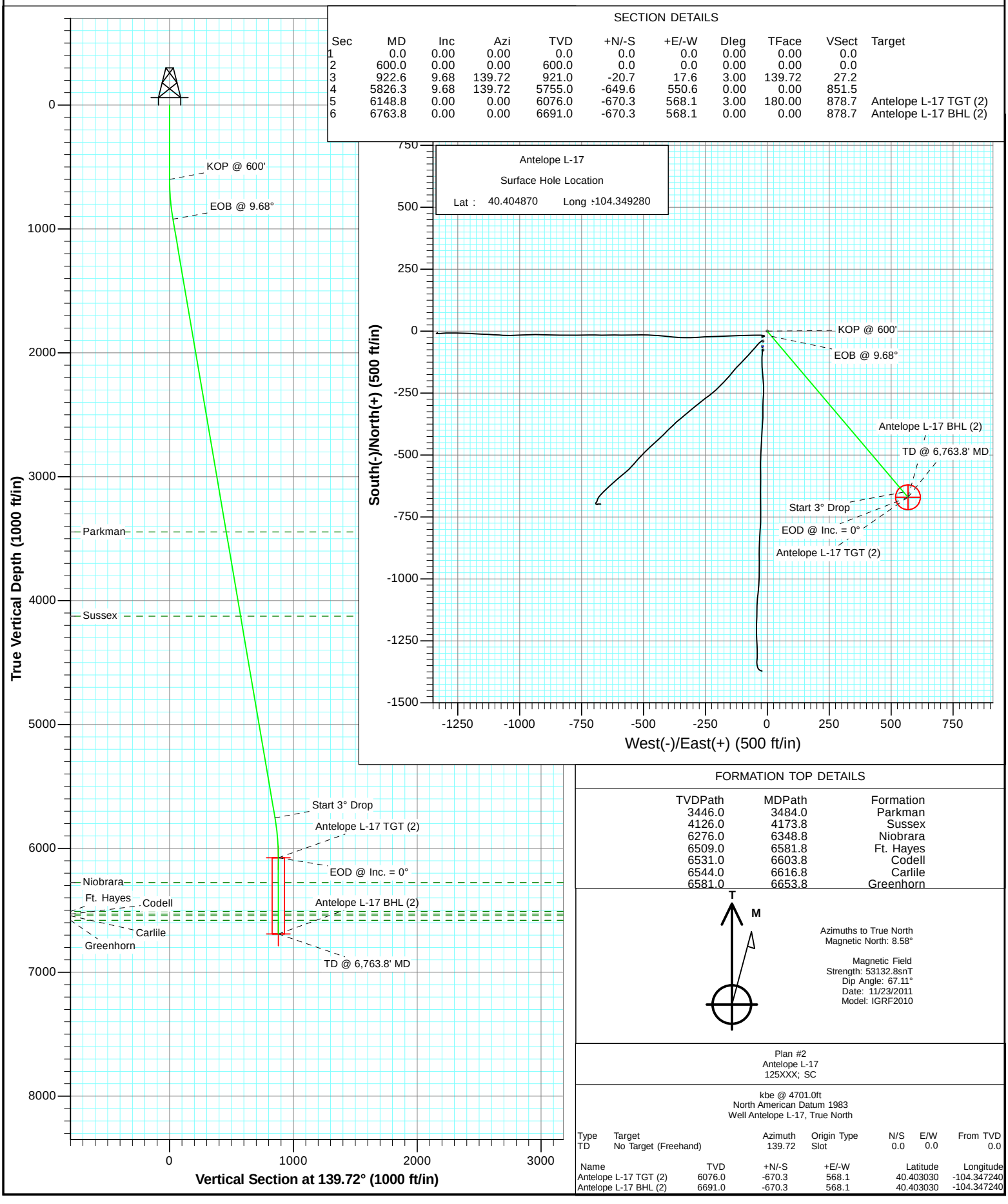
BONANZA CREEK ENERGY COMPANY

Project: Weld County
Site: Antelope 21-17 Pad
Well: Antelope L-17
Wellbore: OH
Plan: Plan #2

CATHEDRAL

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DIeg	TFace	VSect	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	922.6	9.68	139.72	921.0	-20.7	17.6	3.00	139.72	27.2	
4	5826.3	9.68	139.72	5755.0	-649.6	550.6	0.00	0.00	851.5	
5	6148.8	0.00	0.00	6076.0	-670.3	568.1	3.00	180.00	878.7	Antelope L-17 TGT (2)
6	6763.8	0.00	0.00	6691.0	-670.3	568.1	0.00	0.00	878.7	Antelope L-17 BHL (2)



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3446.0	3484.0	Parkman
4126.0	4173.8	Sussex
6276.0	6348.8	Niobrara
6509.0	6581.8	Ft. Hayes
6531.0	6603.8	Codell
6544.0	6616.8	Carlile
6581.0	6653.8	Greenhorn

Azimuths to True North
Magnetic North: 8.58°

Magnetic Field
Strength: 53132.8snT
Dip Angle: 67.11°
Date: 11/23/2011
Model: IGRF2010

Plan #2
Antelope L-17
125XXX; SC

kbe @ 4701.0ft
North American Datum 1983
Well Antelope L-17, True North

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
TD	No Target (Freehand)	139.72	Slot	0.0	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Antelope L-17 TGT (2)	6076.0	-670.3	568.1	40.403030	-104.347240
Antelope L-17 BHL (2)	6691.0	-670.3	568.1	40.403030	-104.347240

