

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope B-20
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope B-20	<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 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 B-20					
Well Position	+N/-S	0.0 ft	Northing:	1,387,299.75 ft	Latitude:	40.390870
	+E/-W	0.0 ft	Easting:	3,319,208.03 ft	Longitude:	-104.354020
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,645.0 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	11/23/2011	8.58	67.10	53,125

<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	222.07	

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
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	
971.1	11.13	222.07	968.7	-26.7	-24.1	3.00	3.00	0.00	222.07	
5,809.6	11.13	222.07	5,716.3	-720.1	-650.0	0.00	0.00	0.00	0.00	
6,180.7	0.00	0.00	6,085.0	-746.8	-674.1	3.00	-3.00	0.00	180.00	Antelope B-20 TGT
6,796.7	0.00	0.00	6,701.0	-746.8	-674.1	0.00	0.00	0.00	0.00	Antelope B-20 PBHL

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<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope B-20	<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	222.07	700.0	-1.9	-1.8	2.6	3.00	3.00	
800.0	6.00	222.07	799.6	-7.8	-7.0	10.5	3.00	3.00	
900.0	9.00	222.07	898.8	-17.5	-15.8	23.5	3.00	3.00	
971.1	11.13	222.07	968.7	-26.7	-24.1	35.9	3.00	3.00	EOB @ Inc. = 11.13°
1,000.0	11.13	222.07	997.1	-30.8	-27.8	41.5	0.00	0.00	
1,100.0	11.13	222.07	1,095.2	-45.2	-40.8	60.8	0.00	0.00	
1,200.0	11.13	222.07	1,193.4	-59.5	-53.7	80.1	0.00	0.00	
1,300.0	11.13	222.07	1,291.5	-73.8	-66.6	99.4	0.00	0.00	
1,400.0	11.13	222.07	1,389.6	-88.1	-79.6	118.7	0.00	0.00	
1,500.0	11.13	222.07	1,487.7	-102.5	-92.5	138.1	0.00	0.00	
1,600.0	11.13	222.07	1,585.8	-116.8	-105.4	157.4	0.00	0.00	
1,700.0	11.13	222.07	1,684.0	-131.1	-118.4	176.7	0.00	0.00	
1,800.0	11.13	222.07	1,782.1	-145.5	-131.3	196.0	0.00	0.00	
1,900.0	11.13	222.07	1,880.2	-159.8	-144.3	215.3	0.00	0.00	
2,000.0	11.13	222.07	1,978.3	-174.1	-157.2	234.6	0.00	0.00	
2,100.0	11.13	222.07	2,076.4	-188.5	-170.1	253.9	0.00	0.00	
2,200.0	11.13	222.07	2,174.5	-202.8	-183.1	273.2	0.00	0.00	
2,300.0	11.13	222.07	2,272.7	-217.1	-196.0	292.5	0.00	0.00	
2,400.0	11.13	222.07	2,370.8	-231.5	-208.9	311.8	0.00	0.00	
2,500.0	11.13	222.07	2,468.9	-245.8	-221.9	331.1	0.00	0.00	
2,600.0	11.13	222.07	2,567.0	-260.1	-234.8	350.4	0.00	0.00	
2,700.0	11.13	222.07	2,665.1	-274.5	-247.7	369.7	0.00	0.00	
2,800.0	11.13	222.07	2,763.3	-288.8	-260.7	389.0	0.00	0.00	
2,900.0	11.13	222.07	2,861.4	-303.1	-273.6	408.4	0.00	0.00	
3,000.0	11.13	222.07	2,959.5	-317.5	-286.6	427.7	0.00	0.00	
3,100.0	11.13	222.07	3,057.6	-331.8	-299.5	447.0	0.00	0.00	
3,200.0	11.13	222.07	3,155.7	-346.1	-312.4	466.3	0.00	0.00	
3,300.0	11.13	222.07	3,253.9	-360.4	-325.4	485.6	0.00	0.00	
3,400.0	11.13	222.07	3,352.0	-374.8	-338.3	504.9	0.00	0.00	
3,489.7	11.13	222.07	3,440.0	-387.6	-349.9	522.2	0.00	0.00	Parkman
3,500.0	11.13	222.07	3,450.1	-389.1	-351.2	524.2	0.00	0.00	
3,600.0	11.13	222.07	3,548.2	-403.4	-364.2	543.5	0.00	0.00	
3,700.0	11.13	222.07	3,646.3	-417.8	-377.1	562.8	0.00	0.00	
3,800.0	11.13	222.07	3,744.4	-432.1	-390.0	582.1	0.00	0.00	
3,900.0	11.13	222.07	3,842.6	-446.4	-403.0	601.4	0.00	0.00	
4,000.0	11.13	222.07	3,940.7	-460.8	-415.9	620.7	0.00	0.00	
4,100.0	11.13	222.07	4,038.8	-475.1	-428.9	640.0	0.00	0.00	
4,200.0	11.13	222.07	4,136.9	-489.4	-441.8	659.3	0.00	0.00	
4,218.4	11.13	222.07	4,155.0	-492.1	-444.2	662.9	0.00	0.00	Sussex
4,300.0	11.13	222.07	4,235.0	-503.8	-454.7	678.6	0.00	0.00	
4,400.0	11.13	222.07	4,333.2	-518.1	-467.7	698.0	0.00	0.00	
4,500.0	11.13	222.07	4,431.3	-532.4	-480.6	717.3	0.00	0.00	
4,600.0	11.13	222.07	4,529.4	-546.8	-493.5	736.6	0.00	0.00	
4,700.0	11.13	222.07	4,627.5	-561.1	-506.5	755.9	0.00	0.00	
4,800.0	11.13	222.07	4,725.6	-575.4	-519.4	775.2	0.00	0.00	

