







## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Antelope 21-20
<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Antelope 21-20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #3		

<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:	1,387,186.65 ft	Latitude:	40.390560
From:	Lat/Long	Easting:	3,319,195.57 ft	Longitude:	-104.354070
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.74 °

Well	Antelope 21-20					
Well Position	+N/-S	0.0 ft	Northing:	1,387,219.42 ft	Latitude:	40.390650
	+E/-W	0.0 ft	Easting:	3,319,195.14 ft	Longitude:	-104.354070
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,651.0 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 (nT)</b>
	IGRF2010	5/26/2011	8.65	67.11	53,178

<b>Design</b>	Plan #3				
<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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	92.84	

<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	
1,358.1	15.16	92.84	1,349.3	-4.9	99.6	2.00	2.00	0.00	92.84	
5,503.8	15.16	92.84	5,350.7	-58.6	1,182.6	0.00	0.00	0.00	0.00	
6,262.0	0.00	0.00	6,100.0	-63.5	1,282.3	2.00	-2.00	0.00	180.00	Antelope 21-20 TGT (
6,912.0	0.00	0.00	6,750.0	-63.5	1,282.3	0.00	0.00	0.00	0.00	Antelope 21-20 PBHL

# Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** Bonanza Creek Energy Operating Company, LLC  
**Project:** Weld County  
**Site:** Antelope 11-20 Pad  
**Well:** Antelope 21-20  
**Wellbore:** DD  
**Design:** Plan #3

**Local Co-ordinate Reference:** Well Antelope 21-20  
**TVD Reference:** KBE @ 4661.0ft (Original Well Elev)  
**MD Reference:** KBE @ 4661.0ft (Original Well Elev)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature

## 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	92.84	700.0	-0.1	1.7	1.7	2.00	2.00	
800.0	4.00	92.84	799.8	-0.3	7.0	7.0	2.00	2.00	
900.0	6.00	92.84	899.5	-0.8	15.7	15.7	2.00	2.00	
1,000.0	8.00	92.84	998.7	-1.4	27.8	27.9	2.00	2.00	
1,100.0	10.00	92.84	1,097.5	-2.2	43.5	43.5	2.00	2.00	
1,200.0	12.00	92.84	1,195.6	-3.1	62.5	62.6	2.00	2.00	
1,300.0	14.00	92.84	1,293.1	-4.2	85.0	85.1	2.00	2.00	
1,358.1	15.16	92.84	1,349.3	-4.9	99.6	99.7	2.00	2.00	EOB @ Inc=15.16°
1,400.0	15.16	92.84	1,389.7	-5.5	110.5	110.7	0.00	0.00	
1,500.0	15.16	92.84	1,486.2	-6.8	136.7	136.8	0.00	0.00	
1,600.0	15.16	92.84	1,582.8	-8.1	162.8	163.0	0.00	0.00	
1,700.0	15.16	92.84	1,679.3	-9.4	188.9	189.2	0.00	0.00	
1,800.0	15.16	92.84	1,775.8	-10.7	215.0	215.3	0.00	0.00	
1,900.0	15.16	92.84	1,872.3	-11.9	241.2	241.5	0.00	0.00	
2,000.0	15.16	92.84	1,968.8	-13.2	267.3	267.6	0.00	0.00	
2,100.0	15.16	92.84	2,065.4	-14.5	293.4	293.8	0.00	0.00	
2,200.0	15.16	92.84	2,161.9	-15.8	319.5	319.9	0.00	0.00	
2,300.0	15.16	92.84	2,258.4	-17.1	345.7	346.1	0.00	0.00	
2,400.0	15.16	92.84	2,354.9	-18.4	371.8	372.2	0.00	0.00	
2,500.0	15.16	92.84	2,451.4	-19.7	397.9	398.4	0.00	0.00	
2,600.0	15.16	92.84	2,547.9	-21.0	424.0	424.6	0.00	0.00	
2,700.0	15.16	92.84	2,644.5	-22.3	450.2	450.7	0.00	0.00	
2,800.0	15.16	92.84	2,741.0	-23.6	476.3	476.9	0.00	0.00	
2,900.0	15.16	92.84	2,837.5	-24.9	502.4	503.0	0.00	0.00	
3,000.0	15.16	92.84	2,934.0	-26.2	528.5	529.2	0.00	0.00	
3,100.0	15.16	92.84	3,030.5	-27.5	554.7	555.3	0.00	0.00	
3,200.0	15.16	92.84	3,127.1	-28.8	580.8	581.5	0.00	0.00	
3,300.0	15.16	92.84	3,223.6	-30.1	606.9	607.7	0.00	0.00	
3,400.0	15.16	92.84	3,320.1	-31.4	633.0	633.8	0.00	0.00	
3,500.0	15.16	92.84	3,416.6	-32.7	659.2	660.0	0.00	0.00	
3,534.6	15.16	92.84	3,450.0	-33.1	668.2	669.0	0.00	0.00	Parkman
3,600.0	15.16	92.84	3,513.1	-34.0	685.3	686.1	0.00	0.00	
3,700.0	15.16	92.84	3,609.7	-35.2	711.4	712.3	0.00	0.00	
3,800.0	15.16	92.84	3,706.2	-36.5	737.5	738.4	0.00	0.00	
3,900.0	15.16	92.84	3,802.7	-37.8	763.7	764.6	0.00	0.00	
4,000.0	15.16	92.84	3,899.2	-39.1	789.8	790.8	0.00	0.00	
4,100.0	15.16	92.84	3,995.7	-40.4	815.9	816.9	0.00	0.00	
4,182.1	15.16	92.84	4,075.0	-41.5	837.4	838.4	0.00	0.00	Sussex
4,200.0	15.16	92.84	4,092.2	-41.7	842.0	843.1	0.00	0.00	
4,300.0	15.16	92.84	4,188.8	-43.0	868.2	869.2	0.00	0.00	
4,400.0	15.16	92.84	4,285.3	-44.3	894.3	895.4	0.00	0.00	
4,500.0	15.16	92.84	4,381.8	-45.6	920.4	921.5	0.00	0.00	
4,600.0	15.16	92.84	4,478.3	-46.9	946.5	947.7	0.00	0.00	
4,700.0	15.16	92.84	4,574.8	-48.2	972.7	973.8	0.00	0.00	
4,800.0	15.16	92.84	4,671.4	-49.5	998.8	1,000.0	0.00	0.00	

