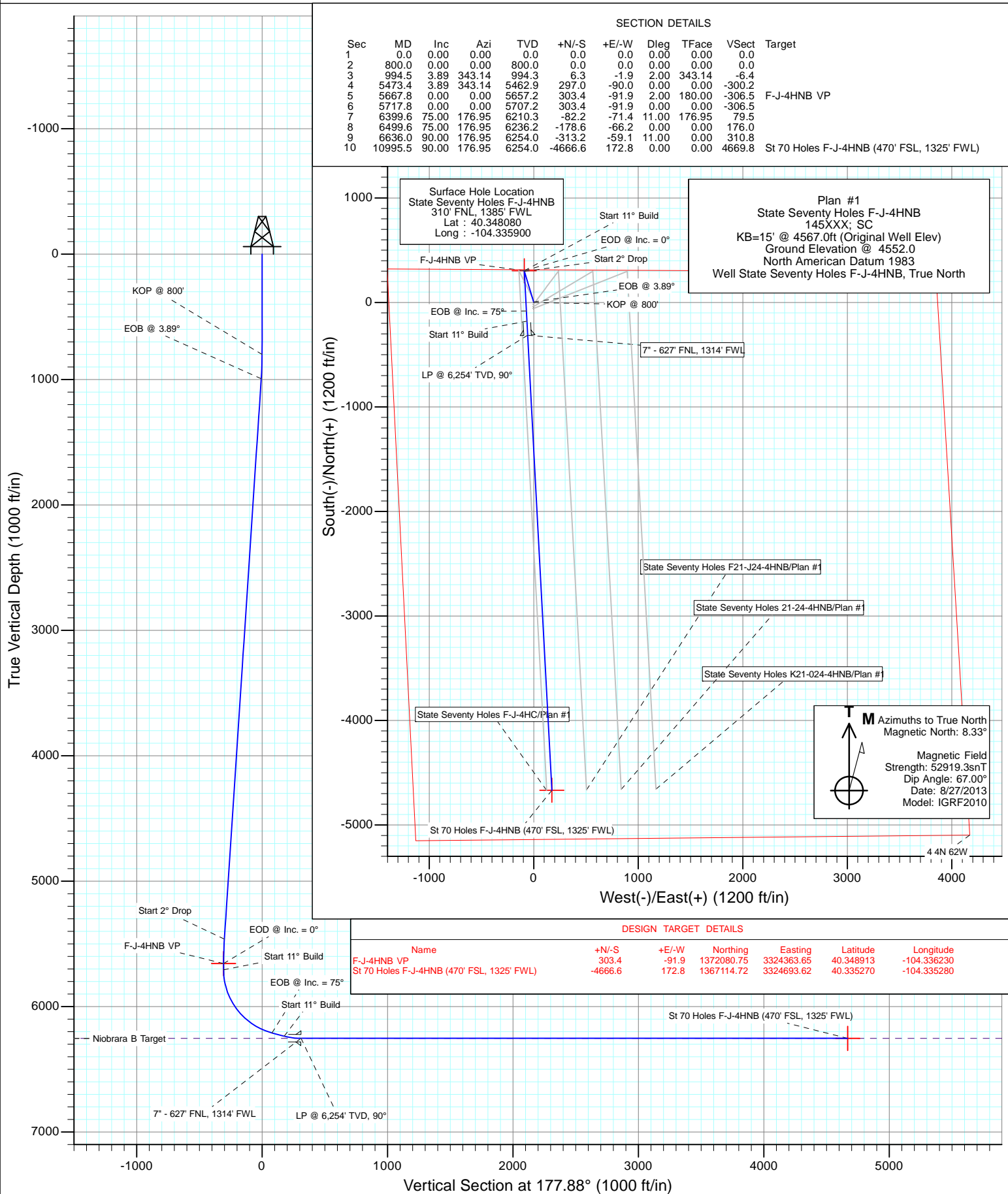




Project: Weld County
Site: State 70 Holes F-4 Pad
Well: State Seventy Holes F-J-4HNB
Wellbore: OH
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well State Seventy Holes F-J-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 F-J-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 F-J-4HNB					
Well Position	+N/-S	0.0 ft	Northing:	1,371,778.63 ft	Latitude:	40.348080
	+E/-W	0.0 ft	Easting:	3,324,459.54 ft	Longitude:	-104.335900
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	177.88