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<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope B-20	<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	11.13	222.07	4,823.7	-589.8	-532.4	794.5	0.00	0.00	
5,000.0	11.13	222.07	4,921.9	-604.1	-545.3	813.8	0.00	0.00	
5,100.0	11.13	222.07	5,020.0	-618.4	-558.2	833.1	0.00	0.00	
5,200.0	11.13	222.07	5,118.1	-632.8	-571.2	852.4	0.00	0.00	
5,300.0	11.13	222.07	5,216.2	-647.1	-584.1	871.7	0.00	0.00	
5,400.0	11.13	222.07	5,314.3	-661.4	-597.0	891.0	0.00	0.00	
5,500.0	11.13	222.07	5,412.5	-675.7	-610.0	910.3	0.00	0.00	
5,600.0	11.13	222.07	5,510.6	-690.1	-622.9	929.6	0.00	0.00	
5,700.0	11.13	222.07	5,608.7	-704.4	-635.8	948.9	0.00	0.00	
5,809.6	11.13	222.07	5,716.3	-720.1	-650.0	970.1	0.00	0.00	Start 3° Drop
5,900.0	8.42	222.07	5,805.3	-731.5	-660.3	985.5	3.00	-3.00	
6,000.0	5.42	222.07	5,904.6	-740.5	-668.4	997.5	3.00	-3.00	
6,100.0	2.42	222.07	6,004.3	-745.5	-673.0	1,004.3	3.00	-3.00	
6,180.7	0.00	0.00	6,085.0	-746.8	-674.1	1,006.0	3.00	-3.00	EOD @ Inc. = 0°
6,200.0	0.00	0.00	6,104.3	-746.8	-674.1	1,006.0	0.00	0.00	
6,300.0	0.00	0.00	6,204.3	-746.8	-674.1	1,006.0	0.00	0.00	
6,380.7	0.00	0.00	6,285.0	-746.8	-674.1	1,006.0	0.00	0.00	Niobrara
6,400.0	0.00	0.00	6,304.3	-746.8	-674.1	1,006.0	0.00	0.00	
6,500.0	0.00	0.00	6,404.3	-746.8	-674.1	1,006.0	0.00	0.00	
6,600.0	0.00	0.00	6,504.3	-746.8	-674.1	1,006.0	0.00	0.00	
6,613.7	0.00	0.00	6,518.0	-746.8	-674.1	1,006.0	0.00	0.00	Ft. Hayes
6,636.7	0.00	0.00	6,541.0	-746.8	-674.1	1,006.0	0.00	0.00	Codell
6,648.7	0.00	0.00	6,553.0	-746.8	-674.1	1,006.0	0.00	0.00	Carlile
6,684.7	0.00	0.00	6,589.0	-746.8	-674.1	1,006.0	0.00	0.00	Greenhorn
6,700.0	0.00	0.00	6,604.3	-746.8	-674.1	1,006.0	0.00	0.00	
6,796.7	0.00	0.00	6,701.0	-746.8	-674.1	1,006.0	0.00	0.00	TD @ 6,796.7' 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 B-20 TGT	0.00	0.00	6,085.0	-746.8	-674.1	1,386,544.30	3,318,543.63	40.388820	-104.356440
- plan hits target center									
- Point									
Antelope B-20 PBHL	0.00	0.00	6,701.0	-746.8	-674.1	1,386,544.30	3,318,543.63	40.388820	-104.356440
- plan hits target center									
- Circle (radius 50.0)									

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<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	True
<b>Well:</b>	Antelope B-20	<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 (°)	
3,489.7	3,440.0	Parkman				
4,218.4	4,155.0	Sussex				
6,380.7	6,285.0	Niobrara				
6,613.7	6,518.0	Ft. Hayes				
6,636.7	6,541.0	Codell				
6,648.7	6,553.0	Carlile				
6,684.7	6,589.0	Greenhorn				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
600.0	600.0	0.0	0.0	KOP @ 600'	
971.1	968.7	-26.7	-24.1	EOB @ Inc. = 11.13°	
5,809.6	5,716.3	-720.1	-650.0	Start 3° Drop	
6,180.7	6,085.0	-746.8	-674.1	EOD @ Inc. = 0°	
6,796.7	6,701.0	-746.8	-674.1	TD @ 6,796.7' MD	



