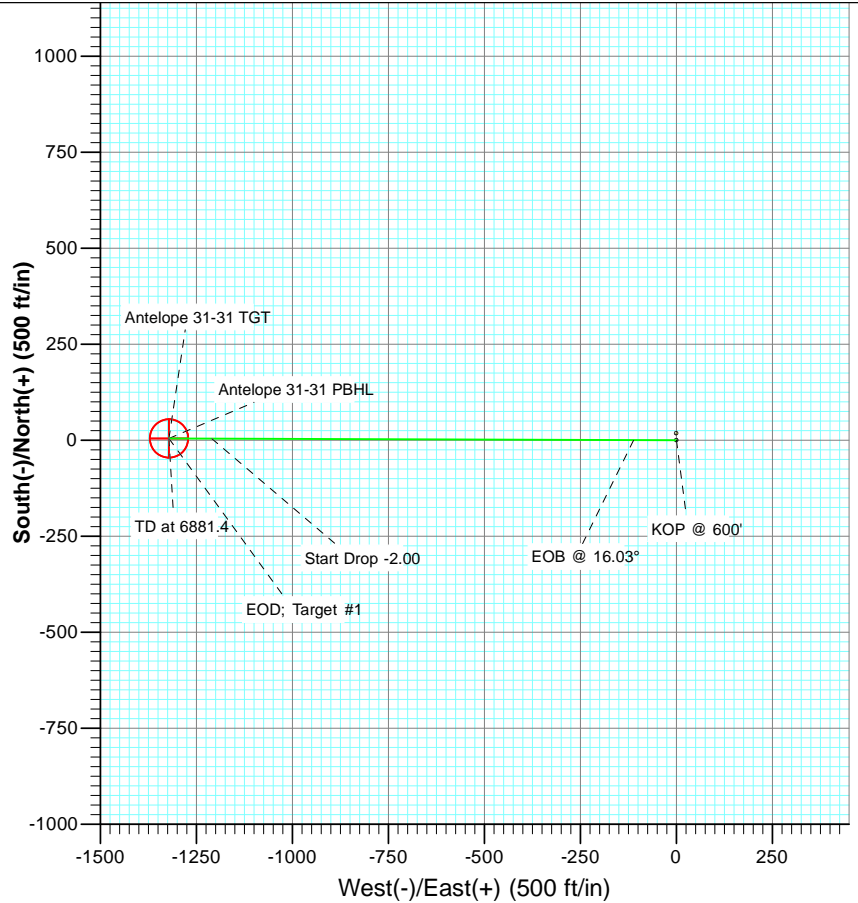


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	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	1401.3	16.03	270.21	1390.9	0.4	-111.3	2.00	270.21	111.3	
4	5380.2	16.03	270.21	5215.1	4.5	-1209.7	0.00	0.00	1209.7	Antelope 31-31 TGT
5	6181.4	0.00	0.00	6006.0	4.9	-1321.1	2.00	180.00	1321.1	Antelope 31-31 PBHL
6	6881.4	0.00	0.00	6706.0	4.9	-1321.1	0.00	0.00	1321.1	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6216.0	6391.4	Niobrara



Azimuths to Grid North
True North: -0.74°
Magnetic North: 7.97°

Magnetic Field
Strength: 53211.1nT
Dip Angle: 67.10°
Date: 12/9/2010
Model: IGRF2010

Plan #1
Antelope 31-31

WELL @ 4616.0ft (Original Well Elev)
North American Datum 1983
Well Antelope 31-31, Grid North

Type	Target	Azimuth	Origin	Type	N/S	E/W	From TVD
TD	No Target (Freehand)	270.21	Slot		0.0	0.0	0.0
Name		TVD	+N/-S	+E/-W	Latitude	Longitude	
Antelope 31-31 TGT		6006.0	4.9	-1321.1	40.361600	-104.364050	
Antelope 31-31 PBHL		6706.0	4.9	-1321.1	40.361600	-104.364050	

Cathedral Energy

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Antelope 31-31
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Antelope 41-31 Pad	North Reference:	Grid
Well:	Antelope 31-31	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 41-31 Pad			
Site Position:		Northing:	1,376,615.05 ft	Latitude: 40.361590
From:	Lat/Long	Easting:	3,317,871.84 ft	Longitude: -104.359310
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence: 0.74 °

Well	Antelope 31-31			
Well Position	+N/-S	0.0 ft	Northing:	1,376,596.84 ft
	+E/-W	0.0 ft	Easting:	3,317,872.08 ft
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft
			Ground Level:	4,606.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	12/9/2010	8.71	67.10	53,211

