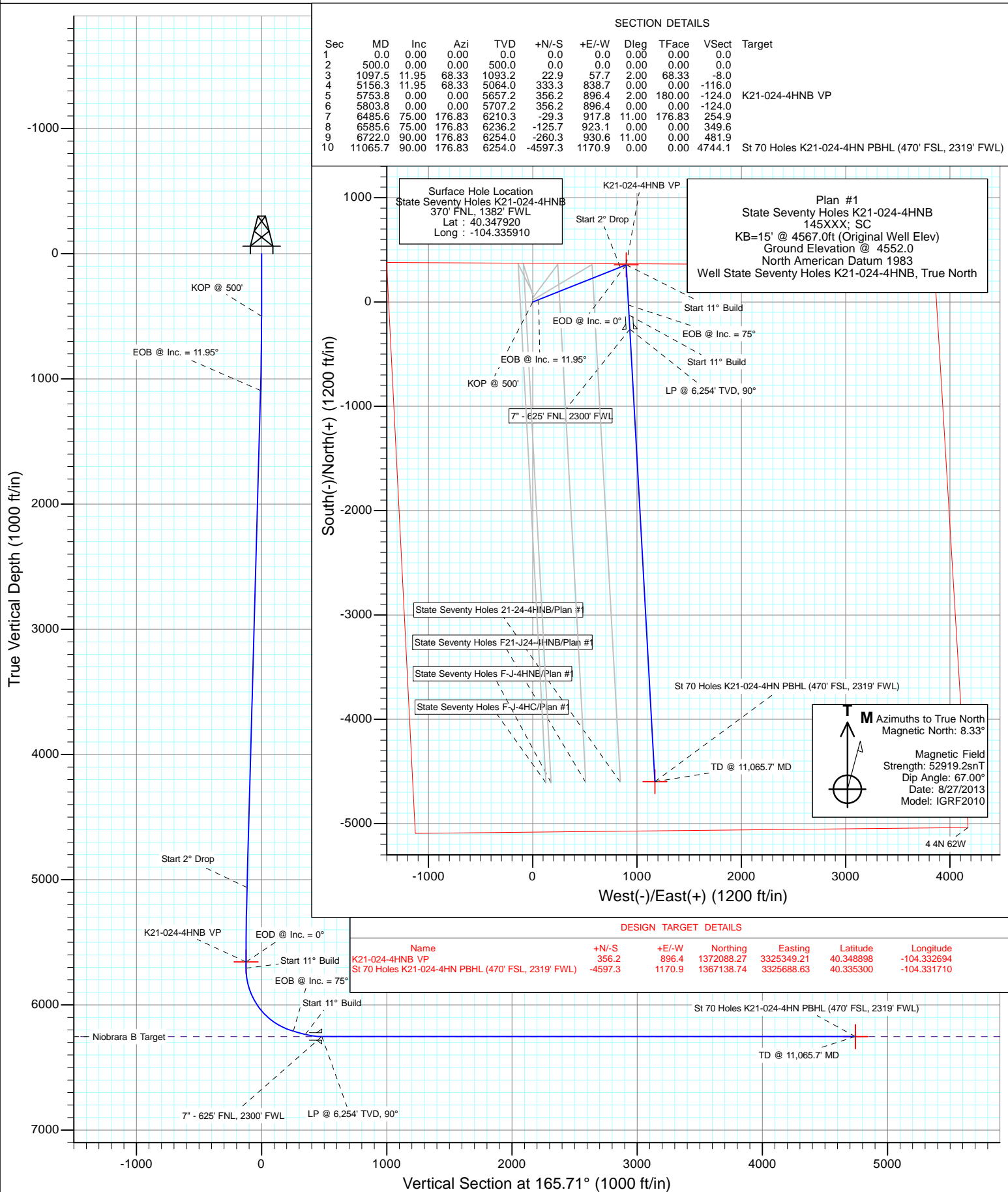




Project: Weld County
Site: State 70 Holes F-4 Pad
Well: State Seventy Holes K21-024-4HNB
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site:	State 70 Holes F-4 Pad	North Reference:	True
Well:	State Seventy Holes K21-024-4HNB	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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		State 70 Holes F-4 Pad			
Site Position:		Northing:	1,371,738.54 ft	Latitude:	40.347970
From:	Lat/Long	Easting:	3,324,457.27 ft	Longitude:	-104.335910
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.75 °

Well	State Seventy Holes K21-024-4HNB					
Well Position	+N/-S	0.0 ft	Northing:	1,371,720.31 ft	Latitude:	40.347920
	+E/-W	0.0 ft	Easting:	3,324,457.51 ft	Longitude:	-104.335910
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,552.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	8/27/2013	8.33	67.00	52,919

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	165.71

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,097.5	11.95	68.33	1,093.2	22.9	57.7	2.00	2.00	0.00	68.33	
5,156.3	11.95	68.33	5,064.0	333.3	838.7	0.00	0.00	0.00	0.00	
5,753.8	0.00	0.00	5,657.2	356.2	896.4	2.00	-2.00	0.00	180.00	K21-024-4HNB VP
5,803.8	0.00	0.00	5,707.2	356.2	896.4	0.00	0.00	0.00	0.00	
6,485.6	75.00	176.83	6,210.3	-29.3	917.8	11.00	11.00	0.00	176.83	
6,585.6	75.00	176.83	6,236.2	-125.7	923.1	0.00	0.00	0.00	0.00	
6,722.0	90.00	176.83	6,254.0	-260.3	930.6	11.00	11.00	0.00	0.00	
11,065.7	90.00	176.83	6,254.0	-4,597.3	1,170.9	0.00	0.00	0.00	0.00	St 70 Holes K21-024-