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

**Weld County**

**Antelope 11-20 Pad**

**Antelope B-20**

**OH**

**Plan #1**

## **Anticollision Report**

**28 November, 2011**

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## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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	11/28/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	6,796.7	Plan #1 (OH)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Antelope 11-20 Pad						
Antelope 11-20 (vert) - V - Plan #3	0.0	7.0	67.0			
Antelope 11-20 (vert) - V - Plan #3	1,085.4	1,088.0	33.6	33.6	10,000.000	CC, ES
Antelope 12-20 - DD - DD	0.0	6.0	99.0			
Antelope 21-20 - DD - DD	0.0	6.0	39.0			
Antelope 21-20 - DD - DD	812.3	817.1	30.7	30.7	10,000.000	CC, ES
Antelope 22-20 - DD - DD	0.0	6.0	52.9			
Antelope 22-20 - DD - DD	838.8	840.7	46.5	46.5	10,000.000	CC, ES
Antelope A-20 - OH - Plan #1	0.0	5.0	14.6			
Antelope A-20 - OH - Plan #1	564.9	569.9	14.6	14.6	10,000.000	CC, ES
Antelope F-20 - OH - Plan #1	0.0	10.0	14.8			
Antelope F-20 - OH - Plan #1	719.7	729.7	12.4	12.4	10,000.000	CC, ES
Antelope 42-19 Pad						
Antelope 41-19 - DD - DD						Out of range

