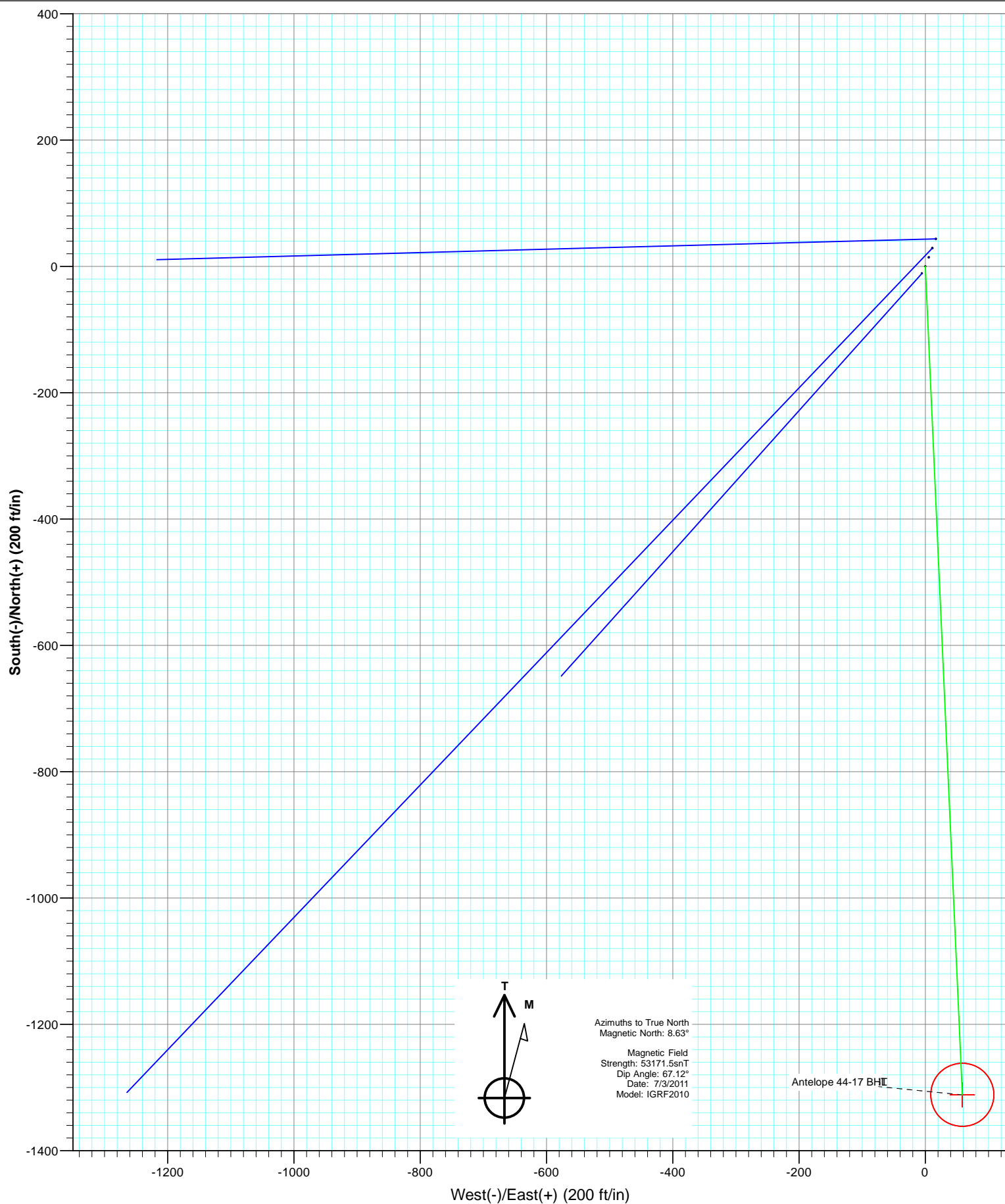
Magnetic Field  
Strength: 53171.5nT  
Dip Angle: 67.12°  
Date: 7/3/2011  
Model: IGRF2010