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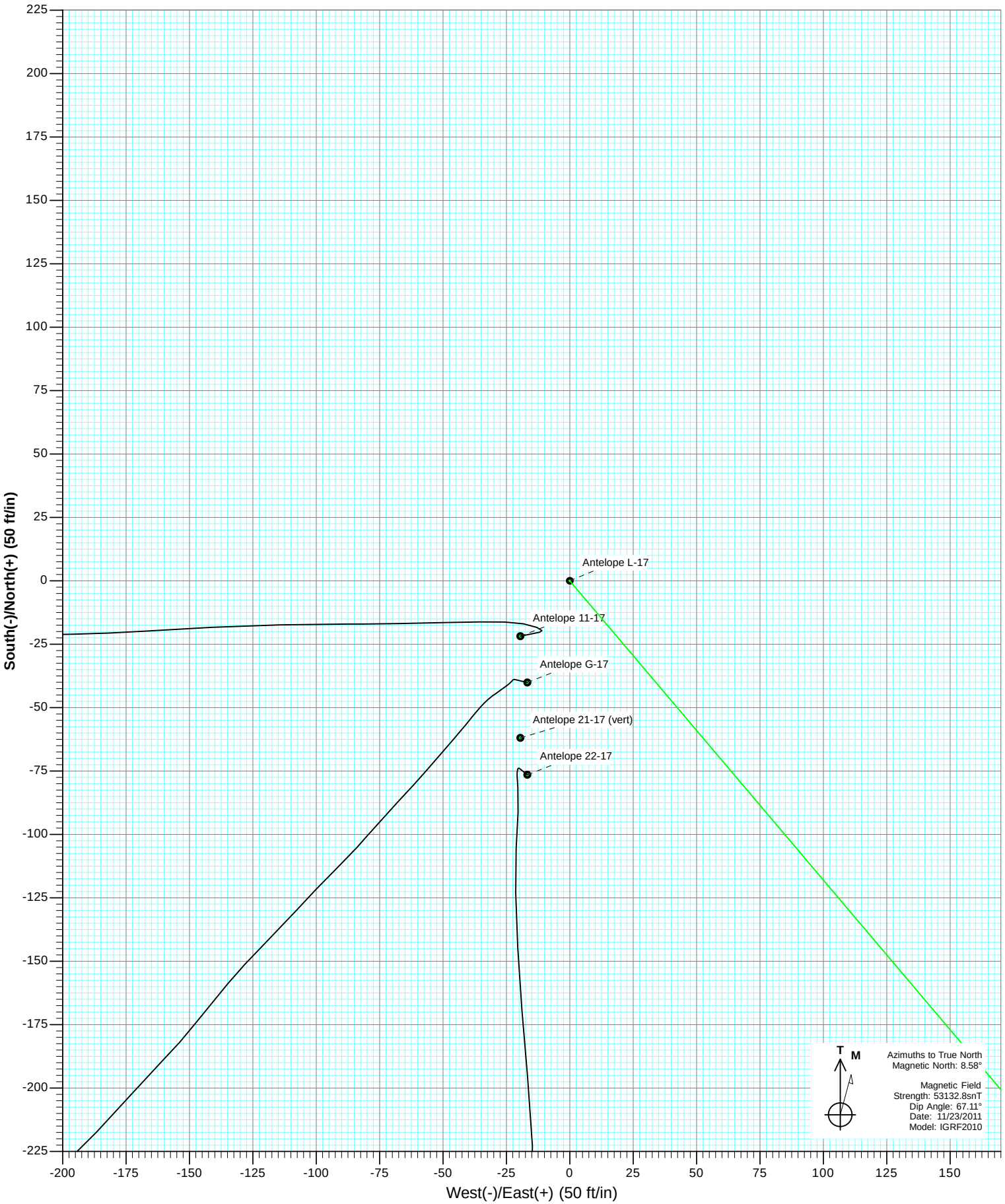

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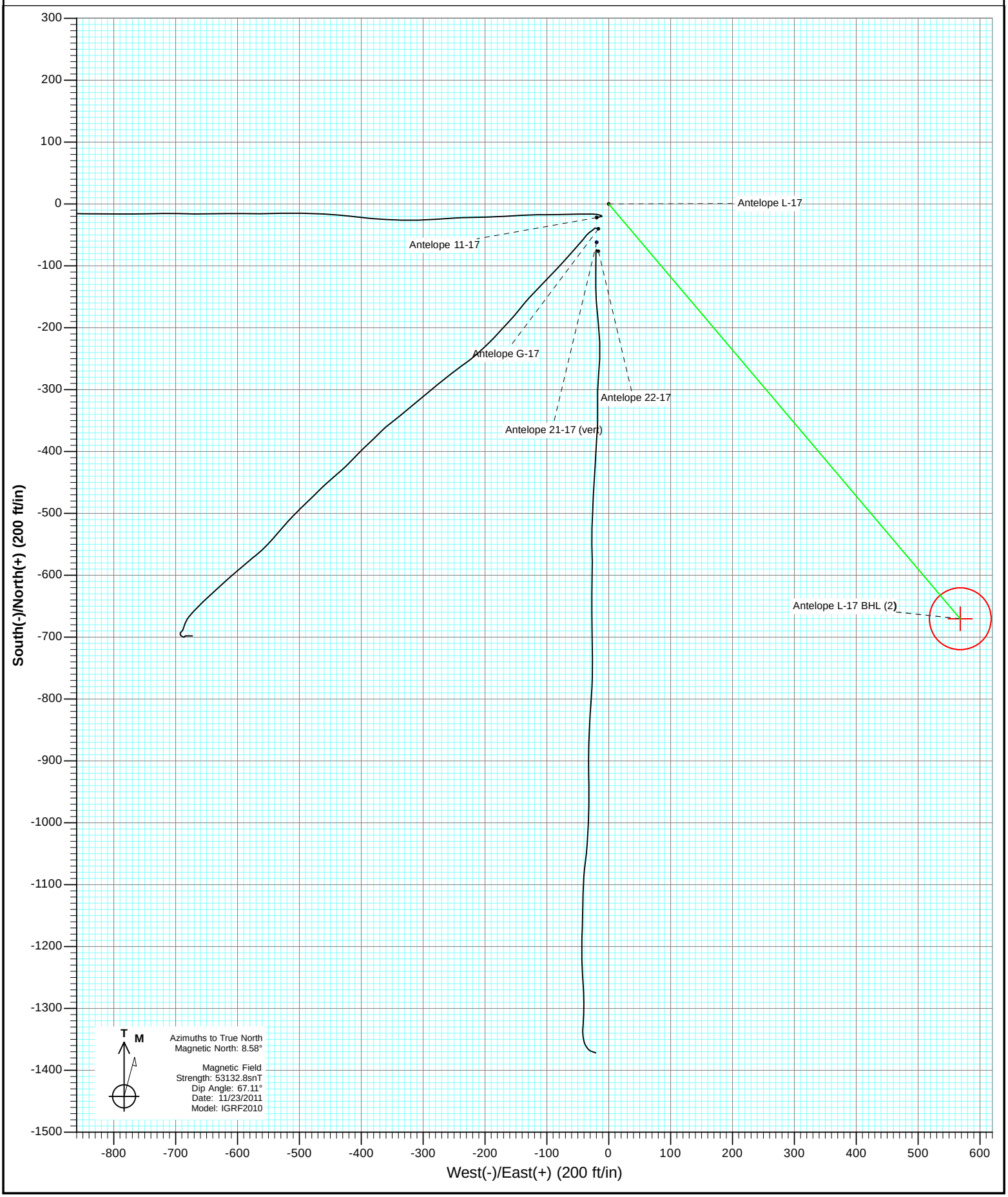