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<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Antelope 21-20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #3		

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	15.16	92.84	4,767.9	-50.8	1,024.9	1,026.2	0.00	0.00	
5,000.0	15.16	92.84	4,864.4	-52.1	1,051.0	1,052.3	0.00	0.00	
5,100.0	15.16	92.84	4,960.9	-53.4	1,077.2	1,078.5	0.00	0.00	
5,200.0	15.16	92.84	5,057.4	-54.7	1,103.3	1,104.6	0.00	0.00	
5,300.0	15.16	92.84	5,153.9	-56.0	1,129.4	1,130.8	0.00	0.00	
5,400.0	15.16	92.84	5,250.5	-57.3	1,155.5	1,156.9	0.00	0.00	
5,503.8	15.16	92.84	5,350.7	-58.6	1,182.6	1,184.1	0.00	0.00	Start Drop -2.00
5,600.0	13.24	92.84	5,443.9	-59.8	1,206.2	1,207.7	2.00	-2.00	
5,700.0	11.24	92.84	5,541.6	-60.8	1,227.4	1,228.9	2.00	-2.00	
5,800.0	9.24	92.84	5,640.0	-61.7	1,245.1	1,246.7	2.00	-2.00	
5,900.0	7.24	92.84	5,739.0	-62.4	1,259.5	1,261.0	2.00	-2.00	
6,000.0	5.24	92.84	5,838.4	-62.9	1,270.3	1,271.9	2.00	-2.00	
6,100.0	3.24	92.84	5,938.1	-63.3	1,277.7	1,279.3	2.00	-2.00	
6,200.0	1.24	92.84	6,038.0	-63.5	1,281.6	1,283.2	2.00	-2.00	
6,262.0	0.00	0.00	6,100.0	-63.5	1,282.3	1,283.8	2.00	-2.00	EOD @ Inc=0°
6,300.0	0.00	0.00	6,138.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,400.0	0.00	0.00	6,238.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,487.0	0.00	0.00	6,325.0	-63.5	1,282.3	1,283.8	0.00	0.00	Niobrara
6,500.0	0.00	0.00	6,338.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,600.0	0.00	0.00	6,438.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,700.0	0.00	0.00	6,538.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,800.0	0.00	0.00	6,638.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,900.0	0.00	0.00	6,738.0	-63.5	1,282.3	1,283.8	0.00	0.00	
6,912.0	0.00	0.00	6,750.0	-63.5	1,282.3	1,283.8	0.00	0.00	TD @ 6,912' MD