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site:	State 70 Holes F-4 Pad	North Reference:	True
Well:	State Seventy Holes K21-024-4HNB	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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	KOP @ 500'
600.0	2.00	68.33	600.0	0.6	1.6	-0.2	2.00	2.00	
700.0	4.00	68.33	699.8	2.6	6.5	-0.9	2.00	2.00	
800.0	6.00	68.33	799.5	5.8	14.6	-2.0	2.00	2.00	
900.0	8.00	68.33	898.7	10.3	25.9	-3.6	2.00	2.00	
1,000.0	10.00	68.33	997.5	16.1	40.4	-5.6	2.00	2.00	
1,097.5	11.95	68.33	1,093.2	22.9	57.7	-8.0	2.00	2.00	EOB @ Inc. = 11.95°
1,100.0	11.95	68.33	1,095.6	23.1	58.2	-8.0	0.00	0.00	
1,200.0	11.95	68.33	1,193.5	30.8	77.4	-10.7	0.00	0.00	
1,300.0	11.95	68.33	1,291.3	38.4	96.7	-13.4	0.00	0.00	
1,400.0	11.95	68.33	1,389.1	46.1	115.9	-16.0	0.00	0.00	
1,500.0	11.95	68.33	1,487.0	53.7	135.2	-18.7	0.00	0.00	
1,600.0	11.95	68.33	1,584.8	61.4	154.4	-21.3	0.00	0.00	
1,700.0	11.95	68.33	1,682.6	69.0	173.6	-24.0	0.00	0.00	
1,800.0	11.95	68.33	1,780.5	76.6	192.9	-26.7	0.00	0.00	
1,900.0	11.95	68.33	1,878.3	84.3	212.1	-29.3	0.00	0.00	
2,000.0	11.95	68.33	1,976.1	91.9	231.4	-32.0	0.00	0.00	
2,100.0	11.95	68.33	2,073.9	99.6	250.6	-34.7	0.00	0.00	
2,200.0	11.95	68.33	2,171.8	107.2	269.9	-37.3	0.00	0.00	
2,300.0	11.95	68.33	2,269.6	114.9	289.1	-40.0	0.00	0.00	
2,400.0	11.95	68.33	2,367.4	122.5	308.3	-42.6	0.00	0.00	
2,500.0	11.95	68.33	2,465.3	130.2	327.6	-45.3	0.00	0.00	
2,600.0	11.95	68.33	2,563.1	137.8	346.8	-48.0	0.00	0.00	
2,700.0	11.95	68.33	2,660.9	145.5	366.1	-50.6	0.00	0.00	
2,800.0	11.95	68.33	2,758.8	153.1	385.3	-53.3	0.00	0.00	
2,900.0	11.95	68.33	2,856.6	160.8	404.6	-55.9	0.00	0.00	
3,000.0	11.95	68.33	2,954.4	168.4	423.8	-58.6	0.00	0.00	
3,100.0	11.95	68.33	3,052.3	176.1	443.0	-61.3	0.00	0.00	
3,200.0	11.95	68.33	3,150.1	183.7	462.3	-63.9	0.00	0.00	
3,300.0	11.95	68.33	3,247.9	191.3	481.5	-66.6	0.00	0.00	
3,400.0	11.95	68.33	3,345.8	199.0	500.8	-69.2	0.00	0.00	
3,500.0	11.95	68.33	3,443.6	206.6	520.0	-71.9	0.00	0.00	
3,600.0	11.95	68.33	3,541.4	214.3	539.3	-74.6	0.00	0.00	
3,700.0	11.95	68.33	3,639.3	221.9	558.5	-77.2	0.00	0.00	
3,800.0	11.95	68.33	3,737.1	229.6	577.8	-79.9	0.00	0.00	
3,900.0	11.95	68.33	3,834.9	237.2	597.0	-82.5	0.00	0.00	
4,000.0	11.95	68.33	3,932.8	244.9	616.2	-85.2	0.00	0.00	
4,100.0	11.95	68.33	4,030.6	252.5	635.5	-87.9	0.00	0.00	
4,200.0	11.95	68.33	4,128.4	260.2	654.7	-90.5	0.00	0.00	
4,300.0	11.95	68.33	4,226.3	267.8	674.0	-93.2	0.00	0.00	
4,400.0	11.95	68.33	4,324.1	275.5	693.2	-95.8	0.00	0.00	
4,500.0	11.95	68.33	4,421.9	283.1	712.5	-98.5	0.00	0.00	
4,600.0	11.95	68.33	4,519.8	290.8	731.7	-101.2	0.00	0.00	
4,700.0	11.95	68.33	4,617.6	298.4	750.9	-103.8	0.00	0.00	
4,800.0	11.95	68.33	4,715.4	306.0	770.2	-106.5	0.00	0.00	
4,900.0	11.95	68.33	4,813.3	313.7	789.4	-109.2	0.00	0.00	
5,000.0	11.95	68.33	4,911.1	321.3	808.7	-111.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site:	State 70 Holes F-4 Pad	North Reference:	True
Well:	State Seventy Holes K21-024-4HNB	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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	11.95	68.33	5,008.9	329.0	827.9	-114.5	0.00	0.00	
5,156.3	11.95	68.33	5,064.0	333.3	838.7	-116.0	0.00	0.00	Start 2° Drop
5,200.0	11.08	68.33	5,106.8	336.5	846.9	-117.1	2.00	-2.00	
5,300.0	9.08	68.33	5,205.3	343.0	863.1	-119.3	2.00	-2.00	
5,400.0	7.08	68.33	5,304.3	348.2	876.2	-121.1	2.00	-2.00	
5,500.0	5.08	68.33	5,403.7	352.1	886.0	-122.5	2.00	-2.00	
5,600.0	3.08	68.33	5,503.5	354.7	892.6	-123.4	2.00	-2.00	
5,700.0	1.08	68.33	5,603.4	356.0	896.0	-123.9	2.00	-2.00	
5,753.8	0.00	0.00	5,657.2	356.2	896.4	-124.0	2.00	-2.00	EOD @ Inc. = 0°
5,803.8	0.00	0.00	5,707.2	356.2	896.4	-124.0	0.00	0.00	Start 11° Build
5,850.0	5.08	176.83	5,753.3	354.2	896.6	-121.9	11.00	11.00	
5,900.0	10.58	176.83	5,802.8	347.4	896.9	-115.3	11.00	11.00	
5,950.0	16.08	176.83	5,851.5	335.9	897.6	-104.0	11.00	11.00	
6,000.0	21.58	176.83	5,898.8	319.8	898.5	-88.1	11.00	11.00	
6,050.0	27.08	176.83	5,944.3	299.2	899.6	-67.9	11.00	11.00	
6,100.0	32.58	176.83	5,987.7	274.4	901.0	-43.5	11.00	11.00	
6,150.0	38.08	176.83	6,028.5	245.5	902.6	-15.2	11.00	11.00	
6,200.0	43.58	176.83	6,066.3	212.9	904.4	16.9	11.00	11.00	
6,250.0	49.08	176.83	6,100.8	176.8	906.4	52.4	11.00	11.00	
6,300.0	54.58	176.83	6,131.7	137.6	908.6	90.9	11.00	11.00	
6,350.0	60.08	176.83	6,158.7	95.6	910.9	132.2	11.00	11.00	
6,400.0	65.58	176.83	6,181.5	51.2	913.3	175.8	11.00	11.00	
6,450.0	71.08	176.83	6,199.9	4.8	915.9	221.4	11.00	11.00	
6,485.6	75.00	176.83	6,210.3	-29.3	917.8	254.9	11.00	11.00	EOB @ Inc. = 75°
6,500.0	75.00	176.83	6,214.0	-43.1	918.6	268.5	0.00	0.00	
6,585.6	75.00	176.83	6,236.2	-125.7	923.1	349.6	0.00	0.00	Start 11° Build
6,600.0	76.58	176.83	6,239.7	-139.6	923.9	363.3	11.00	11.00	
6,650.0	82.08	176.83	6,249.0	-188.6	926.6	411.5	11.00	11.00	
6,700.0	87.58	176.83	6,253.5	-238.3	929.4	460.3	11.00	11.00	
6,722.0	90.00	176.83	6,254.0	-260.3	930.6	481.9	11.00	11.00	LP @ 6,254' TVD, 90° - 7" - 625' FNL, 2300' FV
6,800.0	90.00	176.83	6,254.0	-338.2	934.9	558.5	0.00	0.00	
6,900.0	90.00	176.83	6,254.0	-438.0	940.4	656.6	0.00	0.00	
7,000.0	90.00	176.83	6,254.0	-537.9	946.0	754.7	0.00	0.00	
7,100.0	90.00	176.83	6,254.0	-637.7	951.5	852.8	0.00	0.00	
7,200.0	90.00	176.83	6,254.0	-737.6	957.0	951.0	0.00	0.00	
7,300.0	90.00	176.83	6,254.0	-837.4	962.6	1,049.1	0.00	0.00	
7,400.0	90.00	176.83	6,254.0	-937.3	968.1	1,147.2	0.00	0.00	
7,500.0	90.00	176.83	6,254.0	-1,037.1	973.6	1,245.3	0.00	0.00	
7,600.0	90.00	176.83	6,254.0	-1,137.0	979.2	1,343.4	0.00	0.00	
7,700.0	90.00	176.83	6,254.0	-1,236.8	984.7	1,441.6	0.00	0.00	
7,800.0	90.00	176.83	6,254.0	-1,336.7	990.2	1,539.7	0.00	0.00	
7,900.0	90.00	176.83	6,254.0	-1,436.5	995.8	1,637.8	0.00	0.00	
8,000.0	90.00	176.83	6,254.0	-1,536.3	1,001.3	1,735.9	0.00	0.00	
8,100.0	90.00	176.83	6,254.0	-1,636.2	1,006.8	1,834.1	0.00	0.00	
8,200.0	90.00	176.83	6,254.0	-1,736.0	1,012.3	1,932.2	0.00	0.00	
8,300.0	90.00	176.83	6,254.0	-1,835.9	1,017.9	2,030.3	0.00	0.00	
8,400.0	90.00	176.83	6,254.0	-1,935.7	1,023.4	2,128.4	0.00	0.00	
8,500.0	90.00	176.83	6,254.0	-2,035.6	1,028.9	2,226.6	0.00	0.00	
8,600.0	90.00	176.83	6,254.0	-2,135.4	1,034.5	2,324.7	0.00	0.00	
8,700.0	90.00	176.83	6,254.0	-2,235.3	1,040.0	2,422.8	0.00	0.00	
8,800.0	90.00	176.83	6,254.0	-2,335.1	1,045.5	2,520.9	0.00	0.00	
8,900.0	90.00	176.83	6,254.0	-2,435.0	1,051.1	2,619.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site:	State 70 Holes F-4 Pad	North Reference:	True
Well:	State Seventy Holes K21-024-4HNB	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
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
9,000.0	90.00	176.83	6,254.0	-2,534.8	1,056.6	2,717.2	0.00	0.00	
9,100.0	90.00	176.83	6,254.0	-2,634.7	1,062.1	2,815.3	0.00	0.00	
9,200.0	90.00	176.83	6,254.0	-2,734.5	1,067.7	2,913.4	0.00	0.00	
9,300.0	90.00	176.83	6,254.0	-2,834.4	1,073.2	3,011.5	0.00	0.00	
9,400.0	90.00	176.83	6,254.0	-2,934.2	1,078.7	3,109.7	0.00	0.00	
9,500.0	90.00	176.83	6,254.0	-3,034.0	1,084.3	3,207.8	0.00	0.00	
9,600.0	90.00	176.83	6,254.0	-3,133.9	1,089.8	3,305.9	0.00	0.00	
9,700.0	90.00	176.83	6,254.0	-3,233.7	1,095.3	3,404.0	0.00	0.00	
9,800.0	90.00	176.83	6,254.0	-3,333.6	1,100.9	3,502.2	0.00	0.00	
9,900.0	90.00	176.83	6,254.0	-3,433.4	1,106.4	3,600.3	0.00	0.00	
10,000.0	90.00	176.83	6,254.0	-3,533.3	1,111.9	3,698.4	0.00	0.00	
10,100.0	90.00	176.83	6,254.0	-3,633.1	1,117.4	3,796.5	0.00	0.00	
10,200.0	90.00	176.83	6,254.0	-3,733.0	1,123.0	3,894.7	0.00	0.00	
10,300.0	90.00	176.83	6,254.0	-3,832.8	1,128.5	3,992.8	0.00	0.00	
10,400.0	90.00	176.83	6,254.0	-3,932.7	1,134.0	4,090.9	0.00	0.00	
10,500.0	90.00	176.83	6,254.0	-4,032.5	1,139.6	4,189.0	0.00	0.00	
10,600.0	90.00	176.83	6,254.0	-4,132.4	1,145.1	4,287.1	0.00	0.00	
10,700.0	90.00	176.83	6,254.0	-4,232.2	1,150.6	4,385.3	0.00	0.00	
10,800.0	90.00	176.83	6,254.0	-4,332.1	1,156.2	4,483.4	0.00	0.00	
10,900.0	90.00	176.83	6,254.0	-4,431.9	1,161.7	4,581.5	0.00	0.00	
11,000.0	90.00	176.83	6,254.0	-4,531.8	1,167.2	4,679.6	0.00	0.00	
11,065.7	90.00	176.83	6,254.0	-4,597.3	1,170.9	4,744.1	0.00	0.00	TD @ 11,065.7' MD - Niobrara B Target