Plan #2  
Antelope 44-17  
115XXX; SC

KBE @ 4701.0ft (Original Well Elev)  
North American Datum 1983  
Well Antelope 44-17, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From
TD	No Target (Freehand)	177.45	Slot		0.0	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude		
Antelope 44-17 TGT	5800.0	-1311.4	58.5	40.394160	-104.340390		
Antelope 44-17 BHL	6700.0	-1311.4	58.5	40.394160	-104.340390		





# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope 44-17
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site:</b>	Antelope 43-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope 44-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #2		

<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 43-17 Pad			
Site Position:		Northing:	1,389,872.78 ft	Latitude:	40.397800
From:	Lat/Long	Easting:	3,322,918.40 ft	Longitude:	-104.340580
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.75 °

Well	Antelope 44-17					
Well Position	+N/-S	0.0 ft	Northing:	1,389,858.11 ft	Latitude:	40.397760
	+E/-W	0.0 ft	Easting:	3,322,913.02 ft	Longitude:	-104.340600
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,691.0 ft

<b>Wellbore</b>	DD				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination</b>	<b>Dip Angle</b>	<b>Field Strength</b>
			(°)	(°)	(nT)
	IGRF2010	7/3/2011	8.63	67.12	53,171

<b>Design</b>	Plan #2			
<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	177.45

<b>Plan Sections</b>										
<b>Measured</b>	<b>Inclination</b>	<b>Azimuth</b>	<b>Vertical</b>	<b>+N/-S</b>	<b>+E/-W</b>	<b>Dogleg</b>	<b>Build</b>	<b>Turn</b>	<b>TFO</b>	<b>Target</b>
<b>Depth</b>	<b>(°)</b>	<b>(°)</b>	<b>Depth</b>	<b>(ft)</b>	<b>(ft)</b>	<b>Rate</b>	<b>Rate</b>	<b>Rate</b>	<b>(°)</b>	
<b>(ft)</b>			<b>(ft)</b>			<b>(°/100ft)</b>	<b>(°/100ft)</b>	<b>(°/100ft)</b>		
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	
1,438.7	16.77	177.45	1,426.8	-121.8	5.4	2.00	2.00	0.00	177.45	
5,142.8	16.77	177.45	4,973.2	-1,189.7	53.1	0.00	0.00	0.00	0.00	
5,981.5	0.00	0.00	5,800.0	-1,311.4	58.5	2.00	-2.00	0.00	180.00	Antelope 44-17 TGT
6,881.5	0.00	0.00	6,700.0	-1,311.4	58.5	0.00	0.00	0.00	0.00	Antelope 44-17 BHL

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope 44-17
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site:</b>	Antelope 43-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope 44-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #2		