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<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 11-20 Pad - Antelope 11-20 (vert) - V - Plan #3													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	7.0	7.0	0.0	0.0	-168.01	-65.6	-13.9	67.0					
100.0	100.0	107.0	107.0	0.2	0.2	-168.01	-65.6	-13.9	67.0	67.0	0.00	N/A		
200.0	200.0	207.0	207.0	0.3	0.3	-168.01	-65.6	-13.9	67.0	67.0	0.00	N/A		
300.0	300.0	307.0	307.0	0.5	0.5	-168.01	-65.6	-13.9	67.0	67.0	0.00	N/A		
400.0	400.0	407.0	407.0	0.7	0.7	-168.01	-65.6	-13.9	67.0	67.0	0.00	N/A		
500.0	500.0	507.0	507.0	0.9	0.9	-168.01	-65.6	-13.9	67.0	67.0	0.00	N/A		
600.0	600.0	607.0	607.0	1.0	1.0	-168.01	-65.6	-13.9	67.0	67.0	0.00	N/A		
700.0	700.0	707.0	707.0	1.2	1.2	-31.28	-65.6	-13.9	64.8	64.8	0.00	N/A		
800.0	799.6	806.6	806.6	1.4	1.4	-35.40	-65.6	-13.9	58.2	58.2	0.00	N/A		
900.0	898.8	905.8	905.8	1.6	1.6	-44.60	-65.6	-13.9	48.2	48.2	0.00	N/A		
1,000.0	997.1	1,004.1	1,004.1	1.9	1.7	-64.29	-65.6	-13.9	37.4	37.4	0.00	N/A		
1,085.4	1,081.0	1,088.0	1,088.0	2.2	1.9	-90.01	-65.6	-13.9	33.6	33.6	0.00	N/A CC, ES		
1,100.0	1,095.2	1,102.2	1,102.2	2.3	1.9	-94.70	-65.6	-13.9	33.7	33.7	0.00	N/A		
1,200.0	1,193.4	1,200.4	1,200.4	2.6	2.1	-122.86	-65.6	-13.9	40.2	40.2	0.00	N/A		
1,300.0	1,291.5	1,298.5	1,298.5	3.0	2.2	-140.42	-65.6	-13.9	53.3	53.3	0.00	N/A		
1,400.0	1,389.6	1,396.6	1,396.6	3.3	2.4	-150.58	-65.6	-13.9	69.4	69.4	0.00	N/A		
1,500.0	1,487.7	1,494.7	1,494.7	3.7	2.6	-156.83	-65.6	-13.9	86.8	86.8	0.00	N/A		
1,600.0	1,585.8	1,592.8	1,592.8	4.0	2.8	-160.98	-65.6	-13.9	104.9	104.9	0.00	N/A		
1,700.0	1,684.0	1,691.0	1,691.0	4.4	2.9	-163.90	-65.6	-13.9	123.3	123.3	0.00	N/A		
1,800.0	1,782.1	1,789.1	1,789.1	4.8	3.1	-166.06	-65.6	-13.9	142.0	142.0	0.00	N/A		
1,900.0	1,880.2	1,887.2	1,887.2	5.1	3.3	-167.71	-65.6	-13.9	160.8	160.8	0.00	N/A		
2,000.0	1,978.3	1,985.3	1,985.3	5.5	3.4	-169.02	-65.6	-13.9	179.7	179.7	0.00	N/A		
2,100.0	2,076.4	2,083.4	2,083.4	5.9	3.6	-170.08	-65.6	-13.9	198.7	198.7	0.00	N/A		
2,200.0	2,174.5	2,181.5	2,181.5	6.3	3.8	-170.96	-65.6	-13.9	217.8	217.8	0.00	N/A		
2,300.0	2,272.7	2,279.7	2,279.7	6.6	4.0	-171.69	-65.6	-13.9	236.9	236.9	0.00	N/A		
2,400.0	2,370.8	2,377.8	2,377.8	7.0	4.1	-172.31	-65.6	-13.9	256.0	256.0	0.00	N/A		
2,500.0	2,468.9	2,475.9	2,475.9	7.4	4.3	-172.85	-65.6	-13.9	275.2	275.2	0.00	N/A		
2,600.0	2,567.0	2,574.0	2,574.0	7.8	4.5	-173.32	-65.6	-13.9	294.3	294.3	0.00	N/A		
2,700.0	2,665.1	2,672.1	2,672.1	8.2	4.6	-173.73	-65.6	-13.9	313.5	313.5	0.00	N/A		
2,800.0	2,763.3	2,770.3	2,770.3	8.5	4.8	-174.09	-65.6	-13.9	332.7	332.7	0.00	N/A		
2,900.0	2,861.4	2,868.4	2,868.4	8.9	5.0	-174.42	-65.6	-13.9	351.9	351.9	0.00	N/A		
3,000.0	2,959.5	2,966.5	2,966.5	9.3	5.2	-174.71	-65.6	-13.9	371.2	371.2	0.00	N/A		
3,100.0	3,057.6	3,064.6	3,064.6	9.7	5.3	-174.97	-65.6	-13.9	390.4	390.4	0.00	N/A		
3,200.0	3,155.7	3,162.7	3,162.7	10.0	5.5	-175.20	-65.6	-13.9	409.6	409.6	0.00	N/A		
3,300.0	3,253.9	3,260.9	3,260.9	10.4	5.7	-175.42	-65.6	-13.9	428.9	428.9	0.00	N/A		
3,400.0	3,352.0	3,359.0	3,359.0	10.8	5.8	-175.62	-65.6	-13.9	448.1	448.1	0.00	N/A		
3,500.0	3,450.1	3,457.1	3,457.1	11.2	6.0	-175.80	-65.6	-13.9	467.4	467.4	0.00	N/A		
3,600.0	3,548.2	3,555.2	3,555.2	11.6	6.2	-175.96	-65.6	-13.9	486.6	486.6	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 B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 11-20 Pad - Antelope 12-20 - DD - DD												Offset Site Error:	0.0 ft
Survey Program: 493-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	6.0	6.0	0.0	0.0	-173.54	-98.4	-11.1	99.0				
100.0	100.0	105.9	105.9	0.2	0.2	-173.47	-98.4	-11.3	99.0	99.0	0.00	N/A	