BONANZA CREEK ENERGY COMPANY

Project: Weld County
Site: Antelope 21-17 Pad
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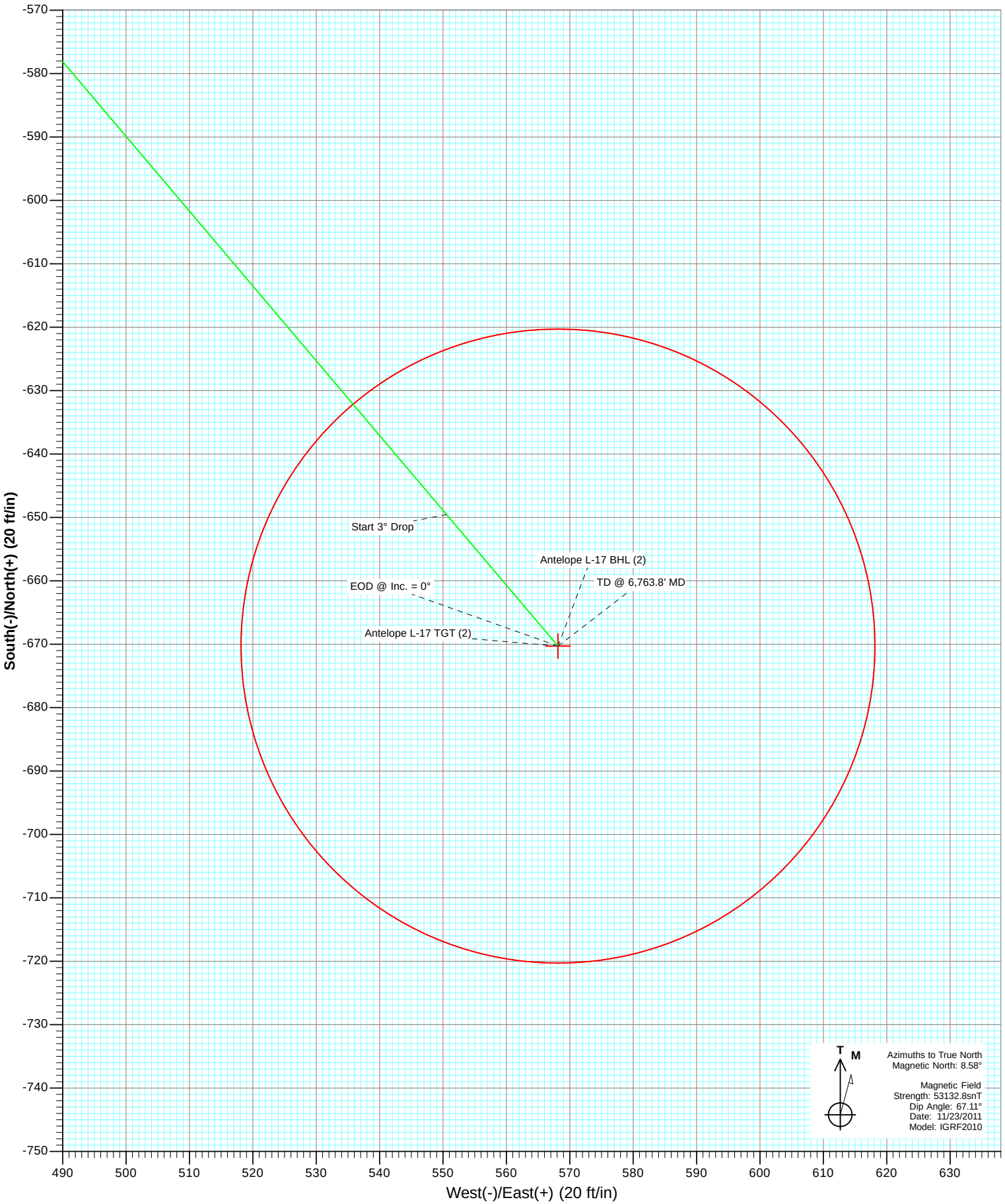

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Antelope L-17
Company:	Bonanza Creek Energy Operating Company, LLC	**TVD Reference:**	kbe @ 4701.0ft
Project:	Weld County	**MD Reference:**	kbe @ 4701.0ft
Site:	Antelope 21-17 Pad	**North Reference:**	True
Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

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 21-17 Pad

Site Position:		**Northing:**	1,392,394.47 ft	**Latitude:**	40.404810
From:	Lat/Long	**Easting:**	3,320,442.85 ft	**Longitude:**	-104.349350
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.74 °

Well Antelope L-17

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,392,416.57 ft	**Latitude:**	40.404870
	+E/-W	0.0 ft	**Easting:**	3,320,462.06 ft	**Longitude:**	-104.349280
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,691.0 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/23/2011	8.58	67.11	53,133

Design Plan #2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	139.72

Plan Sections

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	
922.6	9.68	139.72	921.0	-20.7	17.6	3.00	3.00	0.00	139.72	
5,826.3	9.68	139.72	5,755.0	-649.6	550.6	0.00	0.00	0.00	0.00	
6,148.8	0.00	0.00	6,076.0	-670.3	568.1	3.00	-3.00	0.00	180.00	Antelope L-17 TGT (2
6,763.8	0.00	0.00	6,691.0	-670.3	568.1	0.00	0.00	0.00	0.00	Antelope L-17 BHL (2