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	270.21

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	
1,401.3	16.03	270.21	1,390.9	0.4	-111.3	2.00	2.00	0.00	270.21	
5,380.2	16.03	270.21	5,215.1	4.5	-1,209.7	0.00	0.00	0.00	0.00	
6,181.4	0.00	0.00	6,006.0	4.9	-1,321.1	2.00	-2.00	0.00	180.00	Antelope 31-31 TGT
6,881.4	0.00	0.00	6,706.0	4.9	-1,321.1	0.00	0.00	0.00	0.00	Antelope 31-31 PBHL

Cathedral Energy

Planning Report

Database: EDM 5000.1 US Multi Users DB
Company: Bonanza Creek Energy Operating Company, LLC
Project: Weld County
Site: Antelope 41-31 Pad
Well: Antelope 31-31
Wellbore: DD
Design: Plan #1

Local Co-ordinate Reference: Well Antelope 31-31
TVD Reference: WELL @ 4616.0ft (Original Well Elev)
MD Reference: WELL @ 4616.0ft (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	270.21	700.0	0.0	-1.7	1.7	2.00	2.00	
800.0	4.00	270.21	799.8	0.0	-7.0	7.0	2.00	2.00	
900.0	6.00	270.21	899.5	0.1	-15.7	15.7	2.00	2.00	
1,000.0	8.00	270.21	998.7	0.1	-27.9	27.9	2.00	2.00	
1,100.0	10.00	270.21	1,097.5	0.2	-43.5	43.5	2.00	2.00	
1,200.0	12.00	270.21	1,195.6	0.2	-62.6	62.6	2.00	2.00	
1,300.0	14.00	270.21	1,293.1	0.3	-85.1	85.1	2.00	2.00	
1,400.0	16.00	270.21	1,389.6	0.4	-111.0	111.0	2.00	2.00	
1,401.3	16.03	270.21	1,390.9	0.4	-111.3	111.3	2.00	2.00	EOB @ 16.03°
1,500.0	16.03	270.21	1,485.8	0.5	-138.6	138.6	0.00	0.00	
1,600.0	16.03	270.21	1,581.9	0.6	-166.2	166.2	0.00	0.00	
1,700.0	16.03	270.21	1,678.0	0.7	-193.8	193.8	0.00	0.00	
1,800.0	16.03	270.21	1,774.1	0.8	-221.4	221.4	0.00	0.00	
1,900.0	16.03	270.21	1,870.2	0.9	-249.0	249.0	0.00	0.00	
2,000.0	16.03	270.21	1,966.3	1.0	-276.6	276.6	0.00	0.00	
2,100.0	16.03	270.21	2,062.4	1.1	-304.2	304.2	0.00	0.00	
2,200.0	16.03	270.21	2,158.6	1.2	-331.8	331.8	0.00	0.00	
2,300.0	16.03	270.21	2,254.7	1.3	-359.4	359.4	0.00	0.00	
2,400.0	16.03	270.21	2,350.8	1.4	-387.0	387.0	0.00	0.00	
2,500.0	16.03	270.21	2,446.9	1.5	-414.6	414.6	0.00	0.00	
2,600.0	16.03	270.21	2,543.0	1.6	-442.2	442.2	0.00	0.00	
2,700.0	16.03	270.21	2,639.1	1.7	-469.9	469.9	0.00	0.00	
2,800.0	16.03	270.21	2,735.2	1.8	-497.5	497.5	0.00	0.00	
2,900.0	16.03	270.21	2,831.4	1.9	-525.1	525.1	0.00	0.00	
3,000.0	16.03	270.21	2,927.5	2.1	-552.7	552.7	0.00	0.00	
3,100.0	16.03	270.21	3,023.6	2.2	-580.3	580.3	0.00	0.00	
3,200.0	16.03	270.21	3,119.7	2.3	-607.9	607.9	0.00	0.00	
3,300.0	16.03	270.21	3,215.8	2.4	-635.5	635.5	0.00	0.00	
3,400.0	16.03	270.21	3,311.9	2.5	-663.1	663.1	0.00	0.00	
3,500.0	16.03	270.21	3,408.0	2.6	-690.7	690.7	0.00	0.00	
3,600.0	16.03	270.21	3,504.2	2.7	-718.3	718.3	0.00	0.00	
3,700.0	16.03	270.21	3,600.3	2.8	-745.9	745.9	0.00	0.00	
3,800.0	16.03	270.21	3,696.4	2.9	-773.5	773.5	0.00	0.00	
3,900.0	16.03	270.21	3,792.5	3.0	-801.1	801.1	0.00	0.00	
4,000.0	16.03	270.21	3,888.6	3.1	-828.7	828.7	0.00	0.00	
4,100.0	16.03	270.21	3,984.7	3.2	-856.3	856.3	0.00	0.00	
4,200.0	16.03	270.21	4,080.8	3.3	-883.9	883.9	0.00	0.00	
4,300.0	16.03	270.21	4,176.9	3.4	-911.5	911.6	0.00	0.00	
4,400.0	16.03	270.21	4,273.1	3.5	-939.2	939.2	0.00	0.00	
4,500.0	16.03	270.21	4,369.2	3.6	-966.8	966.8	0.00	0.00	
4,600.0	16.03	270.21	4,465.3	3.7	-994.4	994.4	0.00	0.00	
4,700.0	16.03	270.21	4,561.4	3.8	-1,022.0	1,022.0	0.00	0.00	
4,800.0	16.03	270.21	4,657.5	3.9	-1,049.6	1,049.6	0.00	0.00	
4,900.0	16.03	270.21	4,753.6	4.0	-1,077.2	1,077.2	0.00	0.00	
5,000.0	16.03	270.21	4,849.7	4.1	-1,104.8	1,104.8	0.00	0.00	