200.0	200.0	205.8	205.8	0.3	0.4	-173.30	-98.5	-11.6	99.2	99.2	0.00	N/A	
300.0	300.0	305.8	305.8	0.5	0.5	-173.01	-98.6	-12.1	99.4	99.4	0.00	N/A	
400.0	400.0	405.7	405.7	0.7	0.7	-172.61	-98.8	-12.8	99.7	99.7	0.00	N/A	
500.0	500.0	504.9	504.9	0.9	0.9	-172.10	-99.1	-13.8	100.1	100.1	0.00	N/A	
600.0	600.0	599.7	599.6	1.0	1.0	-171.20	-102.3	-15.8	103.7	103.7	0.00	N/A	
700.0	700.0	694.3	693.8	1.2	1.3	-32.53	-110.0	-19.6	110.2	110.2	0.00	N/A	
800.0	799.6	788.7	787.3	1.4	1.5	-33.28	-122.0	-23.9	116.9	116.9	0.00	N/A	
900.0	898.8	881.2	878.2	1.6	1.8	-35.10	-138.6	-28.9	124.7	124.7	0.00	N/A	
1,000.0	997.1	973.6	967.9	1.9	2.2	-38.60	-160.4	-32.6	134.4	134.4	0.00	N/A	
1,100.0	1,095.2	1,066.8	1,057.4	2.3	2.6	-42.93	-186.4	-34.2	148.0	148.0	0.00	N/A	
1,200.0	1,193.4	1,158.0	1,143.8	2.6	3.1	-46.95	-215.3	-34.0	166.6	166.6	0.00	N/A	
1,300.0	1,291.5	1,257.7	1,238.0	3.0	3.6	-50.60	-248.0	-33.1	187.1	187.1	0.00	N/A	
1,400.0	1,389.6	1,357.9	1,333.2	3.3	4.2	-53.73	-279.5	-31.9	206.8	206.8	0.00	N/A	
1,500.0	1,487.7	1,456.4	1,427.0	3.7	4.7	-56.37	-309.4	-30.5	226.0	226.0	0.00	N/A	
1,600.0	1,585.8	1,553.8	1,519.5	4.0	5.2	-57.95	-339.9	-31.6	245.9	245.9	0.00	N/A	
1,700.0	1,684.0	1,654.7	1,615.6	4.4	5.8	-59.33	-370.7	-33.1	264.9	264.9	0.00	N/A	
1,800.0	1,782.1	1,753.9	1,709.9	4.8	6.3	-60.10	-401.2	-36.5	283.7	283.7	0.00	N/A	
1,900.0	1,880.2	1,851.2	1,802.6	5.1	6.9	-60.81	-430.4	-39.8	301.9	301.9	0.00	N/A	
2,000.0	1,978.3	1,946.7	1,893.2	5.5	7.4	-61.38	-460.6	-42.9	321.6	321.6	0.00	N/A	
2,100.0	2,076.4	2,044.7	1,986.5	5.9	8.0	-62.19	-490.4	-44.6	340.8	340.8	0.00	N/A	
2,200.0	2,174.5	2,141.8	2,078.6	6.3	8.5	-62.80	-521.1	-46.5	361.1	361.1	0.00	N/A	
2,300.0	2,272.7	2,237.9	2,170.0	6.6	9.1	-63.53	-550.5	-47.4	380.8	380.8	0.00	N/A	
2,400.0	2,370.8	2,335.2	2,262.3	7.0	9.6	-64.22	-581.4	-47.8	401.9	401.9	0.00	N/A	
2,500.0	2,468.9	2,428.4	2,351.1	7.4	10.2	-64.97	-610.1	-47.3	422.5	422.5	0.00	N/A	
2,600.0	2,567.0	2,522.4	2,439.8	7.8	10.7	-65.56	-641.1	-46.6	445.3	445.3	0.00	N/A	
2,700.0	2,665.1	2,626.0	2,538.0	8.2	11.3	-66.22	-674.1	-45.9	467.1	467.1	0.00	N/A	
2,800.0	2,763.3	2,728.7	2,635.5	8.5	11.9	-66.67	-706.3	-46.6	487.9	487.9	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 B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 11-20 Pad - Antelope 21-20 - DD - DD													Offset Site Error:	0.0 ft
Survey Program: 530-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	6.0	6.0	0.0	0.0	-159.08	-36.4	-13.9	39.0					
100.0	100.0	106.0	106.0	0.2	0.2	-158.89	-36.4	-14.0	39.0	39.0	0.00	N/A		
200.0	200.0	206.0	206.0	0.3	0.4	-158.37	-36.2	-14.4	39.0	39.0	0.00	N/A		
300.0	300.0	306.0	306.0	0.5	0.5	-157.50	-36.0	-14.9	38.9	38.9	0.00	N/A		
400.0	400.0	406.0	406.0	0.7	0.7	-156.29	-35.6	-15.6	38.9	38.9	0.00	N/A		
500.0	500.0	506.0	506.0	0.9	0.9	-154.74	-35.2	-16.6	38.9	38.9	0.00	N/A		
600.0	600.0	606.1	606.1	1.0	1.0	-155.27	-35.2	-16.2	38.8	38.8	0.00	N/A		
700.0	700.0	706.4	706.2	1.2	1.2	-27.39	-36.5	-10.8	35.8	35.8	0.00	N/A		
800.0	799.6	805.2	804.4	1.4	1.4	-54.84	-37.8	-0.2	30.8	30.8	0.00	N/A		
812.3	811.9	817.1	816.2	1.4	1.5	-59.76	-37.9	1.5	30.7	30.7	0.00	N/A CC, ES		
900.0	898.8	900.2	898.2	1.6	1.7	-92.98	-40.7	14.5	38.7	38.7	0.00	N/A		
1,000.0	997.1	992.9	989.0	1.9	2.0	-116.51	-44.6	32.7	63.6	63.6	0.00	N/A		
1,100.0	1,095.2	1,081.8	1,075.3	2.3	2.3	-128.82	-45.7	54.3	98.5	98.5	0.00	N/A		
1,200.0	1,193.4	1,168.3	1,158.2	2.6	2.8	-134.90	-46.0	78.6	139.2	139.2	0.00	N/A		
1,300.0	1,291.5	1,257.8	1,243.5	3.0	3.2	-138.01	-47.2	105.7	182.5	182.5	0.00	N/A		
1,400.0	1,389.6	1,347.8	1,329.4	3.3	3.7	-139.99	-48.2	132.6	225.8	225.8	0.00	N/A		
1,500.0	1,487.7	1,438.8	1,416.3	3.7	4.2	-141.38	-49.2	159.8	269.2	269.2	0.00	N/A		