### 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	2.00	177.45	700.0	-1.7	0.1	1.7	2.00	2.00	
800.0	4.00	177.45	799.8	-7.0	0.3	7.0	2.00	2.00	
900.0	6.00	177.45	899.5	-15.7	0.7	15.7	2.00	2.00	
1,000.0	8.00	177.45	998.7	-27.9	1.2	27.9	2.00	2.00	
1,100.0	10.00	177.45	1,097.5	-43.5	1.9	43.5	2.00	2.00	
1,200.0	12.00	177.45	1,195.6	-62.5	2.8	62.6	2.00	2.00	
1,300.0	14.00	177.45	1,293.1	-85.0	3.8	85.1	2.00	2.00	
1,400.0	16.00	177.45	1,389.6	-110.9	4.9	111.0	2.00	2.00	
1,438.7	16.77	177.45	1,426.8	-121.8	5.4	121.9	2.00	2.00	EOB @ Inc. = 16.77°
1,500.0	16.77	177.45	1,485.5	-139.4	6.2	139.6	0.00	0.00	
1,600.0	16.77	177.45	1,581.2	-168.3	7.5	168.4	0.00	0.00	
1,700.0	16.77	177.45	1,677.0	-197.1	8.8	197.3	0.00	0.00	
1,800.0	16.77	177.45	1,772.7	-225.9	10.1	226.2	0.00	0.00	
1,900.0	16.77	177.45	1,868.4	-254.8	11.4	255.0	0.00	0.00	
2,000.0	16.77	177.45	1,964.2	-283.6	12.6	283.9	0.00	0.00	
2,100.0	16.77	177.45	2,059.9	-312.4	13.9	312.7	0.00	0.00	
2,200.0	16.77	177.45	2,155.7	-341.3	15.2	341.6	0.00	0.00	
2,300.0	16.77	177.45	2,251.4	-370.1	16.5	370.5	0.00	0.00	
2,400.0	16.77	177.45	2,347.2	-398.9	17.8	399.3	0.00	0.00	
2,500.0	16.77	177.45	2,442.9	-427.8	19.1	428.2	0.00	0.00	
2,600.0	16.77	177.45	2,538.7	-456.6	20.4	457.0	0.00	0.00	
2,700.0	16.77	177.45	2,634.4	-485.4	21.7	485.9	0.00	0.00	
2,800.0	16.77	177.45	2,730.1	-514.2	22.9	514.8	0.00	0.00	
2,900.0	16.77	177.45	2,825.9	-543.1	24.2	543.6	0.00	0.00	
3,000.0	16.77	177.45	2,921.6	-571.9	25.5	572.5	0.00	0.00	
3,100.0	16.77	177.45	3,017.4	-600.7	26.8	601.3	0.00	0.00	
3,200.0	16.77	177.45	3,113.1	-629.6	28.1	630.2	0.00	0.00	
3,300.0	16.77	177.45	3,208.9	-658.4	29.4	659.1	0.00	0.00	
3,400.0	16.77	177.45	3,304.6	-687.2	30.7	687.9	0.00	0.00	
3,500.0	16.77	177.45	3,400.4	-716.1	31.9	716.8	0.00	0.00	
3,600.0	16.77	177.45	3,496.1	-744.9	33.2	745.6	0.00	0.00	
3,700.0	16.77	177.45	3,591.9	-773.7	34.5	774.5	0.00	0.00	
3,800.0	16.77	177.45	3,687.6	-802.6	35.8	803.3	0.00	0.00	
3,900.0	16.77	177.45	3,783.3	-831.4	37.1	832.2	0.00	0.00	
4,000.0	16.77	177.45	3,879.1	-860.2	38.4	861.1	0.00	0.00	
4,100.0	16.77	177.45	3,974.8	-889.0	39.7	889.9	0.00	0.00	
4,200.0	16.77	177.45	4,070.6	-917.9	40.9	918.8	0.00	0.00	
4,300.0	16.77	177.45	4,166.3	-946.7	42.2	947.6	0.00	0.00	
4,400.0	16.77	177.45	4,262.1	-975.5	43.5	976.5	0.00	0.00	
4,500.0	16.77	177.45	4,357.8	-1,004.4	44.8	1,005.4	0.00	0.00	
4,600.0	16.77	177.45	4,453.6	-1,033.2	46.1	1,034.2	0.00	0.00	
4,700.0	16.77	177.45	4,549.3	-1,062.0	47.4	1,063.1	0.00	0.00	
4,800.0	16.77	177.45	4,645.1	-1,090.9	48.7	1,091.9	0.00	0.00	
4,900.0	16.77	177.45	4,740.8	-1,119.7	49.9	1,120.8	0.00	0.00	
5,000.0	16.77	177.45	4,836.5	-1,148.5	51.2	1,149.7	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 44-17
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site:</b>	Antelope 43-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope 44-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #2		