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Antelope L-17
Company:	Bonanza Creek Energy Operating Company, LLC	**TVD Reference:**	kbe @ 4701.0ft
Project:	Weld County	**MD Reference:**	kbe @ 4701.0ft
Site:	Antelope 21-17 Pad	**North Reference:**	True
Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	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	3.00	139.72	700.0	-2.0	1.7	2.6	3.00	3.00	
800.0	6.00	139.72	799.6	-8.0	6.8	10.5	3.00	3.00	
900.0	9.00	139.72	898.8	-17.9	15.2	23.5	3.00	3.00	
922.6	9.68	139.72	921.0	-20.7	17.6	27.2	3.00	3.00	EOB @ 9.68°
1,000.0	9.68	139.72	997.4	-30.7	26.0	40.2	0.00	0.00	
1,100.0	9.68	139.72	1,095.9	-43.5	36.9	57.0	0.00	0.00	
1,200.0	9.68	139.72	1,194.5	-56.3	47.7	73.8	0.00	0.00	
1,300.0	9.68	139.72	1,293.1	-69.1	58.6	90.6	0.00	0.00	
1,400.0	9.68	139.72	1,391.7	-82.0	69.5	107.4	0.00	0.00	
1,500.0	9.68	139.72	1,490.3	-94.8	80.3	124.2	0.00	0.00	
1,600.0	9.68	139.72	1,588.8	-107.6	91.2	141.1	0.00	0.00	
1,700.0	9.68	139.72	1,687.4	-120.4	102.1	157.9	0.00	0.00	
1,800.0	9.68	139.72	1,786.0	-133.2	112.9	174.7	0.00	0.00	
1,900.0	9.68	139.72	1,884.6	-146.1	123.8	191.5	0.00	0.00	
2,000.0	9.68	139.72	1,983.1	-158.9	134.7	208.3	0.00	0.00	
2,100.0	9.68	139.72	2,081.7	-171.7	145.5	225.1	0.00	0.00	
2,200.0	9.68	139.72	2,180.3	-184.5	156.4	241.9	0.00	0.00	
2,300.0	9.68	139.72	2,278.9	-197.4	167.3	258.7	0.00	0.00	
2,400.0	9.68	139.72	2,377.4	-210.2	178.2	275.5	0.00	0.00	
2,500.0	9.68	139.72	2,476.0	-223.0	189.0	292.3	0.00	0.00	
2,600.0	9.68	139.72	2,574.6	-235.8	199.9	309.2	0.00	0.00	
2,700.0	9.68	139.72	2,673.2	-248.7	210.8	326.0	0.00	0.00	
2,800.0	9.68	139.72	2,771.8	-261.5	221.6	342.8	0.00	0.00	
2,900.0	9.68	139.72	2,870.3	-274.3	232.5	359.6	0.00	0.00	
3,000.0	9.68	139.72	2,968.9	-287.1	243.4	376.4	0.00	0.00	
3,100.0	9.68	139.72	3,067.5	-300.0	254.2	393.2	0.00	0.00	
3,200.0	9.68	139.72	3,166.1	-312.8	265.1	410.0	0.00	0.00	
3,300.0	9.68	139.72	3,264.6	-325.6	276.0	426.8	0.00	0.00	
3,400.0	9.68	139.72	3,363.2	-338.4	286.8	443.6	0.00	0.00	
3,484.0	9.68	139.72	3,446.0	-349.2	296.0	457.8	0.00	0.00	Parkman
3,500.0	9.68	139.72	3,461.8	-351.2	297.7	460.4	0.00	0.00	
3,600.0	9.68	139.72	3,560.4	-364.1	308.6	477.3	0.00	0.00	
3,700.0	9.68	139.72	3,658.9	-376.9	319.5	494.1	0.00	0.00	
3,800.0	9.68	139.72	3,757.5	-389.7	330.3	510.9	0.00	0.00	
3,900.0	9.68	139.72	3,856.1	-402.5	341.2	527.7	0.00	0.00	
4,000.0	9.68	139.72	3,954.7	-415.4	352.1	544.5	0.00	0.00	
4,100.0	9.68	139.72	4,053.3	-428.2	362.9	561.3	0.00	0.00	
4,173.8	9.68	139.72	4,126.0	-437.7	371.0	573.7	0.00	0.00	Sussex
4,200.0	9.68	139.72	4,151.8	-441.0	373.8	578.1	0.00	0.00	
4,300.0	9.68	139.72	4,250.4	-453.8	384.7	594.9	0.00	0.00	
4,400.0	9.68	139.72	4,349.0	-466.7	395.5	611.7	0.00	0.00	
4,500.0	9.68	139.72	4,447.6	-479.5	406.4	628.5	0.00	0.00	
4,600.0	9.68	139.72	4,546.1	-492.3	417.3	645.4	0.00	0.00	
4,700.0	9.68	139.72	4,644.7	-505.1	428.1	662.2	0.00	0.00	
4,800.0	9.68	139.72	4,743.3	-518.0	439.0	679.0	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Antelope L-17
Company:	Bonanza Creek Energy Operating Company, LLC	**TVD Reference:**	kbe @ 4701.0ft
Project:	Weld County	**MD Reference:**	kbe @ 4701.0ft
Site:	Antelope 21-17 Pad	**North Reference:**	True
Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	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
4,900.0	9.68	139.72	4,841.9	-530.8	449.9	695.8	0.00	0.00	
5,000.0	9.68	139.72	4,940.4	-543.6	460.8	712.6	0.00	0.00	
5,100.0	9.68	139.72	5,039.0	-556.4	471.6	729.4	0.00	0.00	
5,200.0	9.68	139.72	5,137.6	-569.2	482.5	746.2	0.00	0.00	
5,300.0	9.68	139.72	5,236.2	-582.1	493.4	763.0	0.00	0.00	
5,400.0	9.68	139.72	5,334.8	-594.9	504.2	779.8	0.00	0.00	
5,500.0	9.68	139.72	5,433.3	-607.7	515.1	796.6	0.00	0.00	
5,600.0	9.68	139.72	5,531.9	-620.5	526.0	813.5	0.00	0.00	
5,700.0	9.68	139.72	5,630.5	-633.4	536.8	830.3	0.00	0.00	
5,800.0	9.68	139.72	5,729.1	-646.2	547.7	847.1	0.00	0.00	
5,826.3	9.68	139.72	5,755.0	-649.6	550.6	851.5	0.00	0.00	Start 3° Drop
5,900.0	7.47	139.72	5,827.9	-657.9	557.7	862.5	3.00	-3.00	
6,000.0	4.47	139.72	5,927.3	-665.9	564.4	872.9	3.00	-3.00	
6,100.0	1.47	139.72	6,027.2	-669.8	567.7	878.0	3.00	-3.00	
6,148.8	0.00	0.00	6,076.0	-670.3	568.1	878.7	3.00	-3.00	EOD @ Inc. = 0°
6,200.0	0.00	0.00	6,127.2	-670.3	568.1	878.7	0.00	0.00	
6,300.0	0.00	0.00	6,227.2	-670.3	568.1	878.7	0.00	0.00	
6,348.8	0.00	0.00	6,276.0	-670.3	568.1	878.7	0.00	0.00	Niobrara
6,400.0	0.00	0.00	6,327.2	-670.3	568.1	878.7	0.00	0.00	
6,500.0	0.00	0.00	6,427.2	-670.3	568.1	878.7	0.00	0.00	
6,581.8	0.00	0.00	6,509.0	-670.3	568.1	878.7	0.00	0.00	Ft. Hayes
6,600.0	0.00	0.00	6,527.2	-670.3	568.1	878.7	0.00	0.00	
6,603.8	0.00	0.00	6,531.0	-670.3	568.1	878.7	0.00	0.00	Codell
6,616.8	0.00	0.00	6,544.0	-670.3	568.1	878.7	0.00	0.00	Carlile
6,653.8	0.00	0.00	6,581.0	-670.3	568.1	878.7	0.00	0.00	Greenhorn
6,700.0	0.00	0.00	6,627.2	-670.3	568.1	878.7	0.00	0.00	
6,763.8	0.00	0.00	6,691.0	-670.3	568.1	878.7	0.00	0.00	TD @ 6,763.8' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Antelope L-17 BHL (2) - plan hits target center - Circle (radius 50.0)	0.00	0.00	6,691.0	-670.3	568.1	1,391,753.71	3,321,038.85	40.403030	-104.347240
Antelope L-17 TGT (2) - plan hits target center - Point	0.00	0.00	6,076.0	-670.3	568.1	1,391,753.71	3,321,038.85	40.403030	-104.347240