1,600.0	1,585.8	1,530.5	1,503.9	4.0	4.7	-142.50	-49.7	186.5	312.2	312.2	0.00	N/A		
1,700.0	1,684.0	1,615.8	1,585.5	4.4	5.1	-143.33	-50.0	211.5	355.4	355.4	0.00	N/A		
1,800.0	1,782.1	1,702.8	1,668.2	4.8	5.6	-143.93	-50.3	238.5	400.2	400.2	0.00	N/A		
1,900.0	1,880.2	1,795.4	1,756.5	5.1	6.1	-144.58	-49.8	266.4	444.5	444.5	0.00	N/A		
2,000.0	1,978.3	1,887.2	1,844.0	5.5	6.7	-144.91	-50.9	294.3	488.6	488.6	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 B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 11-20 Pad - Antelope 22-20 - DD - DD													Offset Site Error:	0.0 ft
Survey Program: 530-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	6.0	6.0	0.0	0.0	-164.73	-51.0	-13.9	52.9					
100.0	100.0	106.2	106.2	0.2	0.2	-164.77	-50.8	-13.8	52.7	52.7	0.00	N/A		
200.0	200.0	206.3	206.3	0.3	0.4	-164.89	-50.4	-13.6	52.2	52.2	0.00	N/A		
300.0	300.0	306.5	306.5	0.5	0.5	-165.09	-49.6	-13.2	51.4	51.4	0.00	N/A		
400.0	400.0	406.7	406.7	0.7	0.7	-165.39	-48.6	-12.7	50.2	50.2	0.00	N/A		
500.0	500.0	506.8	506.8	0.9	0.9	-165.78	-47.3	-12.0	48.8	48.8	0.00	N/A		
574.0	574.0	580.0	580.0	1.0	1.0	-166.27	-46.6	-11.4	47.9	47.9	0.00	N/A		
600.0	600.0	605.6	605.6	1.0	1.1	-166.57	-46.7	-11.2	48.1	48.1	0.00	N/A		
700.0	700.0	704.3	704.2	1.2	1.2	-32.18	-49.3	-10.0	48.1	48.1	0.00	N/A		
800.0	799.6	802.8	802.6	1.4	1.4	-41.81	-54.5	-7.1	46.8	46.8	0.00	N/A		
838.8	838.2	840.7	840.3	1.5	1.5	-47.70	-57.2	-5.3	46.5	46.5	0.00	N/A CC, ES		
900.0	898.8	899.9	899.2	1.6	1.6	-59.06	-62.5	-1.5	47.6	47.6	0.00	N/A		
1,000.0	997.1	995.4	993.5	1.9	1.8	-78.64	-74.2	6.4	56.1	56.1	0.00	N/A		
1,100.0	1,095.2	1,089.1	1,085.4	2.3	2.1	-92.59	-88.8	17.3	74.3	74.3	0.00	N/A		
1,200.0	1,193.4	1,181.1	1,174.7	2.6	2.5	-100.64	-105.7	31.6	100.1	100.1	0.00	N/A		
1,300.0	1,291.5	1,271.0	1,261.0	3.0	2.9	-104.49	-125.3	48.2	131.0	131.0	0.00	N/A		
1,400.0	1,389.6	1,360.9	1,345.8	3.3	3.4	-105.88	-148.5	66.2	165.5	165.5	0.00	N/A		
1,500.0	1,487.7	1,446.0	1,425.0	3.7	4.0	-106.04	-173.5	84.8	202.9	202.9	0.00	N/A		
1,600.0	1,585.8	1,528.4	1,500.6	4.0	4.6	-106.09	-199.2	105.6	244.3	244.3	0.00	N/A		
1,700.0	1,684.0	1,617.9	1,581.5	4.4	5.2	-106.04	-228.3	130.2	288.1	288.1	0.00	N/A		
1,800.0	1,782.1	1,706.7	1,662.3	4.8	5.9	-106.11	-256.3	154.1	331.0	331.0	0.00	N/A		
1,900.0	1,880.2	1,794.2	1,741.5	5.1	6.5	-106.32	-283.6	179.3	375.4	375.4	0.00	N/A		
2,000.0	1,978.3	1,883.3	1,822.6	5.5	7.2	-106.60	-310.5	204.7	419.2	419.2	0.00	N/A		
2,100.0	2,076.4	1,965.5	1,897.0	5.9	7.8	-107.05	-334.4	230.1	464.6	464.6	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 B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 11-20 Pad - Antelope A-20 - 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	5.0	5.0	0.0	0.0	0.00	14.6	0.0	14.6					
100.0	100.0	105.0	105.0	0.2	0.2	0.00	14.6	0.0	14.6	14.6	0.00	N/A		
200.0	200.0	205.0	205.0	0.3	0.3	0.00	14.6	0.0	14.6	14.6	0.00	N/A		
300.0	300.0	305.0	305.0	0.5	0.5	0.00	14.6	0.0	14.6	14.6	0.00	N/A		
400.0	400.0	405.0	405.0	0.7	0.7	0.00	14.6	0.0	14.6	14.6	0.00	N/A		
500.0	500.0	505.0	505.0	0.9	0.9	0.00	14.6	0.0	14.6	14.6	0.00	N/A		
564.9	564.9	569.9	569.9	1.0	1.0	0.00	14.6	0.0	14.6	14.6	0.00	N/A CC, ES		
600.0	600.0	605.0	605.0	1.0	1.0	-0.02	14.6	0.0	14.6	14.6	0.00	N/A		
700.0	700.0	704.4	704.4	1.2	1.2	135.87	16.2	-2.4	18.1	18.1	0.00	N/A		
800.0	799.6	803.2	802.8	1.4	1.4	133.54	20.6	-9.0	28.5	28.5	0.00	N/A		
900.0	898.8	900.7	899.5	1.6	1.6	132.10	27.7	-19.6	45.5	45.5	0.00	N/A		
1,000.0	997.1	998.4	996.0	1.9	1.9	133.30	35.8	-31.7	67.0	67.0	0.00	N/A		
1,100.0	1,095.2	1,095.8	1,092.4	2.3	2.2	134.72	44.0	-43.8	89.5	89.5	0.00	N/A		