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
5,100.0	16.77	177.45	4,932.3	-1,177.3	52.5	1,178.5	0.00	0.00	
5,142.8	16.77	177.45	4,973.2	-1,189.7	53.1	1,190.9	0.00	0.00	Start Drop -2.00
5,200.0	15.63	177.45	5,028.2	-1,205.6	53.8	1,206.8	2.00	-2.00	
5,300.0	13.63	177.45	5,124.9	-1,230.9	54.9	1,232.1	2.00	-2.00	
5,400.0	11.63	177.45	5,222.5	-1,252.7	55.9	1,253.9	2.00	-2.00	
5,500.0	9.63	177.45	5,320.8	-1,271.1	56.7	1,272.4	2.00	-2.00	
5,600.0	7.63	177.45	5,419.7	-1,286.1	57.4	1,287.4	2.00	-2.00	
5,700.0	5.63	177.45	5,519.0	-1,297.6	57.9	1,298.9	2.00	-2.00	
5,800.0	3.63	177.45	5,618.7	-1,305.7	58.2	1,307.0	2.00	-2.00	
5,900.0	1.63	177.45	5,718.6	-1,310.3	58.4	1,311.6	2.00	-2.00	
5,981.5	0.00	0.00	5,800.0	-1,311.4	58.5	1,312.8	2.00	-2.00	EOD @ Inc. = 0°
6,000.0	0.00	0.00	5,818.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,100.0	0.00	0.00	5,918.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,200.0	0.00	0.00	6,018.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,300.0	0.00	0.00	6,118.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,400.0	0.00	0.00	6,218.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,433.5	0.00	0.00	6,252.0	-1,311.4	58.5	1,312.8	0.00	0.00	Niobrara
6,500.0	0.00	0.00	6,318.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,600.0	0.00	0.00	6,418.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,700.0	0.00	0.00	6,518.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,800.0	0.00	0.00	6,618.5	-1,311.4	58.5	1,312.8	0.00	0.00	
6,881.5	0.00	0.00	6,700.0	-1,311.4	58.5	1,312.8	0.00	0.00	TD@ 6,882' 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 44-17 BHL	0.00	0.00	6,700.0	-1,311.4	58.5	1,388,547.54	3,322,988.66	40.394160	-104.340390
- plan hits target center									
- Circle (radius 50.0)									
Antelope 44-17 TGT	0.00	0.00	5,800.0	-1,311.4	58.5	1,388,547.54	3,322,988.66	40.394160	-104.340390
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,433.5	6,252.0	Niobrara		0.00		

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope 44-17
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site:</b>	Antelope 43-17 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope 44-17	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #2		

### 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'
1,438.7	1,426.8	-121.8	5.4	EOB @ Inc. = 16.77°
5,142.8	4,973.2	-1,189.7	53.1	Start Drop -2.00
5,981.5	5,800.0	-1,311.4	58.5	EOD @ Inc. = 0°
6,881.5	6,700.0	-1,311.4	58.5	TD@ 6,882' MD

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

**Weld County**

**Antelope 43-17 Pad**

**Antelope 44-17**

**DD**

**Plan #2**

## **Anticollision Report**

**11 July, 2011**



# Cathedral Energy Services

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope 44-17
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 43-17 Pad	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope 44-17	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #2		
<b>Filter type:</b>	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	Systematic Ellipse
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 500.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	7/11/2011		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	6,881.5	Plan #2 (DD)	MWD	Geolink MWD