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	
800.0	0.00	0.00	800.0	0.0	0.0	0.00	0.00	0.00	0.00	
994.5	3.89	343.14	994.3	6.3	-1.9	2.00	2.00	0.00	343.14	
5,473.4	3.89	343.14	5,462.9	297.0	-90.0	0.00	0.00	0.00	0.00	
5,667.8	0.00	0.00	5,657.2	303.4	-91.9	2.00	-2.00	0.00	180.00	F-J-4HNB VP
5,717.8	0.00	0.00	5,707.2	303.4	-91.9	0.00	0.00	0.00	0.00	
6,399.6	75.00	176.95	6,210.3	-82.2	-71.4	11.00	11.00	0.00	176.95	
6,499.6	75.00	176.95	6,236.2	-178.6	-66.2	0.00	0.00	0.00	0.00	
6,636.0	90.00	176.95	6,254.0	-313.2	-59.1	11.00	11.00	0.00	0.00	
10,995.5	90.00	176.95	6,254.0	-4,666.6	172.8	0.00	0.00	0.00	0.00	St 70 Holes F-J-4HNE

Cathedral Energy Services

Planning Report

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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 F-J-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	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	KOP @ 800'
900.0	2.00	343.14	900.0	1.7	-0.5	-1.7	2.00	2.00	
994.5	3.89	343.14	994.3	6.3	-1.9	-6.4	2.00	2.00	EOB @ 3.89°
1,000.0	3.89	343.14	999.8	6.7	-2.0	-6.7	0.00	0.00	
1,100.0	3.89	343.14	1,099.6	13.2	-4.0	-13.3	0.00	0.00	
1,200.0	3.89	343.14	1,199.4	19.7	-6.0	-19.9	0.00	0.00	
1,300.0	3.89	343.14	1,299.1	26.1	-7.9	-26.4	0.00	0.00	
1,400.0	3.89	343.14	1,398.9	32.6	-9.9	-33.0	0.00	0.00	
1,500.0	3.89	343.14	1,498.7	39.1	-11.9	-39.5	0.00	0.00	
1,600.0	3.89	343.14	1,598.5	45.6	-13.8	-46.1	0.00	0.00	
1,700.0	3.89	343.14	1,698.2	52.1	-15.8	-52.7	0.00	0.00	
1,800.0	3.89	343.14	1,798.0	58.6	-17.8	-59.2	0.00	0.00	
1,900.0	3.89	343.14	1,897.8	65.1	-19.7	-65.8	0.00	0.00	
2,000.0	3.89	343.14	1,997.5	71.6	-21.7	-72.3	0.00	0.00	
2,100.0	3.89	343.14	2,097.3	78.1	-23.7	-78.9	0.00	0.00	
2,200.0	3.89	343.14	2,197.1	84.6	-25.6	-85.5	0.00	0.00	
2,300.0	3.89	343.14	2,296.8	91.1	-27.6	-92.0	0.00	0.00	
2,400.0	3.89	343.14	2,396.6	97.5	-29.6	-98.6	0.00	0.00	
2,500.0	3.89	343.14	2,496.4	104.0	-31.5	-105.1	0.00	0.00	
2,600.0	3.89	343.14	2,596.2	110.5	-33.5	-111.7	0.00	0.00	
2,700.0	3.89	343.14	2,695.9	117.0	-35.5	-118.3	0.00	0.00	
2,800.0	3.89	343.14	2,795.7	123.5	-37.4	-124.8	0.00	0.00	
2,900.0	3.89	343.14	2,895.5	130.0	-39.4	-131.4	0.00	0.00	
3,000.0	3.89	343.14	2,995.2	136.5	-41.4	-137.9	0.00	0.00	
3,100.0	3.89	343.14	3,095.0	143.0	-43.3	-144.5	0.00	0.00	
3,200.0	3.89	343.14	3,194.8	149.5	-45.3	-151.1	0.00	0.00	
3,300.0	3.89	343.14	3,294.5	156.0	-47.3	-157.6	0.00	0.00	
3,400.0	3.89	343.14	3,394.3	162.5	-49.2	-164.2	0.00	0.00	
3,500.0	3.89	343.14	3,494.1	168.9	-51.2	-170.7	0.00	0.00	
3,600.0	3.89	343.14	3,593.9	175.4	-53.2	-177.3	0.00	0.00	
3,700.0	3.89	343.14	3,693.6	181.9	-55.1	-183.8	0.00	0.00	
3,800.0	3.89	343.14	3,793.4	188.4	-57.1	-190.4	0.00	0.00	
3,900.0	3.89	343.14	3,893.2	194.9	-59.1	-197.0	0.00	0.00	
4,000.0	3.89	343.14	3,992.9	201.4	-61.0	-203.5	0.00	0.00	
4,100.0	3.89	343.14	4,092.7	207.9	-63.0	-210.1	0.00	0.00	
4,200.0	3.89	343.14	4,192.5	214.4	-65.0	-216.6	0.00	0.00	
4,300.0	3.89	343.14	4,292.2	220.9	-66.9	-223.2	0.00	0.00	
4,400.0	3.89	343.14	4,392.0	227.4	-68.9	-229.8	0.00	0.00	
4,500.0	3.89	343.14	4,491.8	233.9	-70.9	-236.3	0.00	0.00	
4,600.0	3.89	343.14	4,591.5	240.4	-72.8	-242.9	0.00	0.00	
4,700.0	3.89	343.14	4,691.3	246.8	-74.8	-249.4	0.00	0.00	
4,800.0	3.89	343.14	4,791.1	253.3	-76.8	-256.0	0.00	0.00	
4,900.0	3.89	343.14	4,890.9	259.8	-78.7	-262.6	0.00	0.00	
5,000.0	3.89	343.14	4,990.6	266.3	-80.7	-269.1	0.00	0.00	