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
K21-024-4HNB VP - hit/miss target - Shape - Point	0.00	0.00	5,657.2	356.2	896.4	1,372,088.27	3,325,349.21	40.348898	-104.332694
K21-024-4HNB TGT - plan misses target center by 8.3ft at 6630.2ft MD (6245.9 TVD, -169.1 N, 925.5 E) - Point	0.00	0.00	6,254.0	-167.5	925.4	1,371,564.93	3,325,385.01	40.347460	-104.332590
St 70 Holes K21-024-4H - plan hits target center - Point	0.00	0.00	6,254.0	-4,597.3	1,170.9	1,367,138.74	3,325,688.63	40.335300	-104.331710

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,722.0	6,254.0	7" - 625' FNL, 2300' FWL			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Company:	Bonanza Creek Energy Operating Company, LLC	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Project:	Weld County	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site:	State 70 Holes F-4 Pad	North Reference:	True
Well:	State Seventy Holes K21-024-4HNB	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP @ 500'
1,097.5	1,093.2	22.9	57.7	EOB @ Inc. = 11.95°
5,156.3	5,064.0	333.3	838.7	Start 2° Drop
5,753.8	5,657.2	356.2	896.4	EOD @ Inc. = 0°
5,803.8	5,707.2	356.2	896.4	Start 11° Build
6,485.6	6,210.3	-29.3	917.8	EOB @ Inc. = 75°
6,585.6	6,236.2	-125.7	923.1	Start 11° Build
6,722.0	6,254.0	-260.3	930.6	LP @ 6,254' TVD, 90°
11,065.7	6,254.0	-4,597.3	1,170.9	TD @ 11,065.7' MD

Bonanza Creek Energy Operating Company, LLC

Weld County

State 70 Holes F-4 Pad

State Seventy Holes K21-024-4HNB

OH

Plan #1

Anticollision Report

27 August, 2013

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
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	8/27/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,065.7	Plan #1 (OH)	MWD	Geolink MWD	

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
State 70 Holes F-4 Pad						
State Seventy Holes 21-24-4HNB - OH - Plan #1	680.2	680.0	17.2	14.9	7.389	CC
State Seventy Holes 21-24-4HNB - OH - Plan #1	700.0	699.7	17.3	14.9	7.179	ES
State Seventy Holes 21-24-4HNB - OH - Plan #1	11,065.7	11,019.9	331.8	163.7	1.974	SF
State Seventy Holes F21-J24-4HNB - OH - Plan #1	747.7	747.0	37.7	35.1	14.579	CC, ES
State Seventy Holes F21-J24-4HNB - OH - Plan #1	900.0	897.8	41.5	38.3	12.929	SF
State Seventy Holes F-J-4HC - OH - Plan #1	914.5	912.7	73.5	70.2	22.487	CC, ES
State Seventy Holes F-J-4HC - OH - Plan #1	1,000.0	995.0	75.9	72.3	20.781	SF
State Seventy Holes F-J-4HNB - OH - Plan #1	831.9	830.6	53.5	50.6	18.343	CC, ES
State Seventy Holes F-J-4HNB - OH - Plan #1	900.0	896.9	54.9	51.7	17.164	SF