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
Antelope 43-17 Pad						
Antelope 33-17 - DD - Plan #2	0.0	0.0	46.8			
Antelope 33-17 - DD - Plan #2	600.0	600.0	46.8	46.8	10,000.000	CC, ES
Antelope 34-17 - DD - Plan #2	0.0	0.0	31.2			
Antelope 34-17 - DD - Plan #2	663.9	664.5	31.2	31.2	10,000.000	CC, ES
Antelope 43-17 (vert) - DD - Plan #2	0.0	0.0	15.6			
Antelope 43-17 (vert) - DD - Plan #2	600.0	600.0	15.6	15.6	10,000.000	CC, ES
Antelope S-17 - DD - Plan #2	0.0	0.0	12.3			
Antelope S-17 - DD - Plan #2	600.0	600.0	12.3	12.3	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 44-17
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 43-17 Pad	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope 44-17	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 43-17 Pad - Antelope 33-17 - DD - Plan #2													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	20.92	43.7	16.7	46.8					
100.0	100.0	100.0	100.0	0.2	0.2	20.92	43.7	16.7	46.8	46.8	0.00	N/A		
200.0	200.0	200.0	200.0	0.3	0.3	20.92	43.7	16.7	46.8	46.8	0.00	N/A		
300.0	300.0	300.0	300.0	0.5	0.5	20.92	43.7	16.7	46.8	46.8	0.00	N/A		
400.0	400.0	400.0	400.0	0.7	0.7	20.92	43.7	16.7	46.8	46.8	0.00	N/A		
500.0	500.0	500.0	500.0	0.9	0.9	20.92	43.7	16.7	46.8	46.8	0.00	N/A		
600.0	600.0	600.0	600.0	1.0	1.0	20.92	43.7	16.7	46.8	46.8	0.00	N/A CC, ES		
700.0	700.0	700.6	700.5	1.2	1.2	-159.32	43.7	14.9	47.8	47.8	0.00	N/A		
800.0	799.8	800.8	800.6	1.4	1.4	-166.92	43.5	9.7	51.4	51.4	0.00	N/A		
900.0	899.5	900.2	899.6	1.6	1.6	-177.14	43.3	1.0	59.0	59.0	0.00	N/A		
1,000.0	998.7	998.5	997.3	1.8	1.8	172.69	43.0	-11.0	71.9	71.9	0.00	N/A		
1,100.0	1,097.5	1,095.4	1,093.0	2.1	2.1	164.20	42.6	-26.0	90.6	90.6	0.00	N/A		
1,200.0	1,195.6	1,190.6	1,186.4	2.4	2.4	157.69	42.1	-43.9	115.0	115.0	0.00	N/A		
1,300.0	1,293.1	1,283.7	1,277.3	2.8	2.8	152.82	41.6	-64.5	144.7	144.7	0.00	N/A		
1,400.0	1,389.6	1,374.6	1,365.2	3.3	3.2	149.15	41.0	-87.3	179.3	179.3	0.00	N/A		
1,500.0	1,485.5	1,466.5	1,453.7	3.7	3.6	146.72	40.3	-112.1	217.5	217.5	0.00	N/A		
1,600.0	1,581.2	1,558.6	1,542.4	4.2	4.0	145.15	39.6	-136.9	256.1	256.1	0.00	N/A		
1,700.0	1,677.0	1,650.7	1,631.1	4.7	4.5	144.00	39.0	-161.6	294.8	294.8	0.00	N/A		
1,800.0	1,772.7	1,742.7	1,719.7	5.2	4.9	143.11	38.3	-186.4	333.6	333.6	0.00	N/A		
1,900.0	1,868.4	1,834.8	1,808.4	5.7	5.4	142.41	37.7	-211.2	372.4	372.4	0.00	N/A		
2,000.0	1,964.2	1,926.9	1,897.1	6.3	5.8	141.84	37.0	-236.0	411.3	411.3	0.00	N/A		
2,100.0	2,059.9	2,018.9	1,985.7	6.8	6.3	141.37	36.4	-260.8	450.1	450.1	0.00	N/A		
2,200.0	2,155.7	2,111.0	2,074.4	7.3	6.7	140.97	35.7	-285.6	489.1	489.1	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 44-17
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 43-17 Pad	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope 44-17	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 43-17 Pad - Antelope 34-17 - DD - Plan #2												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	0.0	0.0	0.0	0.0	20.91	29.2	11.1	31.2				