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well Antelope L-17
Company:	Bonanza Creek Energy Operating Company, LLC	**TVD Reference:**	kbe @ 4701.0ft
Project:	Weld County	**MD Reference:**	kbe @ 4701.0ft
Site:	Antelope 21-17 Pad	**North Reference:**	True
Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,484.0	3,446.0	Parkman			
4,173.8	4,126.0	Sussex			
6,348.8	6,276.0	Niobrara			
6,581.8	6,509.0	Ft. Hayes			
6,603.8	6,531.0	Codell			
6,616.8	6,544.0	Carlile			
6,653.8	6,581.0	Greenhorn			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
600.0	600.0	0.0	0.0	KOP @ 600'
922.6	921.0	-20.7	17.6	EOB @ 9.68°
5,826.3	5,755.0	-649.6	550.6	Start 3° Drop
6,148.8	6,076.0	-670.3	568.1	EOD @ Inc. = 0°
6,763.8	6,691.0	-670.3	568.1	TD @ 6,763.8' MD

Bonanza Creek Energy Operating Company, LLC

Weld County
Antelope 21-17 Pad
Antelope L-17
OH
Plan #2

Anticollision Report

29 November, 2011

Company:	Bonanza Creek Energy Operating Company, LLC	**Local Co-ordinate Reference:**	Well Antelope L-17
Project:	Weld County	**TVD Reference:**	kbe @ 4701.0ft
Reference Site:	Antelope 21-17 Pad	**MD Reference:**	kbe @ 4701.0ft
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Plan #2

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** 11/29/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	6,763.8	Plan #2 (OH)	MWD	Geolink MWD

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Antelope 21-17 Pad						
Antelope 11-17 - DD - DD	0.0	0.0	29.3			
Antelope 11-17 - DD - DD	593.0	592.1	22.3	22.3	10,000.000	CC, ES
Antelope 21-17 (vert) - VH - Plan #1	0.0	0.0	64.9			
Antelope 21-17 (vert) - VH - Plan #1	969.3	966.2	54.9	54.9	10,000.000	CC, ES
Antelope 22-17 - DD - DD	0.0	0.0	78.3			
Antelope 22-17 - DD - DD	481.7	480.7	76.5	76.5	10,000.000	CC, ES
Antelope G-17 - DD - DD	0.0	0.0	43.4			

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	**Local Co-ordinate Reference:**	Well Antelope L-17
Project:	Weld County	**TVD Reference:**	kbe @ 4701.0ft
Reference Site:	Antelope 21-17 Pad	**MD Reference:**	kbe @ 4701.0ft
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design Antelope 21-17 Pad - Antelope 11-17 - DD - DD

