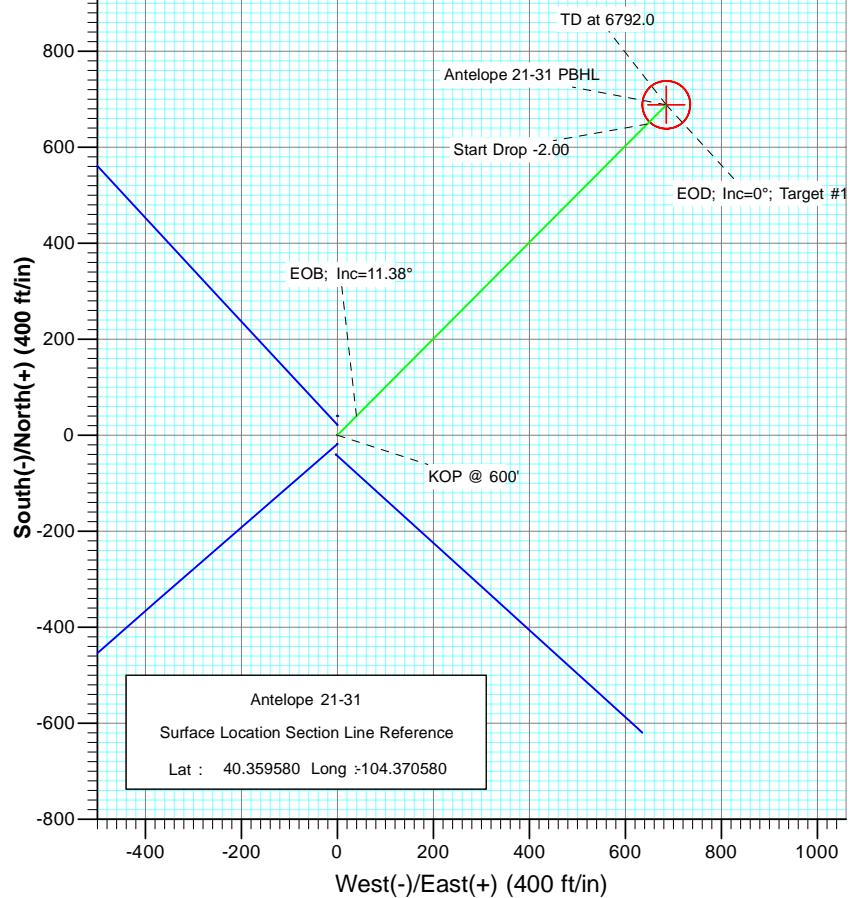


SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	600.0	0.00	0.00	600.0	0.0	0.0	0.00	0.00	0.0	
3	1168.9	11.38	44.87	1165.2	39.9	39.7	2.00	44.87	56.3	
4	5523.1	11.38	44.87	5433.8	648.6	645.8	0.00	0.00	915.3	
5	6092.0	0.00	0.00	5999.0	688.5	685.5	2.00	180.00	971.6	
6	6792.0	0.00	0.00	6699.0	688.5	685.5	0.00	0.00	971.6	Antelope 21-31 PBHL



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6199.0	6292.0	Niobrara



Azimuths to True North
Magnetic North: 8.72°

Magnetic Field
Strength: 53209.6nT
Dip Angle: 67.10°
Date: 12/7/2010
Model: IGRF2010

Plan #1
Antelope 21-31

WELL @ 4599.0ft (Original Well Elev)
North American Datum 1983
Well Antelope 21-31, True North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From	TVD
TD	No Target (Freehand)	44.87	Slot	Type	0.0	0.0	From	0.0
Name	Antelope 21-31 PBHL	TVD	+N/-S	+E/-W	Latitude	Longitude		
		6699.0	688.5	685.5	40.361470	-104.368120		

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Antelope 21-31
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	WELL @ 4599.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4599.0ft (Original Well Elev)
Site:	Antelope 31 A Pad	North Reference:	True
Well:	Antelope 21-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Site		Antelope 31 A Pad			
Site Position:		Northing:	1,375,882.75 ft	Latitude:	40.359690
From:	Lat/Long	Easting:	3,314,740.32 ft	Longitude:	-104.370580
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.73 °