100.0	100.0	100.0	100.0	0.2	0.2	20.91	29.2	11.1	31.2	31.2	0.00	N/A	
200.0	200.0	200.0	200.0	0.3	0.3	20.91	29.2	11.1	31.2	31.2	0.00	N/A	
300.0	300.0	300.0	300.0	0.5	0.5	20.91	29.2	11.1	31.2	31.2	0.00	N/A	
400.0	400.0	400.0	400.0	0.7	0.7	20.91	29.2	11.1	31.2	31.2	0.00	N/A	
500.0	500.0	500.0	500.0	0.9	0.9	20.91	29.2	11.1	31.2	31.2	0.00	N/A	
600.0	600.0	600.0	600.0	1.0	1.0	20.91	29.2	11.1	31.2	31.2	0.00	N/A	
663.9	663.9	664.5	664.5	1.1	1.1	-157.57	28.6	10.6	31.2	31.2	0.00	N/A CC, ES	
700.0	700.0	701.0	701.0	1.2	1.2	-159.08	27.9	9.9	31.2	31.2	0.00	N/A	
800.0	799.8	801.9	801.7	1.4	1.4	-166.65	24.0	6.2	31.6	31.6	0.00	N/A	
900.0	899.5	902.5	902.0	1.6	1.6	-178.44	17.6	0.1	33.4	33.4	0.00	N/A	
1,000.0	998.7	1,002.8	1,001.5	1.8	1.8	167.82	8.7	-8.4	37.9	37.9	0.00	N/A	
1,100.0	1,097.5	1,102.7	1,100.1	2.1	2.1	155.05	-2.7	-19.2	46.0	46.0	0.00	N/A	
1,200.0	1,195.6	1,202.0	1,197.6	2.4	2.4	144.87	-16.4	-32.4	58.0	58.0	0.00	N/A	
1,300.0	1,293.1	1,300.6	1,293.7	2.8	2.8	137.32	-32.5	-47.7	73.5	73.5	0.00	N/A	
1,400.0	1,389.6	1,398.5	1,388.2	3.3	3.3	131.80	-50.8	-65.2	92.3	92.3	0.00	N/A	
1,500.0	1,485.5	1,495.6	1,481.1	3.7	3.8	127.67	-71.3	-84.7	113.7	113.7	0.00	N/A	
1,600.0	1,581.2	1,592.0	1,572.3	4.2	4.3	123.65	-93.9	-106.2	136.2	136.2	0.00	N/A	
1,700.0	1,677.0	1,687.5	1,661.5	4.7	4.9	119.66	-118.4	-129.6	160.0	160.0	0.00	N/A	
1,800.0	1,772.7	1,781.8	1,748.6	5.2	5.6	115.77	-144.7	-154.8	185.3	185.3	0.00	N/A	
1,900.0	1,868.4	1,875.3	1,833.6	5.7	6.3	112.04	-172.8	-181.6	212.5	212.5	0.00	N/A	
2,000.0	1,964.2	1,970.4	1,919.6	6.3	7.0	108.83	-202.2	-209.6	240.9	240.9	0.00	N/A	
2,100.0	2,059.9	2,065.5	2,005.6	6.8	7.7	106.30	-231.5	-237.6	269.8	269.8	0.00	N/A	
2,200.0	2,155.7	2,160.6	2,091.6	7.3	8.4	104.25	-260.9	-265.6	299.1	299.1	0.00	N/A	
2,300.0	2,251.4	2,255.7	2,177.6	7.8	9.2	102.57	-290.3	-293.7	328.7	328.7	0.00	N/A	
2,400.0	2,347.2	2,350.8	2,263.6	8.3	9.9	101.16	-319.6	-321.7	358.5	358.5	0.00	N/A	
2,500.0	2,442.9	2,445.9	2,349.7	8.9	10.7	99.97	-349.0	-349.7	388.4	388.4	0.00	N/A	
2,600.0	2,538.7	2,541.0	2,435.7	9.4	11.4	98.95	-378.4	-377.7	418.6	418.6	0.00	N/A	
2,700.0	2,634.4	2,636.2	2,521.7	9.9	12.1	98.06	-407.7	-405.7	448.8	448.8	0.00	N/A	
2,800.0	2,730.1	2,731.3	2,607.7	10.4	12.9	97.29	-437.1	-433.8	479.1	479.1	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 44-17
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 43-17 Pad	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope 44-17	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 43-17 Pad - Antelope 43-17 (vert) - DD - Plan #2													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	20.92	14.6	5.6	15.6					
100.0	100.0	100.0	100.0	0.2	0.2	20.92	14.6	5.6	15.6	15.6	0.00	N/A		