Cathedral Energy

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Antelope 31-31
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Antelope 41-31 Pad	North Reference:	Grid
Well:	Antelope 31-31	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	16.03	270.21	4,945.9	4.2	-1,132.4	1,132.4	0.00	0.00	
5,200.0	16.03	270.21	5,042.0	4.3	-1,160.0	1,160.0	0.00	0.00	
5,300.0	16.03	270.21	5,138.1	4.4	-1,187.6	1,187.6	0.00	0.00	
5,380.2	16.03	270.21	5,215.1	4.5	-1,209.7	1,209.7	0.00	0.00	Start Drop -2.00
5,400.0	15.63	270.21	5,234.2	4.5	-1,215.1	1,215.2	2.00	-2.00	
5,500.0	13.63	270.21	5,331.0	4.6	-1,240.4	1,240.4	2.00	-2.00	
5,600.0	11.63	270.21	5,428.6	4.7	-1,262.3	1,262.3	2.00	-2.00	
5,700.0	9.63	270.21	5,526.8	4.8	-1,280.7	1,280.7	2.00	-2.00	
5,800.0	7.63	270.21	5,625.7	4.8	-1,295.7	1,295.7	2.00	-2.00	
5,900.0	5.63	270.21	5,725.0	4.9	-1,307.2	1,307.3	2.00	-2.00	
6,000.0	3.63	270.21	5,824.7	4.9	-1,315.3	1,315.3	2.00	-2.00	
6,100.0	1.63	270.21	5,924.6	4.9	-1,319.9	1,319.9	2.00	-2.00	
6,181.4	0.00	0.00	6,006.0	4.9	-1,321.1	1,321.1	2.00	-2.00	EOD; Target #1 - Antelope 31-31 TGT
6,200.0	0.00	0.00	6,024.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,300.0	0.00	0.00	6,124.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,391.4	0.00	0.00	6,216.0	4.9	-1,321.1	1,321.1	0.00	0.00	Niobrara
6,400.0	0.00	0.00	6,224.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,500.0	0.00	0.00	6,324.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,600.0	0.00	0.00	6,424.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,700.0	0.00	0.00	6,524.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,800.0	0.00	0.00	6,624.6	4.9	-1,321.1	1,321.1	0.00	0.00	
6,881.4	0.00	0.00	6,706.0	4.9	-1,321.1	1,321.1	0.00	0.00	TD at 6881.4 - Antelope 31-31 PBHL

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 31-31 PBHL	0.00	0.00	6,706.0	4.9	-1,321.1	1,376,601.74	3,316,551.02	40.361600	-104.364050
- plan hits target center									
- Circle (radius 50.0)									
Antelope 31-31 TGT	0.00	0.00	6,006.0	4.9	-1,321.1	1,376,601.74	3,316,551.02	40.361600	-104.364050
- plan hits target center									
- Point									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,391.4	6,216.0	Niobrara		0.00		

Cathedral Energy

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Antelope 31-31
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	WELL @ 4616.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	WELL @ 4616.0ft (Original Well Elev)
Site:	Antelope 41-31 Pad	North Reference:	Grid
Well:	Antelope 31-31	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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'
1,401.3	1,390.9	0.4	-111.3	EOB @ 16.03°
5,380.2	5,215.1	4.5	-1,209.7	Start Drop -2.00
6,181.4	6,006.0	4.9	-1,321.1	EOD; Target #1
6,881.4	6,706.0	4.9	-1,321.1	TD at 6881.4