Well	Antelope 21-31					
Well Position	+N/-S	0.0 ft	Northing:	1,375,842.67 ft	Latitude:	40.359580
	+E/-W	0.0 ft	Easting:	3,314,740.83 ft	Longitude:	-104.370580
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,589.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	12/7/2010	8.72	67.10	53,210

Design	Plan #1				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	44.87	

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(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	
1,168.9	11.38	44.87	1,165.2	39.9	39.7	2.00	2.00	0.00	44.87	
5,523.1	11.38	44.87	5,433.8	648.6	645.8	0.00	0.00	0.00	0.00	
6,092.0	0.00	0.00	5,999.0	688.5	685.5	2.00	-2.00	0.00	180.00	
6,792.0	0.00	0.00	6,699.0	688.5	685.5	0.00	0.00	0.00	0.00	Antelope 21-31 PBHL

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Antelope 21-31
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	WELL @ 4599.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4599.0ft (Original Well Elev)
Site:	Antelope 31 A Pad	North Reference:	True
Well:	Antelope 21-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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	2.00	44.87	700.0	1.2	1.2	1.7	2.00	2.00	
800.0	4.00	44.87	799.8	4.9	4.9	7.0	2.00	2.00	
900.0	6.00	44.87	899.5	11.1	11.1	15.7	2.00	2.00	
1,000.0	8.00	44.87	998.7	19.8	19.7	27.9	2.00	2.00	
1,100.0	10.00	44.87	1,097.5	30.8	30.7	43.5	2.00	2.00	
1,168.9	11.38	44.87	1,165.2	39.9	39.7	56.3	2.00	2.00	EOB; Inc=11.38°
1,200.0	11.38	44.87	1,195.7	44.2	44.1	62.4	0.00	0.00	
1,300.0	11.38	44.87	1,293.7	58.2	58.0	82.2	0.00	0.00	
1,400.0	11.38	44.87	1,391.7	72.2	71.9	101.9	0.00	0.00	
1,500.0	11.38	44.87	1,489.8	86.2	85.8	121.6	0.00	0.00	
1,600.0	11.38	44.87	1,587.8	100.2	99.7	141.3	0.00	0.00	
1,700.0	11.38	44.87	1,685.8	114.1	113.6	161.1	0.00	0.00	
1,800.0	11.38	44.87	1,783.9	128.1	127.6	180.8	0.00	0.00	
1,900.0	11.38	44.87	1,881.9	142.1	141.5	200.5	0.00	0.00	
2,000.0	11.38	44.87	1,979.9	156.1	155.4	220.3	0.00	0.00	
2,100.0	11.38	44.87	2,078.0	170.1	169.3	240.0	0.00	0.00	
2,200.0	11.38	44.87	2,176.0	184.0	183.2	259.7	0.00	0.00	
2,300.0	11.38	44.87	2,274.0	198.0	197.2	279.4	0.00	0.00	
2,400.0	11.38	44.87	2,372.1	212.0	211.1	299.2	0.00	0.00	
2,500.0	11.38	44.87	2,470.1	226.0	225.0	318.9	0.00	0.00	
2,600.0	11.38	44.87	2,568.1	240.0	238.9	338.6	0.00	0.00	
2,700.0	11.38	44.87	2,666.2	254.0	252.8	358.4	0.00	0.00	
2,800.0	11.38	44.87	2,764.2	267.9	266.8	378.1	0.00	0.00	
2,900.0	11.38	44.87	2,862.2	281.9	280.7	397.8	0.00	0.00	
3,000.0	11.38	44.87	2,960.3	295.9	294.6	417.5	0.00	0.00	
3,100.0	11.38	44.87	3,058.3	309.9	308.5	437.3	0.00	0.00	
3,200.0	11.38	44.87	3,156.4	323.9	322.4	457.0	0.00	0.00	
3,300.0	11.38	44.87	3,254.4	337.8	336.4	476.7	0.00	0.00	
3,400.0	11.38	44.87	3,352.4	351.8	350.3	496.5	0.00	0.00	
3,500.0	11.38	44.87	3,450.5	365.8	364.2	516.2	0.00	0.00	
3,600.0	11.38	44.87	3,548.5	379.8	378.1	535.9	0.00	0.00	
3,700.0	11.38	44.87	3,646.5	393.8	392.0	555.6	0.00	0.00	