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Offset Design State 70 Holes F-4 Pad - State Seventy Holes 21-24-4HNB - 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 Uncertainty Axis	Separation Factor	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)				
0.0	0.0	0.0	0.0	0.0	0.0	0.00	18.2	0.0	18.2					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	18.2	0.0	18.2	17.9	0.30	61.403		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	18.2	0.0	18.2	17.6	0.65	28.212		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	18.2	0.0	18.2	17.2	0.99	18.313		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	18.2	0.0	18.2	16.9	1.34	13.557		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	18.2	0.0	18.2	16.5	1.69	10.761		
600.0	600.0	600.0	600.0	1.0	1.0	-73.61	18.2	0.0	17.6	15.6	2.04	8.636		
680.2	680.1	680.0	680.0	1.2	1.2	-82.78	18.8	1.0	17.2	14.9	2.33	7.389 CC		
700.0	699.8	699.7	699.7	1.2	1.2	-85.12	19.1	1.5	17.3	14.9	2.41	7.179 ES		
800.0	799.5	799.6	799.4	1.4	1.4	-96.61	21.8	6.0	18.2	15.4	2.80	6.491		
900.0	898.7	899.5	899.0	1.7	1.6	-106.32	26.3	13.4	20.3	17.0	3.24	6.260		
1,000.0	997.5	999.6	998.3	1.9	1.8	-113.57	32.5	23.9	23.4	19.6	3.73	6.264		
1,100.0	1,095.6	1,099.4	1,097.1	2.3	2.1	-121.57	39.7	35.9	27.8	23.6	4.23	6.569		
1,200.0	1,193.5	1,199.2	1,195.9	2.6	2.3	-129.58	46.9	48.0	33.7	29.0	4.69	7.174		
1,300.0	1,291.3	1,298.9	1,294.6	3.0	2.6	-135.14	54.2	60.1	40.0	34.9	5.14	7.785		
1,400.0	1,389.1	1,398.6	1,393.4	3.4	2.9	-139.16	61.4	72.1	46.6	41.0	5.57	8.364		
1,500.0	1,487.0	1,498.4	1,492.1	3.8	3.2	-142.17	68.6	84.2	53.4	47.4	6.00	8.896		
1,600.0	1,584.8	1,598.1	1,590.8	4.2	3.5	-144.49	75.8	96.2	60.2	53.8	6.42	9.380		
1,700.0	1,682.6	1,697.8	1,689.6	4.6	3.8	-146.34	83.0	108.3	67.2	60.4	6.84	9.819		
1,800.0	1,780.5	1,797.6	1,788.3	5.0	4.0	-147.84	90.2	120.3	74.2	67.0	7.27	10.217		
1,900.0	1,878.3	1,897.3	1,887.1	5.4	4.3	-149.08	97.4	132.4	81.3	73.6	7.68	10.578		
2,000.0	1,976.1	1,997.0	1,985.8	5.8	4.6	-150.12	104.7	144.4	88.4	80.3	8.10	10.906		
2,100.0	2,073.9	2,096.8	2,084.5	6.2	4.9	-151.01	111.9	156.5	95.5	87.0	8.52	11.206		
2,200.0	2,171.8	2,196.5	2,183.3	6.6	5.2	-151.77	119.1	168.6	102.6	93.7	8.94	11.480		
2,300.0	2,269.6	2,296.3	2,282.0	7.0	5.5	-152.44	126.3	180.6	109.8	100.4	9.36	11.732		
2,400.0	2,367.4	2,396.0	2,380.8	7.4	5.8	-153.02	133.5	192.7	117.0	107.2	9.78	11.964		
2,500.0	2,465.3	2,495.7	2,479.5	7.8	6.1	-153.54	140.7	204.7	124.1	113.9	10.19	12.178		
2,600.0	2,563.1	2,595.5	2,578.3	8.2	6.4	-153.99	147.9	216.8	131.3	120.7	10.61	12.376		
2,700.0	2,660.9	2,695.2	2,677.0	8.6	6.7	-154.41	155.2	228.8	138.5	127.5	11.03	12.560		
2,800.0	2,758.8	2,794.9	2,775.7	9.0	7.0	-154.78	162.4	240.9	145.7	134.3	11.45	12.731		
2,900.0	2,856.6	2,894.7	2,874.5	9.4	7.3	-155.11	169.6	253.0	152.9	141.0	11.86	12.891		
3,000.0	2,954.4	2,994.4	2,973.2	9.8	7.6	-155.42	176.8	265.0	160.1	147.8	12.28	13.040		
3,100.0	3,052.3	3,094.1	3,072.0	10.2	7.9	-155.70	184.0	277.1	167.3	154.6	12.70	13.180		
3,200.0	3,150.1	3,193.9	3,170.7	10.6	8.2	-155.95	191.2	289.1	174.6	161.4	13.11	13.311		
3,300.0	3,247.9	3,293.6	3,269.4	11.0	8.5	-156.19	198.4	301.2	181.8	168.2	13.53	13.434		
3,400.0	3,345.8	3,393.3	3,368.2	11.4	8.8	-156.41	205.7	313.2	189.0	175.0	13.95	13.551		
3,500.0	3,443.6	3,493.1	3,466.9	11.8	9.1	-156.61	212.9	325.3	196.2	181.9	14.36	13.660		
3,600.0	3,541.4	3,592.8	3,565.7	12.2	9.4	-156.80	220.1	337.3	203.4	188.7	14.78	13.764		
3,700.0	3,639.3	3,692.6	3,664.4	12.6	9.7	-156.97	227.3	349.4	210.7	195.5	15.20	13.862		
3,800.0	3,737.1	3,792.3	3,763.2	13.0	10.0	-157.13	234.5	361.5	217.9	202.3	15.62	13.955		
3,900.0	3,834.9	3,892.0	3,861.9	13.4	10.3	-157.29	241.7	373.5	225.1	209.1	16.03	14.043		
4,000.0	3,932.8	3,991.8	3,960.6	13.8	10.6	-157.43	248.9	385.6	232.4	215.9	16.45	14.127		
4,100.0	4,030.6	4,091.5	4,059.4	14.2	10.9	-157.56	256.1	397.6	239.6	222.8	16.87	14.207		
4,200.0	4,128.4	4,191.2	4,158.1	14.6	11.2	-157.69	263.4	409.7	246.9	229.6	17.28	14.283		
4,300.0	4,226.3	4,291.0	4,256.9	15.1	11.5	-157.81	270.6	421.7	254.1	236.4	17.70	14.356		
4,400.0	4,324.1	4,390.7	4,355.6	15.5	11.8	-157.92	277.8	433.8	261.3	243.2	18.12	14.425		
4,500.0	4,421.9	4,490.4	4,454.3	15.9	12.1	-158.03	285.0	445.9	268.6	250.0	18.53	14.491		
4,600.0	4,519.8	4,590.2	4,553.1	16.3	12.4	-158.13	292.2	457.9	275.8	256.9	18.95	14.555		
4,700.0	4,617.6	4,689.9	4,651.8	16.7	12.7	-158.23	299.4	470.0	283.1	263.7	19.37	14.615		
4,800.0	4,715.4	4,789.7	4,750.6	17.1	13.0	-158.32	306.6	482.0	290.3	270.5	19.78	14.674		
4,900.0	4,813.3	4,889.4	4,849.3	17.5	13.3	-158.40	313.9	494.1	297.5	277.3	20.20	14.729		
5,000.0	4,911.1	4,989.1	4,948.1	17.9	13.6	-158.49	321.1	506.1	304.8	284.2	20.62	14.783		