Offset Site Error: 0.0 ft

Survey Program: 498-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-138.26	-21.8	-19.5	29.3				
100.0	100.0	99.1	99.1	0.2	0.2	-138.62	-21.8	-19.2	29.0	29.0	0.00	N/A	
200.0	200.0	199.3	199.3	0.3	0.4	-139.77	-21.6	-18.3	28.3	28.3	0.00	N/A	
300.0	300.0	299.4	299.4	0.5	0.5	-141.81	-21.3	-16.7	27.1	27.1	0.00	N/A	
400.0	400.0	399.5	399.5	0.7	0.7	-145.01	-20.8	-14.6	25.4	25.4	0.00	N/A	
500.0	500.0	499.6	499.5	0.9	0.9	-149.76	-20.2	-11.8	23.4	23.4	0.00	N/A	
593.0	593.0	592.1	592.0	1.0	1.0	-148.86	-19.1	-11.5	22.3	22.3	0.00	N/A	CC, ES
600.0	600.0	599.0	598.9	1.0	1.1	-148.12	-18.9	-11.8	22.3	22.3	0.00	N/A	
700.0	700.0	697.3	696.8	1.2	1.2	95.40	-16.7	-19.6	25.9	25.9	0.00	N/A	
800.0	799.6	793.3	791.9	1.4	1.4	117.61	-16.2	-32.9	41.0	41.0	0.00	N/A	
900.0	898.8	885.7	882.5	1.6	1.6	129.55	-16.5	-51.0	68.0	68.0	0.00	N/A	
1,000.0	997.4	975.0	969.0	1.9	2.0	135.94	-16.9	-73.2	103.8	103.8	0.00	N/A	
1,100.0	1,095.9	1,064.5	1,054.9	2.2	2.4	139.08	-17.1	-98.2	143.3	143.3	0.00	N/A	
1,200.0	1,194.5	1,155.8	1,142.4	2.5	2.8	140.78	-17.6	-124.2	183.5	183.5	0.00	N/A	
1,300.0	1,293.1	1,247.2	1,229.9	2.8	3.3	141.66	-18.8	-150.7	224.1	224.1	0.00	N/A	
1,400.0	1,391.7	1,337.9	1,316.8	3.2	3.7	142.21	-20.4	-176.6	264.2	264.2	0.00	N/A	
1,500.0	1,490.3	1,422.6	1,397.5	3.5	4.2	142.64	-21.2	-202.3	306.1	306.1	0.00	N/A	
1,600.0	1,588.8	1,514.8	1,485.2	3.8	4.7	143.01	-21.8	-230.8	348.7	348.7	0.00	N/A	
1,700.0	1,687.4	1,609.5	1,575.4	4.1	5.2	143.20	-23.4	-259.3	390.2	390.2	0.00	N/A	
1,800.0	1,786.0	1,699.6	1,661.4	4.5	5.7	143.34	-24.9	-286.4	431.8	431.8	0.00	N/A	
1,900.0	1,884.6	1,799.7	1,757.2	4.8	6.3	143.55	-26.4	-315.2	472.3	472.3	0.00	N/A	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	**Local Co-ordinate Reference:**	Well Antelope L-17
Project:	Weld County	**TVD Reference:**	kbe @ 4701.0ft
Reference Site:	Antelope 21-17 Pad	**MD Reference:**	kbe @ 4701.0ft
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design Antelope 21-17 Pad - Antelope 21-17 (vert) - VH - Plan #1

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-162.53	-61.9	-19.5	64.9				
100.0	100.0	99.0	99.0	0.2	0.2	-162.53	-61.9	-19.5	64.9	64.9	0.00	N/A	
200.0	200.0	199.0	199.0	0.3	0.3	-162.53	-61.9	-19.5	64.9	64.9	0.00	N/A	
300.0	300.0	299.0	299.0	0.5	0.5	-162.53	-61.9	-19.5	64.9	64.9	0.00	N/A	
400.0	400.0	399.0	399.0	0.7	0.7	-162.53	-61.9	-19.5	64.9	64.9	0.00	N/A	
500.0	500.0	499.0	499.0	0.9	0.9	-162.53	-61.9	-19.5	64.9	64.9	0.00	N/A	
600.0	600.0	599.0	599.0	1.0	1.0	-162.53	-61.9	-19.5	64.9	64.9	0.00	N/A	
700.0	700.0	699.0	699.0	1.2	1.2	59.79	-61.9	-19.5	63.6	63.6	0.00	N/A	
800.0	799.6	798.6	798.6	1.4	1.4	66.36	-61.9	-19.5	60.0	60.0	0.00	N/A	
900.0	898.8	897.8	897.8	1.6	1.5	78.69	-61.9	-19.5	56.0	56.0	0.00	N/A	
969.3	967.2	966.2	966.2	1.8	1.7	90.00	-61.9	-19.5	54.9	54.9	0.00	N/A	CC, ES
1,000.0	997.4	996.4	996.4	1.9	1.7	95.70	-61.9	-19.5	55.2	55.2	0.00	N/A	
1,100.0	1,095.9	1,094.9	1,094.9	2.2	1.9	111.88	-61.9	-19.5	59.3	59.3	0.00	N/A	
1,200.0	1,194.5	1,193.5	1,193.5	2.5	2.1	125.12	-61.9	-19.5	67.5	67.5	0.00	N/A	
1,300.0	1,293.1	1,292.1	1,292.1	2.8	2.2	135.14	-61.9	-19.5	78.4	78.4	0.00	N/A	
1,400.0	1,391.7	1,390.7	1,390.7	3.2	2.4	142.58	-61.9	-19.5	91.2	91.2	0.00	N/A	
1,500.0	1,490.3	1,489.3	1,489.3	3.5	2.6	148.13	-61.9	-19.5	105.1	105.1	0.00	N/A	
1,600.0	1,588.8	1,587.8	1,587.8	3.8	2.8	152.37	-61.9	-19.5	119.7	119.7	0.00	N/A	
1,700.0	1,687.4	1,686.4	1,686.4	4.1	2.9	155.67	-61.9	-19.5	134.9	134.9	0.00	N/A	
1,800.0	1,786.0	1,785.0	1,785.0	4.5	3.1	158.31	-61.9	-19.5	150.4	150.4	0.00	N/A	
1,900.0	1,884.6	1,883.6	1,883.6	4.8	3.3	160.45	-61.9	-19.5	166.2	166.2	0.00	N/A	
2,000.0	1,983.1	1,982.1	1,982.1	5.1	3.4	162.22	-61.9	-19.5	182.1	182.1	0.00	N/A	
2,100.0	2,081.7	2,080.7	2,080.7	5.5	3.6	163.70	-61.9	-19.5	198.2	198.2	0.00	N/A	
2,200.0	2,180.3	2,179.3	2,179.3	5.8	3.8	164.96	-61.9	-19.5	214.4	214.4	0.00	N/A	
2,300.0	2,278.9	2,277.9	2,277.9	6.2	4.0	166.04	-61.9	-19.5	230.7	230.7	0.00	N/A	
2,400.0	2,377.4	2,376.4	2,376.4	6.5	4.1	166.98	-61.9	-19.5	247.1	247.1	0.00	N/A	
2,500.0	2,476.0	2,475.0	2,475.0	6.8	4.3	167.80	-61.9	-19.5	263.5	263.5	0.00	N/A	
2,600.0	2,574.6	2,573.6	2,573.6	7.2	4.5	168.53	-61.9	-19.5	280.0	280.0	0.00	N/A	
2,700.0	2,673.2	2,672.2	2,672.2	7.5	4.6	169.18	-61.9	-19.5	296.5	296.5	0.00	N/A	
2,800.0	2,771.8	2,770.8	2,770.8	7.8	4.8	169.75	-61.9	-19.5	313.0	313.0	0.00	N/A	
2,900.0	2,870.3	2,869.3	2,869.3	8.2	5.0	170.27	-61.9	-19.5	329.6	329.6	0.00	N/A	
3,000.0	2,968.9	2,967.9	2,967.9	8.5	5.2	170.74	-61.9	-19.5	346.1	346.1	0.00	N/A	
3,100.0	3,067.5	3,066.5	3,066.5	8.9	5.3	171.17	-61.9	-19.5	362.7	362.7	0.00	N/A	
3,200.0	3,166.1	3,165.1	3,165.1	9.2	5.5	171.56	-61.9	-19.5	379.4	379.4	0.00	N/A	
3,300.0	3,264.6	3,263.6	3,263.6	9.6	5.7	171.92	-61.9	-19.5	396.0	396.0	0.00	N/A	
3,400.0	3,363.2	3,362.2	3,362.2	9.9	5.9	172.24	-61.9	-19.5	412.7	412.7	0.00	N/A	
3,500.0	3,461.8	3,460.8	3,460.8	10.2	6.0	172.55	-61.9	-19.5	429.3	429.3	0.00	N/A	
3,600.0	3,560.4	3,559.4	3,559.4	10.6	6.2	172.83	-61.9	-19.5	446.0	446.0	0.00	N/A	
3,700.0	3,658.9	3,657.9	3,657.9	10.9	6.4	173.09	-61.9	-19.5	462.7	462.7	0.00	N/A	
3,800.0	3,757.5	3,756.5	3,756.5	11.3	6.5	173.33	-61.9	-19.5	479.4	479.4	0.00	N/A	
3,900.0	3,856.1	3,855.1	3,855.1	11.6	6.7	173.55	-61.9	-19.5	496.1	496.1	0.00	N/A	