3,800.0	11.38	44.87	3,744.6	407.7	406.0	575.4	0.00	0.00	
3,900.0	11.38	44.87	3,842.6	421.7	419.9	595.1	0.00	0.00	
4,000.0	11.38	44.87	3,940.6	435.7	433.8	614.8	0.00	0.00	
4,100.0	11.38	44.87	4,038.7	449.7	447.7	634.6	0.00	0.00	
4,200.0	11.38	44.87	4,136.7	463.7	461.6	654.3	0.00	0.00	
4,300.0	11.38	44.87	4,234.7	477.6	475.6	674.0	0.00	0.00	
4,400.0	11.38	44.87	4,332.8	491.6	489.5	693.7	0.00	0.00	
4,500.0	11.38	44.87	4,430.8	505.6	503.4	713.5	0.00	0.00	
4,600.0	11.38	44.87	4,528.8	519.6	517.3	733.2	0.00	0.00	
4,700.0	11.38	44.87	4,626.9	533.6	531.2	752.9	0.00	0.00	
4,800.0	11.38	44.87	4,724.9	547.5	545.1	772.6	0.00	0.00	
4,900.0	11.38	44.87	4,822.9	561.5	559.1	792.4	0.00	0.00	
5,000.0	11.38	44.87	4,921.0	575.5	573.0	812.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Antelope 21-31
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	WELL @ 4599.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4599.0ft (Original Well Elev)
Site:	Antelope 31 A Pad	North Reference:	True
Well:	Antelope 21-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	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
5,100.0	11.38	44.87	5,019.0	589.5	586.9	831.8	0.00	0.00	
5,200.0	11.38	44.87	5,117.0	603.5	600.8	851.6	0.00	0.00	
5,300.0	11.38	44.87	5,215.1	617.4	614.7	871.3	0.00	0.00	
5,400.0	11.38	44.87	5,313.1	631.4	628.7	891.0	0.00	0.00	
5,500.0	11.38	44.87	5,411.1	645.4	642.6	910.7	0.00	0.00	
5,523.1	11.38	44.87	5,433.8	648.6	645.8	915.3	0.00	0.00	Start Drop -2.00
5,600.0	9.84	44.87	5,509.4	658.7	655.8	929.5	2.00	-2.00	
5,700.0	7.84	44.87	5,608.2	669.6	666.6	944.8	2.00	-2.00	
5,800.0	5.84	44.87	5,707.5	678.0	675.0	956.7	2.00	-2.00	
5,900.0	3.84	44.87	5,807.1	684.0	681.0	965.2	2.00	-2.00	
6,000.0	1.84	44.87	5,907.0	687.5	684.5	970.1	2.00	-2.00	
6,092.0	0.00	0.00	5,999.0	688.5	685.5	971.6	2.00	-2.00	EOD; Inc=0°; Target #1
6,100.0	0.00	0.00	6,007.0	688.5	685.5	971.6	0.00	0.00	
6,200.0	0.00	0.00	6,107.0	688.5	685.5	971.6	0.00	0.00	
6,292.0	0.00	0.00	6,199.0	688.5	685.5	971.6	0.00	0.00	Niobrara
6,300.0	0.00	0.00	6,207.0	688.5	685.5	971.6	0.00	0.00	
6,400.0	0.00	0.00	6,307.0	688.5	685.5	971.6	0.00	0.00	
6,500.0	0.00	0.00	6,407.0	688.5	685.5	971.6	0.00	0.00	
6,600.0	0.00	0.00	6,507.0	688.5	685.5	971.6	0.00	0.00	
6,700.0	0.00	0.00	6,607.0	688.5	685.5	971.6	0.00	0.00	
6,792.0	0.00	0.00	6,699.0	688.5	685.5	971.6	0.00	0.00	TD at 6792.0 - Antelope 21-31 PBHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Antelope 21-31 PBHL - hit/miss target - Shape - plan hits target center - Circle (radius 50.0)	0.00	0.00	6,699.0	688.5	685.5	1,376,539.88	3,315,417.53	40.361470	-104.368120

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,292.0	6,199.0	Niobrara		0.00	

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
600.0	600.0	0.0	0.0	KOP @ 600'
1,168.9	1,165.2	39.9	39.7	EOB; Inc=11.38°
5,523.1	5,433.8	648.6	645.8	Start Drop -2.00
6,092.0	5,999.0	688.5	685.5	EOD; Inc=0°; Target #1
6,792.0	6,699.0	688.5	685.5	TD at 6792.0