CC - Min centre to center distance or convergent 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 State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Offset Design State 70 Holes F-4 Pad - State Seventy Holes 21-24-4HNB - 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	
5,100.0	5,008.9	5,088.9	5,046.8	18.3	13.9	-158.57	328.3	518.2	312.0	291.0	21.03	14.834	
5,200.0	5,106.8	5,188.6	5,145.6	18.7	14.2	-158.64	335.5	530.2	319.0	297.5	21.46	14.864	
5,300.0	5,205.3	5,288.5	5,244.5	19.0	14.5	-158.53	342.7	542.3	323.2	301.3	21.92	14.745	
5,400.0	5,304.3	5,380.5	5,335.6	19.3	14.8	-158.32	348.8	552.4	325.3	302.9	22.34	14.557	
5,500.0	5,403.7	5,471.5	5,426.3	19.5	15.0	-158.17	353.3	560.0	326.8	304.1	22.72	14.386	
5,600.0	5,503.5	5,562.6	5,517.2	19.7	15.1	-158.06	356.3	565.0	327.9	304.8	23.04	14.229	
5,700.0	5,603.4	5,653.7	5,608.2	19.8	15.2	-158.01	357.9	567.6	328.4	305.1	23.32	14.085	
5,800.0	5,703.4	5,748.9	5,703.4	19.9	15.3	-89.68	358.1	568.0	328.5	304.1	24.37	13.482	
5,900.0	5,802.8	5,852.7	5,806.5	19.9	15.4	93.43	348.5	568.5	328.5	304.8	23.63	13.899	
6,000.0	5,898.8	5,956.4	5,905.8	19.9	15.3	93.24	318.8	570.1	328.4	305.1	23.33	14.080	
6,100.0	5,987.7	6,059.9	5,996.9	19.8	15.2	92.92	270.2	572.8	328.4	305.6	22.82	14.389	
6,200.0	6,066.3	6,162.9	6,076.3	19.7	15.1	92.50	205.0	576.3	328.3	306.0	22.32	14.706	
6,300.0	6,131.7	6,265.4	6,141.0	19.6	15.0	91.98	125.8	580.7	328.2	306.2	22.07	14.873	
6,400.0	6,181.5	6,367.2	6,188.7	19.7	15.1	91.39	36.2	585.6	328.2	306.0	22.25	14.748	
6,448.1	6,199.6	6,415.9	6,205.2	19.8	15.3	91.03	-9.5	588.1	328.2	305.6	22.55	14.553	
6,500.0	6,214.0	6,468.0	6,219.0	19.9	15.4	90.90	-59.7	590.8	328.2	305.2	22.98	14.284	
6,600.0	6,239.7	6,568.3	6,243.9	20.2	15.9	90.75	-156.7	596.1	328.3	304.1	24.17	13.583	
6,700.0	6,253.5	6,668.7	6,253.9	20.7	16.5	90.08	-256.3	601.6	328.3	302.5	25.81	12.719	
6,800.0	6,254.0	6,768.7	6,254.0	21.3	17.3	90.00	-356.1	607.0	328.4	300.6	27.82	11.804	
6,900.0	6,254.0	6,868.7	6,254.0	22.0	18.3	90.00	-456.0	612.5	328.5	298.4	30.09	10.916	
7,000.0	6,254.0	6,968.7	6,254.0	22.9	19.3	90.00	-555.8	617.9	328.5	295.9	32.58	10.083	
7,100.0	6,254.0	7,068.7	6,254.0	23.8	20.5	90.00	-655.7	623.4	328.6	293.4	35.25	9.322	
7,200.0	6,254.0	7,168.7	6,254.0	24.9	21.7	90.00	-755.5	628.9	328.7	290.6	38.05	8.637	
7,300.0	6,254.0	7,268.7	6,254.0	26.0	23.0	90.00	-855.4	634.3	328.7	287.8	40.97	8.024	
7,400.0	6,254.0	7,368.7	6,254.0	27.2	24.4	90.00	-955.2	639.8	328.8	284.8	43.97	7.478	
7,500.0	6,254.0	7,468.7	6,254.0	28.4	25.8	90.00	-1,055.1	645.2	328.9	281.8	47.04	6.991	
7,600.0	6,254.0	7,568.7	6,254.0	29.7	27.2	90.00	-1,154.9	650.7	329.0	278.8	50.17	6.556	
7,700.0	6,254.0	7,668.7	6,254.0	31.1	28.7	90.00	-1,254.8	656.2	329.0	275.7	53.35	6.167	
7,800.0	6,254.0	7,768.7	6,254.0	32.5	30.2	90.00	-1,354.6	661.6	329.1	272.5	56.57	5.818	
7,900.0	6,254.0	7,868.7	6,254.0	33.9	31.8	90.00	-1,454.5	667.1	329.2	269.4	59.82	5.503	
8,000.0	6,254.0	7,968.7	6,254.0	35.3	33.3	90.00	-1,554.3	672.5	329.2	266.1	63.10	5.218	
8,100.0	6,254.0	8,068.7	6,254.0	36.8	34.9	90.00	-1,654.2	678.0	329.3	262.9	66.41	4.959	
8,200.0	6,254.0	8,168.7	6,254.0	38.3	36.5	90.00	-1,754.0	683.4	329.4	259.7	69.73	4.724	
8,300.0	6,254.0	8,268.7	6,254.0	39.8	38.1	90.00	-1,853.9	688.9	329.5	256.4	73.07	4.509	
8,400.0	6,254.0	8,368.7	6,254.0	41.4	39.7	90.00	-1,953.7	694.4	329.5	253.1	76.43	4.312	
8,500.0	6,254.0	8,468.7	6,254.0	42.9	41.3	90.00	-2,053.6	699.8	329.6	249.8	79.80	4.130	
8,600.0	6,254.0	8,568.7	6,254.0	44.5	43.0	90.00	-2,153.4	705.3	329.7	246.5	83.18	3.963	
8,700.0	6,254.0	8,668.7	6,254.0	46.1	44.6	90.00	-2,253.3	710.7	329.8	243.2	86.57	3.809	
8,800.0	6,254.0	8,768.7	6,254.0	47.7	46.3	90.00	-2,353.1	716.2	329.8	239.8	89.98	3.666	
8,900.0	6,254.0	8,868.7	6,254.0	49.3	48.0	90.00	-2,453.0	721.7	329.9	236.5	93.39	3.533	
9,000.0	6,254.0	8,968.7	6,254.0	50.9	49.6	90.00	-2,552.8	727.1	330.0	233.2	96.80	3.409	
9,100.0	6,254.0	9,068.7	6,254.0	52.5	51.3	90.00	-2,652.7	732.6	330.0	229.8	100.23	3.293	
9,200.0	6,254.0	9,168.7	6,254.0	54.1	53.0	90.00	-2,752.5	738.0	330.1	226.5	103.66	3.185	
9,300.0	6,254.0	9,268.7	6,254.0	55.8	54.7	90.00	-2,852.4	743.5	330.2	223.1	107.10	3.083	
9,400.0	6,254.0	9,368.7	6,254.0	57.4	56.4	90.00	-2,952.2	749.0	330.3	219.7	110.54	2.988	
9,500.0	6,254.0	9,468.7	6,254.0	59.1	58.1	90.00	-3,052.1	754.4	330.3	216.3	113.98	2.898	
9,600.0	6,254.0	9,568.7	6,254.0	60.7	59.8	90.00	-3,151.9	759.9	330.4	213.0	117.43	2.814	
9,700.0	6,254.0	9,668.7	6,254.0	62.4	61.5	90.00	-3,251.8	765.3	330.5	209.6	120.88	2.734	
9,800.0	6,254.0	9,768.7	6,254.0	64.1	63.2	90.00	-3,351.6	770.8	330.5	206.2	124.34	2.658	
9,900.0	6,254.0	9,868.7	6,254.0	65.8	64.9	90.00	-3,451.5	776.3	330.6	202.8	127.80	2.587	
10,000.0	6,254.0	9,968.7	6,254.0	67.4	66.6	90.00	-3,551.3	781.7	330.7	199.4	131.26	2.519	
10,100.0	6,254.0	10,068.7	6,254.0	69.1	68.3	90.00	-3,651.2	787.2	330.8	196.0	134.72	2.455	