200.0	200.0	200.0	200.0	0.3	0.3	20.92	14.6	5.6	15.6	15.6	0.00	N/A		
300.0	300.0	300.0	300.0	0.5	0.5	20.92	14.6	5.6	15.6	15.6	0.00	N/A		
400.0	400.0	400.0	400.0	0.7	0.7	20.92	14.6	5.6	15.6	15.6	0.00	N/A		
500.0	500.0	500.0	500.0	0.9	0.9	20.92	14.6	5.6	15.6	15.6	0.00	N/A		
600.0	600.0	600.0	600.0	1.0	1.0	20.92	14.6	5.6	15.6	15.6	0.00	N/A CC, ES		
700.0	700.0	700.0	700.0	1.2	1.2	-158.83	14.6	5.6	17.2	17.2	0.00	N/A		
800.0	799.8	799.8	799.8	1.4	1.4	-163.69	14.6	5.6	22.2	22.2	0.00	N/A		
900.0	899.5	899.5	899.5	1.6	1.6	-168.24	14.6	5.6	30.6	30.6	0.00	N/A		
1,000.0	998.7	998.7	998.7	1.8	1.7	-171.54	14.6	5.6	42.6	42.6	0.00	N/A		
1,100.0	1,097.5	1,097.5	1,097.5	2.1	1.9	-173.77	14.6	5.6	58.2	58.2	0.00	N/A		
1,200.0	1,195.6	1,195.6	1,195.6	2.4	2.1	-175.28	14.6	5.6	77.2	77.2	0.00	N/A		
1,300.0	1,293.1	1,293.1	1,293.1	2.8	2.2	-176.31	14.6	5.6	99.6	99.6	0.00	N/A		
1,400.0	1,389.6	1,389.6	1,389.6	3.3	2.4	-177.05	14.6	5.6	125.4	125.4	0.00	N/A		
1,500.0	1,485.5	1,485.5	1,485.5	3.7	2.6	-177.59	14.6	5.6	154.0	154.0	0.00	N/A		
1,600.0	1,581.2	1,581.2	1,581.2	4.2	2.7	-177.97	14.6	5.6	182.9	182.9	0.00	N/A		
1,700.0	1,677.0	1,677.0	1,677.0	4.7	2.9	-178.24	14.6	5.6	211.7	211.7	0.00	N/A		
1,800.0	1,772.7	1,772.7	1,772.7	5.2	3.1	-178.45	14.6	5.6	240.6	240.6	0.00	N/A		
1,900.0	1,868.4	1,868.4	1,868.4	5.7	3.2	-178.62	14.6	5.6	269.4	269.4	0.00	N/A		
2,000.0	1,964.2	1,964.2	1,964.2	6.3	3.4	-178.75	14.6	5.6	298.3	298.3	0.00	N/A		
2,100.0	2,059.9	2,059.9	2,059.9	6.8	3.6	-178.86	14.6	5.6	327.1	327.1	0.00	N/A		
2,200.0	2,155.7	2,155.7	2,155.7	7.3	3.7	-178.96	14.6	5.6	356.0	356.0	0.00	N/A		
2,300.0	2,251.4	2,251.4	2,251.4	7.8	3.9	-179.03	14.6	5.6	384.8	384.8	0.00	N/A		
2,400.0	2,347.2	2,347.2	2,347.2	8.3	4.1	-179.10	14.6	5.6	413.7	413.7	0.00	N/A		
2,500.0	2,442.9	2,442.9	2,442.9	8.9	4.2	-179.16	14.6	5.6	442.5	442.5	0.00	N/A		
2,600.0	2,538.7	2,538.7	2,538.7	9.4	4.4	-179.21	14.6	5.6	471.4	471.4	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 44-17
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 43-17 Pad	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope 44-17	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 43-17 Pad - Antelope S-17 - DD - Plan #2												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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor		
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)			
0.0	0.0	0.0	0.0	0.0	0.0	-152.99	-10.9	-5.6	12.3				
100.0	100.0	100.0	100.0	0.2	0.2	-152.99	-10.9	-5.6	12.3	12.3	0.00	N/A	
200.0	200.0	200.0	200.0	0.3	0.3	-152.99	-10.9	-5.6	12.3	12.3	0.00	N/A	
300.0	300.0	300.0	300.0	0.5	0.5	-152.99	-10.9	-5.6	12.3	12.3	0.00	N/A	
400.0	400.0	400.0	400.0	0.7	0.7	-152.99	-10.9	-5.6	12.3	12.3	0.00	N/A	
500.0	500.0	500.0	500.0	0.9	0.9	-152.99	-10.9	-5.6	12.3	12.3	0.00	N/A	
600.0	600.0	600.0	600.0	1.0	1.0	-152.99	-10.9	-5.6	12.3	12.3	0.00	N/A CC, ES	