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	**Local Co-ordinate Reference:**	Well Antelope L-17
Project:	Weld County	**TVD Reference:**	kbe @ 4701.0ft
Reference Site:	Antelope 21-17 Pad	**MD Reference:**	kbe @ 4701.0ft
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design Antelope 21-17 Pad - Antelope 22-17 - DD - DD

Offset Site Error: 0.0 ft

Survey Program: 467-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-167.68	-76.5	-16.7	78.3				
100.0	100.0	99.1	99.1	0.2	0.2	-167.56	-76.4	-16.9	78.2	78.2	0.00	N/A	
200.0	200.0	199.3	199.3	0.3	0.3	-167.19	-76.0	-17.3	78.0	78.0	0.00	N/A	
300.0	300.0	299.4	299.4	0.5	0.5	-166.57	-75.4	-18.0	77.6	77.6	0.00	N/A	
400.0	400.0	399.5	399.5	0.7	0.7	-165.69	-74.6	-19.0	77.0	77.0	0.00	N/A	
481.7	481.7	480.7	480.7	0.8	0.8	-164.80	-73.8	-20.1	76.5	76.5	0.00	N/A	CC, ES
500.0	500.0	498.3	498.3	0.9	0.9	-164.66	-73.9	-20.3	76.6	76.6	0.00	N/A	
600.0	600.0	594.4	594.3	1.0	1.0	-164.92	-77.1	-20.8	80.0	80.0	0.00	N/A	
700.0	700.0	690.8	690.4	1.2	1.2	54.91	-85.0	-20.3	86.3	86.3	0.00	N/A	
800.0	799.6	786.4	785.2	1.4	1.4	56.86	-96.9	-20.7	94.1	94.1	0.00	N/A	
900.0	898.8	882.0	879.5	1.6	1.7	60.24	-113.1	-21.4	103.6	103.6	0.00	N/A	
1,000.0	997.4	977.7	973.0	1.9	2.0	63.51	-132.8	-21.0	114.9	114.9	0.00	N/A	
1,100.0	1,095.9	1,072.6	1,065.1	2.2	2.4	65.21	-156.2	-19.8	129.6	129.6	0.00	N/A	
1,200.0	1,194.5	1,169.4	1,158.0	2.5	2.9	65.70	-183.1	-17.7	147.0	147.0	0.00	N/A	
1,300.0	1,293.1	1,266.1	1,250.7	2.8	3.3	65.96	-210.4	-15.5	164.9	164.9	0.00	N/A	
1,400.0	1,391.7	1,361.7	1,342.0	3.2	3.8	66.26	-238.8	-14.3	184.4	184.4	0.00	N/A	
1,500.0	1,490.3	1,460.3	1,436.4	3.5	4.3	67.33	-267.3	-15.9	204.5	204.5	0.00	N/A	
1,600.0	1,588.8	1,561.5	1,533.6	3.8	4.8	68.37	-295.4	-17.5	223.7	223.7	0.00	N/A	
1,700.0	1,687.4	1,666.6	1,635.1	4.1	5.3	69.27	-322.8	-18.1	240.8	240.8	0.00	N/A	
1,800.0	1,786.0	1,764.0	1,729.4	4.5	5.7	69.99	-346.8	-17.8	256.5	256.5	0.00	N/A	
1,900.0	1,884.6	1,857.3	1,819.6	4.8	6.2	70.74	-370.7	-18.8	273.7	273.7	0.00	N/A	
2,000.0	1,983.1	1,956.5	1,915.3	5.1	6.7	71.47	-396.9	-20.5	291.9	291.9	0.00	N/A	
2,100.0	2,081.7	2,056.0	2,011.4	5.5	7.1	72.14	-422.4	-22.0	309.4	309.4	0.00	N/A	
2,200.0	2,180.3	2,151.6	2,103.8	5.8	7.6	72.74	-447.2	-23.6	327.2	327.2	0.00	N/A	
2,300.0	2,278.9	2,248.6	2,197.2	6.2	8.1	73.13	-473.3	-24.9	345.8	345.8	0.00	N/A	
2,400.0	2,377.4	2,345.0	2,289.8	6.5	8.6	73.41	-499.9	-26.1	364.9	364.9	0.00	N/A	
2,500.0	2,476.0	2,441.2	2,382.1	6.8	9.1	73.58	-527.1	-27.1	384.5	384.5	0.00	N/A	
2,600.0	2,574.6	2,541.4	2,478.0	7.2	9.6	73.57	-556.0	-27.1	404.0	404.0	0.00	N/A	
2,700.0	2,673.2	2,639.2	2,571.7	7.5	10.1	73.50	-584.3	-26.7	423.2	423.2	0.00	N/A	
2,800.0	2,771.8	2,736.0	2,664.4	7.8	10.6	73.56	-611.9	-27.1	442.7	442.7	0.00	N/A	
2,900.0	2,870.3	2,833.6	2,757.8	8.2	11.2	73.55	-640.4	-27.3	462.5	462.5	0.00	N/A	
3,000.0	2,968.9	2,937.8	2,857.6	8.5	11.7	73.53	-670.3	-27.1	481.8	481.8	0.00	N/A	
3,100.0	3,067.5	3,042.0	2,957.9	8.9	12.2	73.62	-698.3	-26.7	499.4	499.4	0.00	N/A	