CC - Min centre to center distance or convergent 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 State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Offset Design										State 70 Holes F-4 Pad - State Seventy Holes 21-24-4HNB - 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				
10,200.0	6,254.0	10,168.7	6,254.0	70.8	70.0	90.00	-3,751.0	792.6	330.8	192.6	138.19	2.394				
10,300.0	6,254.0	10,268.7	6,254.0	72.5	71.7	90.00	-3,850.9	798.1	330.9	189.2	141.66	2.336				
10,400.0	6,254.0	10,368.7	6,254.0	74.2	73.4	90.00	-3,950.7	803.6	331.0	185.8	145.13	2.280				
10,500.0	6,254.0	10,468.7	6,254.0	75.9	75.2	90.00	-4,050.6	809.0	331.0	182.4	148.61	2.228				
10,600.0	6,254.0	10,568.7	6,254.0	77.6	76.9	90.00	-4,150.4	814.5	331.1	179.0	152.08	2.177				
10,700.0	6,254.0	10,668.7	6,254.0	79.3	78.6	90.00	-4,250.3	819.9	331.2	175.6	155.56	2.129				
10,800.0	6,254.0	10,768.7	6,254.0	81.0	80.3	90.00	-4,350.1	825.4	331.3	172.2	159.04	2.083				
10,900.0	6,254.0	10,868.7	6,254.0	82.7	82.1	90.00	-4,450.0	830.9	331.3	168.8	162.52	2.039				
11,000.0	6,254.0	10,968.7	6,254.0	84.4	83.8	90.00	-4,549.8	836.3	331.4	165.4	166.00	1.996				
11,031.2	6,254.0	10,999.9	6,254.0	84.9	84.3	90.00	-4,581.0	838.0	331.4	164.3	167.09	1.984				
11,065.7	6,254.0	11,019.9	6,254.0	85.5	84.7	90.00	-4,601.0	839.1	331.8	163.7	168.04	1.974 SF				

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Offset Design State 70 Holes F-4 Pad - State Seventy Holes F21-J24-4HNB - 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		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	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	0.00	40.1	0.0	40.1					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	40.1	0.0	40.1	39.8	0.30	135.057		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	40.1	0.0	40.1	39.4	0.65	62.053		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	40.1	0.0	40.1	39.1	0.99	40.280		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	40.1	0.0	40.1	38.7	1.34	29.818		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	40.1	0.0	40.1	38.4	1.69	23.670		
600.0	600.0	600.0	600.0	1.0	1.0	-70.70	40.1	0.0	39.5	37.4	2.04	19.310		
700.0	699.8	699.8	699.8	1.2	1.2	-78.17	40.1	0.0	38.1	35.6	2.40	15.829		
747.7	747.4	747.0	747.0	1.3	1.3	-83.24	40.4	0.2	37.7	35.1	2.59	14.579 CC, ES		
800.0	799.5	798.8	798.7	1.4	1.4	-89.06	41.4	1.0	38.1	35.4	2.79	13.685		
900.0	898.7	897.8	897.7	1.7	1.6	-99.80	45.5	4.1	41.5	38.3	3.21	12.929 SF		
1,000.0	997.5	997.1	996.6	1.9	1.7	-109.19	52.0	8.9	47.8	44.1	3.67	13.040		
1,100.0	1,095.6	1,096.3	1,095.5	2.3	1.9	-118.98	58.7	13.9	56.8	52.6	4.14	13.721		
1,200.0	1,193.5	1,195.3	1,194.1	2.6	2.2	-127.20	65.4	18.9	68.0	63.4	4.59	14.819		
1,300.0	1,291.3	1,294.2	1,292.7	3.0	2.4	-133.03	72.1	23.9	80.2	75.1	5.02	15.963		
1,400.0	1,389.1	1,393.2	1,391.3	3.4	2.6	-137.29	78.7	28.9	92.9	87.5	5.45	17.061		
1,500.0	1,487.0	1,492.2	1,489.9	3.8	2.8	-140.52	85.4	33.9	106.1	100.2	5.87	18.081		
1,600.0	1,584.8	1,591.2	1,588.6	4.2	3.0	-143.03	92.1	38.9	119.5	113.3	6.29	19.014		
1,700.0	1,682.6	1,690.1	1,687.2	4.6	3.2	-145.03	98.8	43.9	133.2	126.4	6.70	19.864		
1,800.0	1,780.5	1,789.1	1,785.8	5.0	3.4	-146.65	105.5	49.0	146.9	139.8	7.12	20.636		
1,900.0	1,878.3	1,888.1	1,884.4	5.4	3.7	-148.00	112.2	54.0	160.7	153.2	7.53	21.338		
2,000.0	1,976.1	1,987.1	1,983.0	5.8	3.9	-149.14	118.9	59.0	174.6	166.7	7.95	21.978		
2,100.0	2,073.9	2,086.0	2,081.7	6.2	4.1	-150.10	125.6	64.0	188.6	180.2	8.36	22.562		
2,200.0	2,171.8	2,185.0	2,180.3	6.6	4.3	-150.94	132.3	69.0	202.6	193.8	8.77	23.097		
2,300.0	2,269.6	2,284.0	2,278.9	7.0	4.5	-151.66	139.0	74.0	216.7	207.5	9.18	23.589		
2,400.0	2,367.4	2,382.9	2,377.5	7.4	4.8	-152.30	145.6	79.0	230.7	221.1	9.60	24.042		
2,500.0	2,465.3	2,481.9	2,476.1	7.8	5.0	-152.87	152.3	84.0	244.8	234.8	10.01	24.460		
2,600.0	2,563.1	2,580.9	2,574.8	8.2	5.2	-153.37	159.0	89.0	259.0	248.5	10.42	24.847		
2,700.0	2,660.9	2,679.9	2,673.4	8.6	5.4	-153.82	165.7	94.0	273.1	262.3	10.84	25.206		
2,800.0	2,758.8	2,778.8	2,772.0	9.0	5.7	-154.22	172.4	99.0	287.3	276.0	11.25	25.541		
2,900.0	2,856.6	2,877.8	2,870.6	9.4	5.9	-154.59	179.1	104.0	301.4	289.8	11.66	25.852		
3,000.0	2,954.4	2,976.8	2,969.2	9.8	6.1	-154.93	185.8	109.0	315.6	303.5	12.07	26.144		
3,100.0	3,052.3	3,075.8	3,067.9	10.2	6.3	-155.23	192.5	114.0	329.8	317.3	12.48	26.417		
3,200.0	3,150.1	3,174.7	3,166.5	10.6	6.6	-155.51	199.2	119.0	344.0	331.1	12.90	26.673		
3,300.0	3,247.9	3,273.7	3,265.1	11.0	6.8	-155.77	205.9	124.0	358.2	344.9	13.31	26.914		
3,400.0	3,345.8	3,372.7	3,363.7	11.4	7.0	-156.01	212.5	129.0	372.4	358.7	13.72	27.141		
3,500.0	3,443.6	3,471.7	3,462.3	11.8	7.2	-156.23	219.2	134.0	386.6	372.5	14.13	27.356		
3,600.0	3,541.4	3,570.6	3,561.0	12.2	7.5	-156.44	225.9	139.0	400.9	386.3	14.55	27.558		
3,700.0	3,639.3	3,669.6	3,659.6	12.6	7.7	-156.63	232.6	144.0	415.1	400.1	14.96	27.750		
3,800.0	3,737.1	3,768.6	3,758.2	13.0	7.9	-156.81	239.3	149.0	429.3	414.0	15.37	27.931		
3,900.0	3,834.9	3,867.5	3,856.8	13.4	8.1	-156.98	246.0	154.1	443.6	427.8	15.78	28.103		
4,000.0	3,932.8	3,966.5	3,955.4	13.8	8.3	-157.13	252.7	159.1	457.8	441.6	16.20	28.267		
4,100.0	4,030.6	4,065.5	4,054.1	14.2	8.6	-157.28	259.4	164.1	472.1	455.4	16.61	28.423		
4,200.0	4,128.4	4,164.5	4,152.7	14.6	8.8	-157.42	266.1	169.1	486.3	469.3	17.02	28.571		