700.0	700.0	699.6	699.6	1.2	1.2	35.53	-12.2	-6.7	12.5	12.5	0.00	N/A	
800.0	799.8	799.0	798.9	1.4	1.4	51.45	-16.1	-10.2	13.9	13.9	0.00	N/A	
900.0	899.5	898.3	897.8	1.6	1.6	69.85	-22.5	-15.9	18.0	18.0	0.00	N/A	
1,000.0	998.7	997.3	996.0	1.8	1.8	83.70	-31.4	-23.9	25.6	25.6	0.00	N/A	
1,100.0	1,097.5	1,095.8	1,093.3	2.1	2.1	92.43	-42.8	-34.1	36.3	36.3	0.00	N/A	
1,200.0	1,195.6	1,194.6	1,190.6	2.4	2.4	98.79	-56.0	-45.9	49.4	49.4	0.00	N/A	
1,300.0	1,293.1	1,293.4	1,287.7	2.8	2.7	105.34	-69.2	-57.8	63.8	63.8	0.00	N/A	
1,400.0	1,389.6	1,391.7	1,384.4	3.3	3.0	111.69	-82.4	-69.6	79.9	79.9	0.00	N/A	
1,500.0	1,485.5	1,489.6	1,480.8	3.7	3.4	117.44	-95.5	-81.3	98.1	98.1	0.00	N/A	
1,600.0	1,581.2	1,587.5	1,577.1	4.2	3.7	121.59	-108.6	-93.1	117.0	117.0	0.00	N/A	
1,700.0	1,677.0	1,685.4	1,673.4	4.7	4.0	124.57	-121.7	-104.8	136.4	136.4	0.00	N/A	
1,800.0	1,772.7	1,783.3	1,769.7	5.2	4.4	126.81	-134.9	-116.6	156.0	156.0	0.00	N/A	
1,900.0	1,868.4	1,881.2	1,865.9	5.7	4.7	128.55	-148.0	-128.3	175.8	175.8	0.00	N/A	
2,000.0	1,964.2	1,979.1	1,962.2	6.3	5.0	129.93	-161.1	-140.1	195.8	195.8	0.00	N/A	
2,100.0	2,059.9	2,077.0	2,058.5	6.8	5.4	131.06	-174.2	-151.8	215.8	215.8	0.00	N/A	
2,200.0	2,155.7	2,174.9	2,154.8	7.3	5.7	132.00	-187.3	-163.6	235.9	235.9	0.00	N/A	
2,300.0	2,251.4	2,272.8	2,251.1	7.8	6.1	132.79	-200.4	-175.3	256.1	256.1	0.00	N/A	
2,400.0	2,347.2	2,370.7	2,347.4	8.3	6.4	133.46	-213.6	-187.1	276.3	276.3	0.00	N/A	
2,500.0	2,442.9	2,468.6	2,443.7	8.9	6.8	134.05	-226.7	-198.8	296.5	296.5	0.00	N/A	
2,600.0	2,538.7	2,566.5	2,540.0	9.4	7.1	134.55	-239.8	-210.5	316.7	316.7	0.00	N/A	
2,700.0	2,634.4	2,664.4	2,636.3	9.9	7.5	135.00	-252.9	-222.3	337.0	337.0	0.00	N/A	
2,800.0	2,730.1	2,762.2	2,732.6	10.4	7.8	135.40	-266.0	-234.0	357.3	357.3	0.00	N/A	
2,900.0	2,825.9	2,860.1	2,828.9	11.0	8.2	135.75	-279.1	-245.8	377.6	377.6	0.00	N/A	
3,000.0	2,921.6	2,958.0	2,925.2	11.5	8.5	136.07	-292.2	-257.5	397.9	397.9	0.00	N/A	
3,100.0	3,017.4	3,055.9	3,021.5	12.0	8.9	136.36	-305.4	-269.3	418.2	418.2	0.00	N/A	
3,200.0	3,113.1	3,153.8	3,117.8	12.5	9.2	136.62	-318.5	-281.0	438.6	438.6	0.00	N/A	
3,300.0	3,208.9	3,251.7	3,214.1	13.1	9.6	136.86	-331.6	-292.8	458.9	458.9	0.00	N/A	
3,400.0	3,304.6	3,349.6	3,310.4	13.6	9.9	137.07	-344.7	-304.5	479.3	479.3	0.00	N/A	
3,500.0	3,400.4	3,447.5	3,406.7	14.1	10.3	137.27	-357.8	-316.3	499.6	499.6	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 44-17
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 43-17 Pad	<b>MD Reference:</b>	KBE @ 4701.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope 44-17	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #2	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 4701.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Antelope 44-17

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.75°