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	**Local Co-ordinate Reference:**	Well Antelope L-17
Project:	Weld County	**TVD Reference:**	kbe @ 4701.0ft
Reference Site:	Antelope 21-17 Pad	**MD Reference:**	kbe @ 4701.0ft
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design Antelope 21-17 Pad - Antelope G-17 - DD - DD

Offset Site Error: 0.0 ft

Survey Program: 467-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-157.36	-40.1	-16.7	43.4				
100.0	100.0	99.0	99.0	0.2	0.2	-157.07	-40.0	-16.9	43.4	43.4	0.00	N/A	
200.0	200.0	198.9	198.9	0.3	0.3	-156.21	-39.9	-17.6	43.6	43.6	0.00	N/A	
300.0	300.0	298.9	298.9	0.5	0.5	-154.77	-39.6	-18.7	43.8	43.8	0.00	N/A	
400.0	400.0	398.8	398.8	0.7	0.7	-152.79	-39.2	-20.2	44.1	44.1	0.00	N/A	
500.0	500.0	498.5	498.5	0.9	0.9	-150.40	-38.9	-22.1	44.7	44.7	0.00	N/A	
600.0	600.0	595.7	595.5	1.0	1.1	-148.78	-41.6	-25.2	48.7	48.7	0.00	N/A	
700.0	700.0	693.3	692.7	1.2	1.3	77.25	-47.2	-32.7	57.2	57.2	0.00	N/A	
800.0	799.6	790.0	788.6	1.4	1.5	83.88	-56.5	-40.8	68.7	68.7	0.00	N/A	
900.0	898.8	886.6	883.9	1.6	1.8	91.43	-68.4	-51.0	84.4	84.4	0.00	N/A	
1,000.0	997.4	982.6	978.5	1.9	2.1	98.77	-80.7	-61.9	102.7	102.7	0.00	N/A	
1,100.0	1,095.9	1,078.8	1,072.9	2.2	2.4	103.82	-94.4	-74.5	124.4	124.4	0.00	N/A	
1,200.0	1,194.5	1,173.3	1,165.5	2.5	2.8	107.17	-108.2	-86.8	146.9	146.9	0.00	N/A	
1,300.0	1,293.1	1,269.0	1,258.9	2.8	3.2	109.57	-123.2	-101.6	172.3	172.3	0.00	N/A	
1,400.0	1,391.7	1,365.6	1,353.3	3.2	3.5	111.33	-138.3	-115.6	197.0	197.0	0.00	N/A	
1,500.0	1,490.3	1,462.4	1,447.7	3.5	3.9	112.69	-153.5	-130.3	222.6	222.6	0.00	N/A	
1,600.0	1,588.8	1,561.9	1,544.9	3.8	4.3	113.53	-170.1	-144.2	247.3	247.3	0.00	N/A	
1,700.0	1,687.4	1,659.0	1,639.8	4.1	4.7	114.31	-185.6	-157.2	271.4	271.4	0.00	N/A	
1,800.0	1,786.0	1,755.6	1,734.4	4.5	5.1	115.21	-199.9	-170.7	295.7	295.7	0.00	N/A	
1,900.0	1,884.6	1,851.7	1,828.5	4.8	5.5	115.87	-214.7	-184.1	320.2	320.2	0.00	N/A	
2,000.0	1,983.1	1,947.1	1,921.8	5.1	5.9	116.57	-228.6	-197.9	345.1	345.1	0.00	N/A	
2,100.0	2,081.7	2,039.5	2,012.2	5.5	6.2	117.26	-241.6	-212.1	370.8	370.8	0.00	N/A	
2,200.0	2,180.3	2,132.4	2,102.9	5.8	6.6	117.98	-254.1	-227.5	397.5	397.5	0.00	N/A	
2,300.0	2,278.9	2,231.3	2,199.5	6.2	7.0	118.79	-266.6	-244.2	424.6	424.6	0.00	N/A	
2,400.0	2,377.4	2,327.4	2,293.5	6.5	7.4	119.46	-278.7	-260.0	451.2	451.2	0.00	N/A	
2,500.0	2,476.0	2,429.0	2,393.0	6.8	7.8	120.09	-291.5	-276.3	477.5	477.5	0.00	N/A	

Company:	Bonanza Creek Energy Operating Company, LLC	**Local Co-ordinate Reference:**	Well Antelope L-17
Project:	Weld County	**TVD Reference:**	kbe @ 4701.0ft
Reference Site:	Antelope 21-17 Pad	**MD Reference:**	kbe @ 4701.0ft
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Antelope L-17	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	OH	**Database:**	USA EDM 5000 Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to kbe @ 4701.0ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinates are relative to: Antelope L-17
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.74°