CC - Min centre to center distance or convergent 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 State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Offset Design State 70 Holes F-4 Pad - State Seventy Holes F-J-4HC - 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	0.0	0.0	0.0	0.0	1.99	80.1	2.8	80.2					
100.0	100.0	100.0	100.0	0.1	0.1	1.99	80.1	2.8	80.2	79.9	0.30	270.278		
200.0	200.0	200.0	200.0	0.3	0.3	1.99	80.1	2.8	80.2	79.5	0.65	124.182		
300.0	300.0	300.0	300.0	0.5	0.5	1.99	80.1	2.8	80.2	79.2	0.99	80.609		
400.0	400.0	400.0	400.0	0.7	0.7	1.99	80.1	2.8	80.2	78.8	1.34	59.672		
500.0	500.0	500.0	500.0	0.8	0.8	1.99	80.1	2.8	80.2	78.5	1.69	47.368		
600.0	600.0	600.0	600.0	1.0	1.0	-67.50	80.1	2.8	79.5	77.5	2.04	38.909		
700.0	699.8	699.8	699.8	1.2	1.2	-71.10	80.1	2.8	77.7	75.3	2.40	32.317		
800.0	799.5	799.5	799.5	1.4	1.4	-77.41	80.1	2.8	75.3	72.5	2.78	27.034		
900.0	898.7	898.7	898.7	1.7	1.5	-86.68	80.1	2.8	73.6	70.4	3.20	22.972		
914.5	913.1	912.7	912.7	1.7	1.6	-88.23	80.2	2.8	73.5	70.2	3.27	22.487 CC, ES		
1,000.0	997.5	995.0	995.0	1.9	1.7	-98.24	81.6	2.1	75.9	72.3	3.65	20.781 SF		
1,100.0	1,095.6	1,090.3	1,090.2	2.3	1.9	-110.10	85.8	-0.1	85.7	81.6	4.12	20.818		
1,200.0	1,193.5	1,187.8	1,187.5	2.6	2.1	-120.06	91.5	-3.0	101.0	96.4	4.55	22.171		
1,300.0	1,291.3	1,285.3	1,284.7	3.0	2.3	-127.32	97.3	-5.9	118.4	113.5	4.97	23.836		
1,400.0	1,389.1	1,382.8	1,382.0	3.4	2.4	-132.67	103.1	-8.8	137.3	131.9	5.37	25.557		
1,500.0	1,487.0	1,480.3	1,479.3	3.8	2.6	-136.72	108.8	-11.7	157.0	151.3	5.77	27.217		
1,600.0	1,584.8	1,577.8	1,576.6	4.2	2.8	-139.86	114.6	-14.6	177.4	171.2	6.16	28.771		
1,700.0	1,682.6	1,675.3	1,673.9	4.6	3.0	-142.36	120.4	-17.5	198.1	191.5	6.56	30.203		
1,800.0	1,780.5	1,772.8	1,771.2	5.0	3.2	-144.38	126.1	-20.4	219.1	212.2	6.95	31.516		
1,900.0	1,878.3	1,870.3	1,868.4	5.4	3.4	-146.05	131.9	-23.3	240.4	233.0	7.35	32.716		
2,000.0	1,976.1	1,967.8	1,965.7	5.8	3.6	-147.44	137.6	-26.2	261.8	254.1	7.74	33.812		
2,100.0	2,073.9	2,065.3	2,063.0	6.2	3.8	-148.63	143.4	-29.1	283.3	275.2	8.14	34.816		
2,200.0	2,171.8	2,162.8	2,160.3	6.6	4.0	-149.65	149.2	-32.0	305.0	296.5	8.53	35.737		
2,300.0	2,269.6	2,260.3	2,257.6	7.0	4.2	-150.53	154.9	-34.9	326.7	317.8	8.93	36.582		
2,400.0	2,367.4	2,357.8	2,354.8	7.4	4.4	-151.30	160.7	-37.8	348.5	339.2	9.33	37.361		
2,500.0	2,465.3	2,455.3	2,452.1	7.8	4.6	-151.99	166.5	-40.7	370.3	360.6	9.73	38.080		
2,600.0	2,563.1	2,552.8	2,549.4	8.2	4.8	-152.59	172.2	-43.6	392.2	382.1	10.12	38.746		
2,700.0	2,660.9	2,650.3	2,646.7	8.6	5.0	-153.14	178.0	-46.5	414.1	403.6	10.52	39.364		
2,800.0	2,758.8	2,747.8	2,744.0	9.0	5.2	-153.62	183.7	-49.4	436.1	425.2	10.92	39.938		
2,900.0	2,856.6	2,845.3	2,841.3	9.4	5.4	-154.06	189.5	-52.4	458.1	446.8	11.32	40.473		
3,000.0	2,954.4	2,942.7	2,938.5	9.8	5.6	-154.46	195.3	-55.3	480.1	468.4	11.72	40.973		

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes K21-024-4HNB
Project:	Weld County	TVD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Reference Site:	State 70 Holes F-4 Pad	MD Reference:	KB=15' @ 4567.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	State Seventy Holes K21-024-4HNB	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 #1	Offset TVD Reference:	Offset Datum