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Antelope 21-20 TGT (2) - hit/miss target - Shape - Point	0.00	0.00	6,100.0	-63.5	1,282.3	1,387,155.88	3,320,477.40	40.390430	-104.349470
Antelope 21-20 PBHL (2) - plan hits target center - Circle (radius 50.0)	0.00	0.00	6,750.0	-63.5	1,282.3	1,387,155.88	3,320,477.40	40.390430	-104.349470
Antelope 21-20 PBHL - plan hits target center - Circle (radius 50.0)	0.00	0.00	6,730.0	-63.5	1,282.3	1,387,155.88	3,320,477.40	40.390430	-104.349470
Antelope 21-20 TGT - plan misses target center by 12.7ft at 5993.0ft MD (5831.4 TVD, -62.9 N, 1269.7 E) - Point	0.00	0.00	5,830.0	-63.5	1,282.3	1,387,155.88	3,320,477.40	40.390430	-104.349470

## Planning Report

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<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Project:</b>	Weld County	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site:</b>	Antelope 11-20 Pad	<b>North Reference:</b>	Grid
<b>Well:</b>	Antelope 21-20	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	DD		
<b>Design:</b>	Plan #3		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,534.6	3,450.0	Parkman				
4,182.1	4,075.0	Sussex				
6,487.0	6,325.0	Niobrara				

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'	
1,358.1	1,349.3	-4.9	99.6	EOB @ Inc=15.16°	
5,503.8	5,350.7	-58.6	1,182.6	Start Drop -2.00	
6,262.0	6,100.0	-63.5	1,282.3	EOD @ Inc=0°	
6,912.0	6,750.0	-63.5	1,282.3	TD @ 6,912' MD	

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

**Weld County**

**Antelope 11-20 Pad**

**Antelope 21-20**

**DD**

**Plan #3**

## **Anticollision Report**

**03 July, 2011**



## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope 21-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Antelope 21-20	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #3		
<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>	7/3/2011		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	6,912.0	Plan #3 (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 11-20 Pad						
Antelope 11-20 (vert) - V - Plan #3	0.0	0.0	32.8			
Antelope 11-20 (vert) - V - Plan #3	708.3	708.2	32.7	32.7	10,000.000	CC, ES
Antelope 12-20 - DD - Plan #3	0.0	0.0	61.9			
Antelope 12-20 - DD - Plan #3	600.0	600.0	61.9	61.9	10,000.000	CC, ES
Antelope 22-20 - DD - Plan #3	0.0	0.0	14.6			
Antelope 22-20 - DD - Plan #3	500.0	500.0	14.6	14.6	10,000.000	CC, ES
Antelope G-20 - DD - Plan #3	0.0	0.0	47.4			
Antelope G-20 - DD - Plan #3	600.0	600.0	47.4	47.4	10,000.000	CC, ES