1,200.0	1,193.4	1,193.2	1,188.7	2.6	2.4	135.57	52.1	-55.9	112.0	112.0	0.00	N/A		
1,300.0	1,291.5	1,290.6	1,285.0	3.0	2.7	136.13	60.2	-68.0	134.5	134.5	0.00	N/A		
1,400.0	1,389.6	1,388.1	1,381.3	3.3	3.0	136.53	68.3	-80.1	157.0	157.0	0.00	N/A		
1,500.0	1,487.7	1,485.5	1,477.7	3.7	3.3	136.83	76.4	-92.2	179.5	179.5	0.00	N/A		
1,600.0	1,585.8	1,582.9	1,574.0	4.0	3.6	137.07	84.5	-104.3	202.1	202.1	0.00	N/A		
1,700.0	1,684.0	1,680.3	1,670.3	4.4	3.9	137.25	92.7	-116.4	224.6	224.6	0.00	N/A		
1,800.0	1,782.1	1,777.8	1,766.7	4.8	4.2	137.41	100.8	-128.5	247.1	247.1	0.00	N/A		
1,900.0	1,880.2	1,875.2	1,863.0	5.1	4.5	137.54	108.9	-140.6	269.6	269.6	0.00	N/A		
2,000.0	1,978.3	1,972.6	1,959.3	5.5	4.8	137.64	117.0	-152.7	292.2	292.2	0.00	N/A		
2,100.0	2,076.4	2,070.1	2,055.7	5.9	5.1	137.74	125.1	-164.8	314.7	314.7	0.00	N/A		
2,200.0	2,174.5	2,167.5	2,152.0	6.3	5.4	137.82	133.3	-176.9	337.2	337.2	0.00	N/A		
2,300.0	2,272.7	2,264.9	2,248.3	6.6	5.7	137.89	141.4	-189.1	359.8	359.8	0.00	N/A		
2,400.0	2,370.8	2,362.3	2,344.7	7.0	6.0	137.95	149.5	-201.2	382.3	382.3	0.00	N/A		
2,500.0	2,468.9	2,459.8	2,441.0	7.4	6.3	138.00	157.6	-213.3	404.8	404.8	0.00	N/A		
2,600.0	2,567.0	2,557.2	2,537.3	7.8	6.6	138.05	165.7	-225.4	427.4	427.4	0.00	N/A		
2,700.0	2,665.1	2,654.6	2,633.7	8.2	6.9	138.10	173.8	-237.5	449.9	449.9	0.00	N/A		
2,800.0	2,763.3	2,752.0	2,730.0	8.5	7.2	138.14	182.0	-249.6	472.4	472.4	0.00	N/A		
2,900.0	2,861.4	2,849.5	2,826.3	8.9	7.5	138.17	190.1	-261.7	495.0	495.0	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 B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 11-20 Pad - Antelope F-20 - 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						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	10.0	10.0	0.0	0.0	169.18	-14.6	2.8	14.8					
100.0	100.0	110.0	110.0	0.2	0.2	169.18	-14.6	2.8	14.8	14.8	0.00	N/A		
200.0	200.0	210.0	210.0	0.3	0.3	169.18	-14.6	2.8	14.8	14.8	0.00	N/A		
300.0	300.0	310.0	310.0	0.5	0.5	169.18	-14.6	2.8	14.8	14.8	0.00	N/A		
400.0	400.0	410.0	410.0	0.7	0.7	169.18	-14.6	2.8	14.8	14.8	0.00	N/A		
500.0	500.0	510.0	510.0	0.9	0.9	169.18	-14.6	2.8	14.8	14.8	0.00	N/A		
600.0	600.0	610.0	610.0	1.0	1.0	169.10	-14.6	2.8	14.8	14.8	0.00	N/A		
700.0	700.0	710.1	710.0	1.2	1.2	-75.43	-12.5	5.2	12.7	12.7	0.00	N/A		
719.7	719.7	729.7	729.6	1.2	1.3	-86.13	-11.7	6.1	12.4	12.4	0.00	N/A CC, ES		
800.0	799.6	808.5	808.1	1.4	1.4	-133.31	-7.2	11.4	18.5	18.5	0.00	N/A		
900.0	898.8	904.5	903.3	1.6	1.6	-157.94	0.8	20.8	41.3	41.3	0.00	N/A		
1,000.0	997.1	999.5	997.4	1.9	1.9	-165.85	9.2	30.7	71.6	71.6	0.00	N/A		
1,100.0	1,095.2	1,094.1	1,091.1	2.3	2.1	-169.28	17.6	40.5	103.6	103.6	0.00	N/A		
1,200.0	1,193.4	1,188.7	1,184.8	2.6	2.4	-171.09	26.0	50.3	135.9	135.9	0.00	N/A		
1,300.0	1,291.5	1,283.3	1,278.6	3.0	2.6	-172.21	34.4	60.1	168.2	168.2	0.00	N/A		
1,400.0	1,389.6	1,377.9	1,372.3	3.3	2.9	-172.96	42.7	69.9	200.5	200.5	0.00	N/A		
1,500.0	1,487.7	1,472.5	1,466.0	3.7	3.2	-173.51	51.1	79.7	232.9	232.9	0.00	N/A		
1,600.0	1,585.8	1,567.1	1,559.7	4.0	3.4	-173.92	59.5	89.5	265.3	265.3	0.00	N/A		
1,700.0	1,684.0	1,661.7	1,653.4	4.4	3.7	-174.24	67.9	99.3	297.7	297.7	0.00	N/A		
1,800.0	1,782.1	1,756.3	1,747.1	4.8	4.0	-174.50	76.2	109.1	330.1	330.1	0.00	N/A		
1,900.0	1,880.2	1,850.9	1,840.8	5.1	4.3	-174.72	84.6	118.9	362.5	362.5	0.00	N/A		
2,000.0	1,978.3	1,945.5	1,934.5	5.5	4.5	-174.90	93.0	128.7	395.0	395.0	0.00	N/A		
2,100.0	2,076.4	2,040.1	2,028.2	5.9	4.8	-175.05	101.4	138.5	427.4	427.4	0.00	N/A		
2,200.0	2,174.5	2,134.6	2,122.0	6.3	5.1	-175.18	109.7	148.3	459.8	459.8	0.00	N/A		
2,300.0	2,272.7	2,229.2	2,215.7	6.6	5.4	-175.29	118.1	158.1	492.2	492.2	0.00	N/A		