Offset Design State 70 Holes F-4 Pad - State Seventy Holes F-J-4HNB - 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		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	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	2.74	58.3	2.8	58.4					
100.0	100.0	100.0	100.0	0.1	0.1	2.74	58.3	2.8	58.4	58.1	0.30	196.671		
200.0	200.0	200.0	200.0	0.3	0.3	2.74	58.3	2.8	58.4	57.7	0.65	90.362		
300.0	300.0	300.0	300.0	0.5	0.5	2.74	58.3	2.8	58.4	57.4	0.99	58.656		
400.0	400.0	400.0	400.0	0.7	0.7	2.74	58.3	2.8	58.4	57.0	1.34	43.421		
500.0	500.0	500.0	500.0	0.8	0.8	2.74	58.3	2.8	58.4	56.7	1.69	34.468		
600.0	600.0	600.0	600.0	1.0	1.0	-67.18	58.3	2.8	57.7	55.6	2.04	28.215		
700.0	699.8	699.8	699.8	1.2	1.2	-72.17	58.3	2.8	55.8	53.4	2.40	23.233		
800.0	799.5	799.5	799.5	1.4	1.4	-81.04	58.3	2.8	53.8	51.0	2.79	19.312		
831.9	831.2	830.6	830.6	1.5	1.4	-84.69	58.4	2.7	53.5	50.6	2.92	18.343 CC, ES		
900.0	898.7	896.9	896.9	1.7	1.5	-93.49	59.9	2.3	54.9	51.7	3.20	17.164 SF		
1,000.0	997.5	994.5	994.3	1.9	1.7	-106.79	64.6	0.9	62.7	59.1	3.64	17.231		
1,100.0	1,095.6	1,091.7	1,091.3	2.3	1.9	-118.30	70.9	-1.0	76.2	72.1	4.08	18.674		
1,200.0	1,193.5	1,189.4	1,188.8	2.6	2.1	-127.20	77.3	-3.0	93.0	88.5	4.50	20.652		
1,300.0	1,291.3	1,287.2	1,286.3	3.0	2.3	-133.32	83.6	-4.9	111.3	106.3	4.91	22.649		
1,400.0	1,389.1	1,384.9	1,383.8	3.4	2.5	-137.70	89.9	-6.8	130.4	125.1	5.32	24.525		
1,500.0	1,487.0	1,482.6	1,481.3	3.8	2.7	-140.95	96.3	-8.7	150.2	144.4	5.72	26.237		
1,600.0	1,584.8	1,580.3	1,578.8	4.2	2.9	-143.44	102.6	-10.6	170.2	164.1	6.13	27.782		
1,700.0	1,682.6	1,678.1	1,676.3	4.6	3.1	-145.40	109.0	-12.6	190.6	184.0	6.53	29.172		
1,800.0	1,780.5	1,775.8	1,773.8	5.0	3.3	-146.99	115.3	-14.5	211.1	204.1	6.94	30.422		
1,900.0	1,878.3	1,873.5	1,871.3	5.4	3.5	-148.30	121.7	-16.4	231.7	224.3	7.34	31.550		
2,000.0	1,976.1	1,971.2	1,968.8	5.8	3.7	-149.39	128.0	-18.3	252.4	244.7	7.75	32.570		
2,100.0	2,073.9	2,069.0	2,066.3	6.2	3.9	-150.31	134.3	-20.3	273.2	265.0	8.16	33.496		
2,200.0	2,171.8	2,166.7	2,163.8	6.6	4.1	-151.11	140.7	-22.2	294.1	285.5	8.56	34.339		
2,300.0	2,269.6	2,264.4	2,261.3	7.0	4.3	-151.80	147.0	-24.1	315.0	306.0	8.97	35.109		
2,400.0	2,367.4	2,362.1	2,358.8	7.4	4.5	-152.40	153.4	-26.0	335.9	326.5	9.38	35.815		
2,500.0	2,465.3	2,459.9	2,456.3	7.8	4.7	-152.94	159.7	-27.9	356.9	347.1	9.79	36.464		
2,600.0	2,563.1	2,557.6	2,553.8	8.2	4.9	-153.41	166.1	-29.9	377.9	367.7	10.20	37.062		
2,700.0	2,660.9	2,655.3	2,651.3	8.6	5.1	-153.83	172.4	-31.8	398.9	388.3	10.60	37.616		
2,800.0	2,758.8	2,753.0	2,748.8	9.0	5.3	-154.22	178.8	-33.7	419.9	408.9	11.01	38.129		
2,900.0	2,856.6	2,850.8	2,846.3	9.4	5.5	-154.56	185.1	-35.6	441.0	429.6	11.42	38.607		
3,000.0	2,954.4	2,948.5	2,943.8	9.8	5.7	-154.88	191.4	-37.6	462.1	450.2	11.83	39.052		
3,100.0	3,052.3	3,046.2	3,041.3	10.2	5.9	-155.16	197.8	-39.5	483.1	470.9	12.24	39.468		

Cathedral Energy Services

Anticollision Report

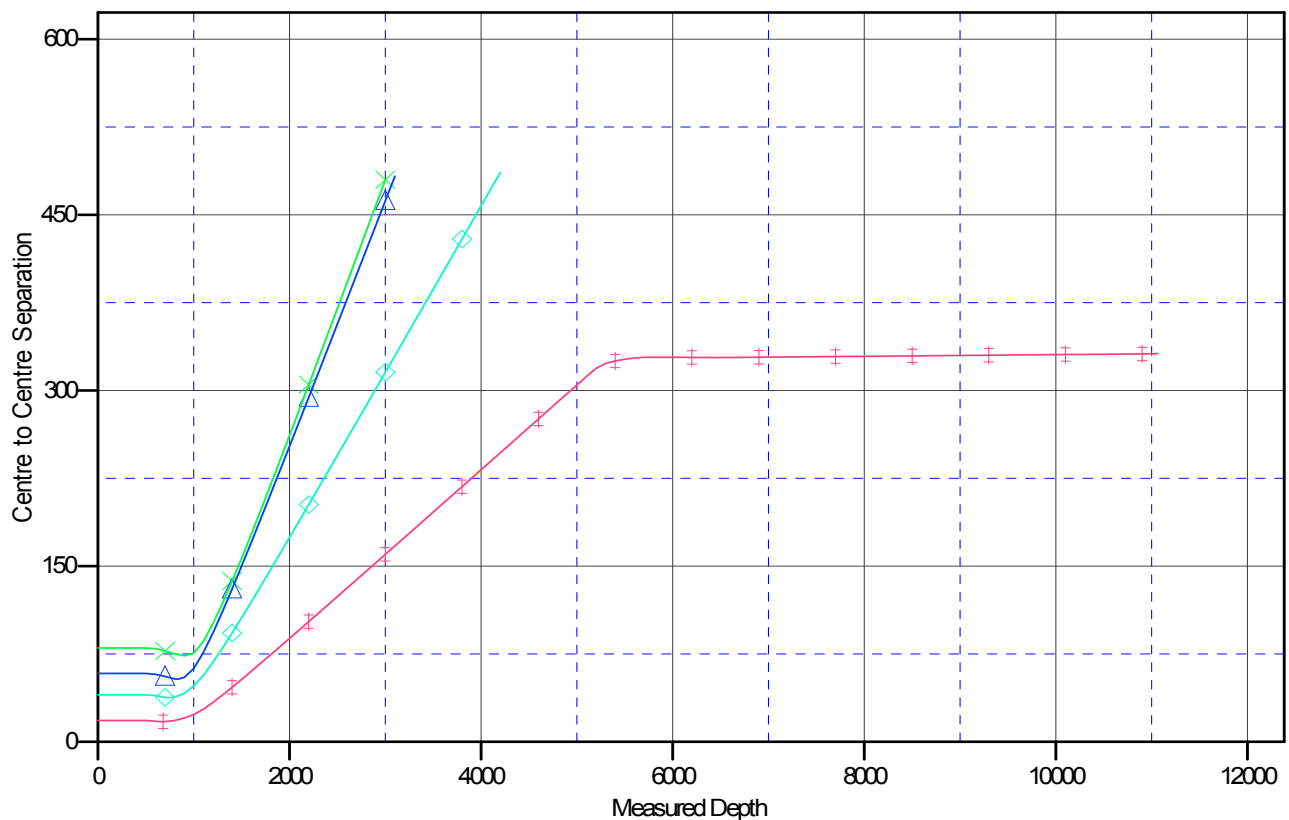
Company: Bonanza Creek Energy Operating Company, LLC
Project: Weld County
Reference Site: State 70 Holes F-4 Pad
Site Error: 0.0ft
Reference Well: State Seventy Holes K21-024-4HNB
Well Error: 0.0ft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well State Seventy Holes K21-024-4HNB
TVD Reference: KB=15' @ 4567.0ft (Original Well Elev)
MD Reference: KB=15' @ 4567.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: USA EDM 5000 Multi Users DB
Offset TVD Reference: Offset Datum

Reference Depths are relative to KB=15' @ 4567.0ft (Original Well Elev)
 Offset Depths are relative to Offset Datum
 Central Meridian is -105.500000 °

Coordinates are relative to: State Seventy Holes K21-024-4HNB
 Coordinate System is US State Plane 1983, Colorado Northern Zone
 Grid Convergence at Surface is: 0.75°

Ladder Plot



LEGEND

State Seventy Holes K21-024-4HNB, OH, Plan #1 V0 ▲ State Seventy Holes F-J-4HNB, OH, Plan #1 V0
 State Seventy Holes F21-J24-4HNB, OH, Plan #1 V0 ■ State Seventy Holes F-J-4HC, OH, Plan #1 V0