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<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Antelope 21-20	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<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			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	179.26	-32.8	0.4	32.8				
100.0	100.0	100.0	100.0	0.2	0.2	179.26	-32.8	0.4	32.8	32.8	0.00	N/A	
200.0	200.0	200.0	200.0	0.3	0.3	179.26	-32.8	0.4	32.8	32.8	0.00	N/A	
300.0	300.0	300.0	300.0	0.5	0.5	179.26	-32.8	0.4	32.8	32.8	0.00	N/A	
400.0	400.0	400.0	400.0	0.7	0.7	179.26	-32.8	0.4	32.8	32.8	0.00	N/A	
500.0	500.0	500.0	500.0	0.9	0.9	179.26	-32.8	0.4	32.8	32.8	0.00	N/A	
600.0	600.0	600.0	600.0	1.0	1.0	179.26	-32.8	0.4	32.8	32.8	0.00	N/A	
700.0	700.0	700.0	700.0	1.2	1.2	89.47	-32.8	0.4	32.7	32.7	0.00	N/A	
708.3	708.2	708.2	708.2	1.2	1.2	90.00	-32.8	0.4	32.7	32.7	0.00	N/A CC, ES	
800.0	799.8	799.8	799.8	1.4	1.4	98.55	-32.8	0.4	33.1	33.1	0.00	N/A	
900.0	899.5	899.5	899.5	1.6	1.6	112.53	-32.8	0.4	35.5	35.5	0.00	N/A	
1,000.0	998.7	998.7	998.7	1.8	1.7	128.01	-32.8	0.4	41.7	41.7	0.00	N/A	
1,100.0	1,097.5	1,097.5	1,097.5	2.1	1.9	141.30	-32.8	0.4	52.8	52.8	0.00	N/A	
1,200.0	1,195.6	1,195.6	1,195.6	2.4	2.1	151.08	-32.8	0.4	68.8	68.8	0.00	N/A	
1,300.0	1,293.1	1,293.1	1,293.1	2.8	2.2	157.90	-32.8	0.4	89.3	89.3	0.00	N/A	
1,400.0	1,389.7	1,389.7	1,389.7	3.3	2.4	162.67	-32.8	0.4	113.5	113.5	0.00	N/A	
1,500.0	1,486.2	1,486.2	1,486.2	3.7	2.6	165.88	-32.8	0.4	138.7	138.7	0.00	N/A	
1,600.0	1,582.8	1,582.8	1,582.8	4.2	2.7	168.10	-32.8	0.4	164.2	164.2	0.00	N/A	
1,700.0	1,679.3	1,679.3	1,679.3	4.7	2.9	169.73	-32.8	0.4	189.9	189.9	0.00	N/A	
1,800.0	1,775.8	1,775.8	1,775.8	5.1	3.1	170.97	-32.8	0.4	215.8	215.8	0.00	N/A	
1,900.0	1,872.3	1,872.3	1,872.3	5.6	3.3	171.94	-32.8	0.4	241.6	241.6	0.00	N/A	
2,000.0	1,968.8	1,968.8	1,968.8	6.1	3.4	172.72	-32.8	0.4	267.6	267.6	0.00	N/A	
2,100.0	2,065.4	2,065.4	2,065.4	6.6	3.6	173.37	-32.8	0.4	293.6	293.6	0.00	N/A	
2,200.0	2,161.9	2,161.9	2,161.9	7.1	3.8	173.91	-32.8	0.4	319.6	319.6	0.00	N/A	
2,300.0	2,258.4	2,258.4	2,258.4	7.6	3.9	174.37	-32.8	0.4	345.6	345.6	0.00	N/A	
2,400.0	2,354.9	2,354.9	2,354.9	8.1	4.1	174.77	-32.8	0.4	371.6	371.6	0.00	N/A	
2,500.0	2,451.4	2,451.4	2,451.4	8.6	4.3	175.11	-32.8	0.4	397.7	397.7	0.00	N/A	
2,600.0	2,547.9	2,547.9	2,547.9	9.1	4.4	175.41	-32.8	0.4	423.8	423.8	0.00	N/A	
2,700.0	2,644.5	2,644.5	2,644.5	9.6	4.6	175.68	-32.8	0.4	449.9	449.9	0.00	N/A	
2,800.0	2,741.0	2,741.0	2,741.0	10.1	4.8	175.92	-32.8	0.4	476.0	476.0	0.00	N/A	

# Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope 21-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Antelope 21-20	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 11-20 Pad - Antelope 12-20 - DD - Plan #3												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	179.26	-61.9	0.8	61.9				
100.0	100.0	100.0	100.0	0.2	0.2	179.26	-61.9	0.8	61.9	61.9	0.00	N/A	
200.0	200.0	200.0	200.0	0.3	0.3	179.26	-61.9	0.8	61.9	61.9	0.00	N/A	
300.0	300.0	300.0	300.0	0.5	0.5	179.26	-61.9	0.8	61.9	61.9	0.00	N/A	
400.0	400.0	400.0	400.0	0.7	0.7	179.26	-61.9	0.8	61.9	61.9	0.00	N/A	
500.0	500.0	500.0	500.0	0.9	0.9	179.26	-61.9	0.8	61.9	61.9	0.00	N/A	
600.0	600.0	600.0	600.0	1.0	1.0	179.26	-61.9	0.8	61.9	61.9	0.00	N/A CC, ES	
700.0	700.0	697.8	697.8	1.2	1.2	88.00	-63.6	0.7	63.6	63.6	0.00	N/A	
800.0	799.8	795.3	795.2	1.4	1.4	92.26	-68.6	0.6	68.7	68.7	0.00	N/A	
900.0	899.5	892.1	891.6	1.6	1.6	97.99	-76.8	0.2	78.0	78.0	0.00	N/A	
1,000.0	998.7	987.9	986.7	1.8	1.8	103.91	-88.1	-0.2	91.9	91.9	0.00	N/A	
1,100.0	1,097.5	1,082.4	1,080.2	2.1	2.1	109.16	-102.4	-0.7	110.9	110.9	0.00	N/A	
1,200.0	1,195.6	1,175.3	1,171.5	2.4	2.4	113.43	-119.5	-1.3	134.9	134.9	0.00	N/A	
1,300.0	1,293.1	1,266.4	1,260.4	2.8	2.7	116.73	-139.0	-2.1	163.8	163.8	0.00	N/A	
1,400.0	1,389.7	1,355.4	1,346.7	3.3	3.1	119.41	-160.9	-2.9	197.1	197.1	0.00	N/A	
1,500.0	1,486.2	1,446.0	1,433.9	3.7	3.5	121.40	-185.4	-3.8	233.2	233.2	0.00	N/A	
1,600.0	1,582.8	1,538.9	1,523.3	4.2	3.9	122.87	-210.9	-4.7	269.7	269.7	0.00	N/A	
1,700.0	1,679.3	1,631.9	1,612.6	4.7	4.3	123.99	-236.3	-5.7	306.3	306.3	0.00	N/A	
1,800.0	1,775.8	1,724.8	1,702.0	5.1	4.8	124.87	-261.7	-6.6	342.9	342.9	0.00	N/A	
1,900.0	1,872.3	1,817.7	1,791.4	5.6	5.2	125.58	-287.2	-7.5	379.7	379.7	0.00	N/A	
2,000.0	1,968.8	1,910.6	1,880.7	6.1	5.7	126.16	-312.6	-8.5	416.4	416.4	0.00	N/A	
2,100.0	2,065.4	2,003.5	1,970.1	6.6	6.1	126.65	-338.0	-9.4	453.3	453.3	0.00	N/A	
2,200.0	2,161.9	2,096.4	2,059.5	7.1	6.6	127.07	-363.5	-10.4	490.1	490.1	0.00	N/A	

# Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope 21-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Antelope 21-20	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Antelope 11-20 Pad - Antelope 22-20 - DD - Plan #3		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	179.26	-14.6	0.2	14.6								
100.0	100.0	100.0	100.0	0.2	0.2	179.26	-14.6	0.2	14.6	14.6	0.00	N/A					
200.0	200.0	200.0	200.0	0.3	0.3	179.26	-14.6	0.2	14.6	14.6	0.00	N/A					
300.0	300.0	300.0	300.0	0.5	0.5	179.26	-14.6	0.2	14.6	14.6	0.00	N/A					
400.0	400.0	400.0	400.0	0.7	0.7	179.26	-14.6	0.2	14.6	14.6	0.00	N/A					
500.0	500.0	500.0	500.0	0.9	0.9	179.26	-14.6	0.2	14.6	14.6	0.00	N/A	CC, ES				
600.0	600.0	599.3	599.3	1.0	1.0	173.26	-16.5	1.9	16.6	16.6	0.00	N/A					
700.0	700.0	698.3	697.9	1.2	1.2	73.11	-22.1	7.2	22.8	22.8	0.00	N/A					
800.0	799.8	796.5	795.3	1.4	1.5	70.76	-31.4	15.8	32.6	32.6	0.00	N/A					
900.0	899.5	893.9	891.1	1.6	1.8	70.69	-44.2	27.7	45.9	45.9	0.00	N/A					
1,000.0	998.7	990.1	984.7	1.8	2.2	71.40	-60.4	42.8	62.4	62.4	0.00	N/A					
1,100.0	1,097.5	1,084.9	1,075.8	2.1	2.6	72.28	-79.7	60.7	82.3	82.3	0.00	N/A					
1,200.0	1,195.6	1,178.2	1,164.1	2.4	3.2	73.10	-101.9	81.3	105.4	105.4	0.00	N/A					
1,300.0	1,293.1	1,274.2	1,253.7	2.8	3.8	74.22	-126.8	104.5	130.3	130.3	0.00	N/A					
1,400.0	1,389.7	1,371.0	1,344.2	3.3	4.4	76.20	-152.1	128.0	154.5	154.5	0.00	N/A					
1,500.0	1,486.2	1,467.9	1,434.7	3.7	5.0	78.04	-177.4	151.5	178.9	178.9	0.00	N/A					
1,600.0	1,582.8	1,564.7	1,525.2	4.2	5.6	79.44	-202.7	175.0	203.3	203.3	0.00	N/A					
1,700.0	1,679.3	1,661.6	1,615.7	4.7	6.2	80.53	-228.0	198.5	227.9	227.9	0.00	N/A					
1,800.0	1,775.8	1,758.4	1,706.2	5.1	6.8	81.42	-253.3	222.0	252.5	252.5	0.00	N/A					
1,900.0	1,872.3	1,855.3	1,796.7	5.6	7.5	82.15	-278.6	245.5	277.2	277.2	0.00	N/A					
2,000.0	1,968.8	1,952.1	1,887.2	6.1	8.1	82.75	-303.8	269.0	301.8	301.8	0.00	N/A					
2,100.0	2,065.4	2,049.0	1,977.7	6.6	8.7	83.27	-329.1	292.5	326.6	326.6	0.00	N/A					
2,200.0	2,161.9	2,145.9	2,068.2	7.1	9.4	83.71	-354.4	316.0	351.3	351.3	0.00	N/A					
2,300.0	2,258.4	2,242.7	2,158.7	7.6	10.0	84.10	-379.7	339.5	376.1	376.1	0.00	N/A					
2,400.0	2,354.9	2,339.6	2,249.2	8.1	10.7	84.44	-405.0	363.0	400.8	400.8	0.00	N/A					
2,500.0	2,451.4	2,436.4	2,339.7	8.6	11.3	84.74	-430.3	386.5	425.6	425.6	0.00	N/A					
2,600.0	2,547.9	2,533.3	2,430.2	9.1	11.9	85.00	-455.5	410.0	450.4	450.4	0.00	N/A					
2,700.0	2,644.5	2,630.2	2,520.7	9.6	12.6	85.24	-480.8	433.5	475.2	475.2	0.00	N/A					

# Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope 21-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Antelope 21-20	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design Antelope 11-20 Pad - Antelope G-20 - DD - Plan #3												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	179.26	-47.4	0.6	47.4				
100.0	100.0	100.0	100.0	0.2	0.2	179.26	-47.4	0.6	47.4	47.4	0.00	N/A	
200.0	200.0	200.0	200.0	0.3	0.3	179.26	-47.4	0.6	47.4	47.4	0.00	N/A	
300.0	300.0	300.0	300.0	0.5	0.5	179.26	-47.4	0.6	47.4	47.4	0.00	N/A	
400.0	400.0	400.0	400.0	0.7	0.7	179.26	-47.4	0.6	47.4	47.4	0.00	N/A	
500.0	500.0	500.0	500.0	0.9	0.9	179.26	-47.4	0.6	47.4	47.4	0.00	N/A	
600.0	600.0	600.0	600.0	1.0	1.0	179.26	-47.4	0.6	47.4	47.4	0.00	N/A CC, ES	
700.0	700.0	698.8	698.7	1.2	1.2	87.10	-48.6	1.8	48.6	48.6	0.00	N/A	
800.0	799.8	797.4	797.3	1.4	1.4	88.96	-52.4	5.2	52.2	52.2	0.00	N/A	
900.0	899.5	895.9	895.3	1.6	1.6	91.51	-58.7	10.8	58.3	58.3	0.00	N/A	
1,000.0	998.7	994.0	992.8	1.8	1.8	94.27	-67.5	18.7	67.0	67.0	0.00	N/A	
1,100.0	1,097.5	1,091.7	1,089.3	2.1	2.1	96.88	-78.6	28.8	78.3	78.3	0.00	N/A	
1,200.0	1,195.6	1,190.2	1,186.1	2.4	2.4	99.56	-91.8	40.6	91.9	91.9	0.00	N/A	
1,300.0	1,293.1	1,288.8	1,283.2	2.8	2.7	103.23	-105.2	52.7	106.5	106.5	0.00	N/A	
1,400.0	1,389.7	1,387.2	1,379.9	3.3	3.0	107.49	-118.5	64.6	122.4	122.4	0.00	N/A	
1,500.0	1,486.2	1,485.4	1,476.5	3.7	3.4	111.12	-131.8	76.6	139.0	139.0	0.00	N/A	
1,600.0	1,582.8	1,583.7	1,573.1	4.2	3.7	113.97	-145.1	88.6	156.1	156.1	0.00	N/A	
1,700.0	1,679.3	1,682.0	1,669.7	4.7	4.0	116.26	-158.3	100.6	173.5	173.5	0.00	N/A	
1,800.0	1,775.8	1,780.2	1,766.4	5.1	4.4	118.13	-171.6	112.5	191.1	191.1	0.00	N/A	
1,900.0	1,872.3	1,878.5	1,863.0	5.6	4.7	119.69	-184.9	124.5	208.9	208.9	0.00	N/A	
2,000.0	1,968.8	1,976.8	1,959.6	6.1	5.1	121.00	-198.2	136.5	226.8	226.8	0.00	N/A	
2,100.0	2,065.4	2,075.0	2,056.2	6.6	5.4	122.11	-211.5	148.4	244.7	244.7	0.00	N/A	
2,200.0	2,161.9	2,173.3	2,152.8	7.1	5.8	123.08	-224.8	160.4	262.8	262.8	0.00	N/A	
2,300.0	2,258.4	2,271.6	2,249.5	7.6	6.1	123.92	-238.1	172.4	281.0	281.0	0.00	N/A	
2,400.0	2,354.9	2,369.8	2,346.1	8.1	6.5	124.66	-251.4	184.3	299.1	299.1	0.00	N/A	
2,500.0	2,451.4	2,468.1	2,442.7	8.6	6.8	125.31	-264.7	196.3	317.4	317.4	0.00	N/A	
2,600.0	2,547.9	2,566.3	2,539.3	9.1	7.2	125.90	-278.0	208.3	335.6	335.6	0.00	N/A	
2,700.0	2,644.5	2,664.6	2,636.0	9.6	7.5	126.42	-291.3	220.2	353.9	353.9	0.00	N/A	
2,800.0	2,741.0	2,762.9	2,732.6	10.1	7.9	126.89	-304.5	232.2	372.3	372.3	0.00	N/A	
2,900.0	2,837.5	2,861.1	2,829.2	10.5	8.2	127.32	-317.8	244.2	390.6	390.6	0.00	N/A	
3,000.0	2,934.0	2,959.4	2,925.8	11.0	8.6	127.71	-331.1	256.1	409.0	409.0	0.00	N/A	
3,100.0	3,030.5	3,057.7	3,022.4	11.5	8.9	128.06	-344.4	268.1	427.3	427.3	0.00	N/A	
3,200.0	3,127.1	3,155.9	3,119.1	12.0	9.3	128.39	-357.7	280.1	445.7	445.7	0.00	N/A	
3,300.0	3,223.6	3,254.2	3,215.7	12.5	9.6	128.69	-371.0	292.0	464.1	464.1	0.00	N/A	
3,400.0	3,320.1	3,352.4	3,312.3	13.0	10.0	128.97	-384.3	304.0	482.6	482.6	0.00	N/A	

## Anticollision Report

<b>Company:</b>	Bonanza Creek Energy Operating Company, LLC	<b>Local Co-ordinate Reference:</b>	Well Antelope 21-20
<b>Project:</b>	Weld County	<b>TVD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Reference Site:</b>	Antelope 11-20 Pad	<b>MD Reference:</b>	KBE @ 4661.0ft (Original Well Elev)
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	Grid
<b>Reference Well:</b>	Antelope 21-20	<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>	DD	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #3	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KBE @ 4661.0ft (Original Well Elev)  
Offset Depths are relative to Offset Datum  
Central Meridian is -105.500000 °

Coordinates are relative to: Antelope 21-20  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.74°