# Cathedral Energy Services

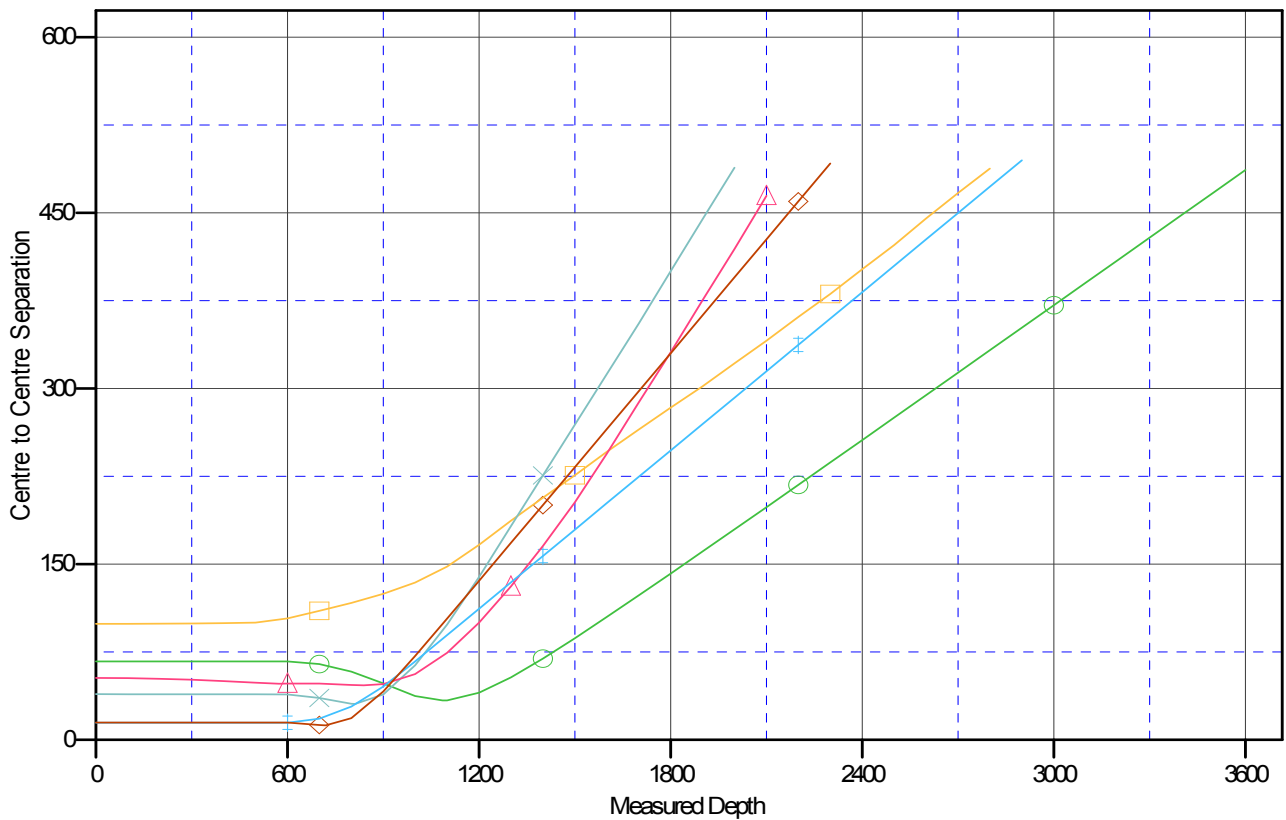
## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope B-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4655.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Antelope B-20	<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 @ 4655.0ft (Original Well Elev)  
 Offset Depths are relative to Offset Datum  
 Central Meridian is -105.500000 °

Coordinates are relative to: Antelope B-20  
 Coordinate System is US State Plane 1983, Colorado Northern Zone  
 Grid Convergence at Surface is: 0.74°

### Ladder Plot



### LEGEND

- Antelope 11-20 (vert), V, Plan #3 V0
- Antelope 12-20, DD, DD V0
- Antelope 21-20, DD, DD V0
- Antelope 22-20, DD, DD V0
- Antelope A-20, OH, Plan #1 V0
- Antelope F-20, OH, Plan #1 V0