Cathedral Energy Services

Planning Report

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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 F-J-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	3.89	343.14	5,090.4	272.8	-82.7	-275.7	0.00	0.00	
5,200.0	3.89	343.14	5,190.2	279.3	-84.6	-282.2	0.00	0.00	
5,300.0	3.89	343.14	5,289.9	285.8	-86.6	-288.8	0.00	0.00	
5,400.0	3.89	343.14	5,389.7	292.3	-88.6	-295.4	0.00	0.00	
5,473.4	3.89	343.14	5,462.9	297.0	-90.0	-300.2	0.00	0.00	Start 2° Drop
5,500.0	3.36	343.14	5,489.5	298.7	-90.5	-301.8	2.00	-2.00	
5,600.0	1.36	343.14	5,589.4	302.6	-91.7	-305.8	2.00	-2.00	
5,667.8	0.00	0.00	5,657.2	303.4	-91.9	-306.5	2.00	-2.00	EOD @ Inc. = 0°
5,700.0	0.00	0.00	5,689.4	303.4	-91.9	-306.5	0.00	0.00	
5,717.8	0.00	0.00	5,707.2	303.4	-91.9	-306.5	0.00	0.00	Start 11° Build
5,750.0	3.54	176.95	5,739.4	302.4	-91.9	-305.6	11.00	11.00	
5,800.0	9.04	176.95	5,789.0	296.9	-91.6	-300.1	11.00	11.00	
5,850.0	14.54	176.95	5,838.0	286.7	-91.0	-289.9	11.00	11.00	
5,900.0	20.04	176.95	5,885.7	271.9	-90.2	-275.0	11.00	11.00	
5,950.0	25.54	176.95	5,931.8	252.5	-89.2	-255.7	11.00	11.00	
6,000.0	31.04	176.95	5,975.8	228.9	-87.9	-232.0	11.00	11.00	
6,050.0	36.54	176.95	6,017.3	201.1	-86.5	-204.2	11.00	11.00	
6,100.0	42.04	176.95	6,056.0	169.5	-84.8	-172.5	11.00	11.00	
6,150.0	47.54	176.95	6,091.5	134.3	-82.9	-137.3	11.00	11.00	
6,200.0	53.04	176.95	6,123.4	96.0	-80.9	-98.9	11.00	11.00	
6,250.0	58.54	176.95	6,151.5	54.7	-78.7	-57.5	11.00	11.00	
6,300.0	64.04	176.95	6,175.5	10.9	-76.3	-13.7	11.00	11.00	
6,350.0	69.54	176.95	6,195.2	-35.0	-73.9	32.2	11.00	11.00	
6,399.6	75.00	176.95	6,210.3	-82.2	-71.4	79.5	11.00	11.00	EOB @ Inc. = 75°
6,499.6	75.00	176.95	6,236.2	-178.6	-66.2	176.0	0.00	0.00	Start 11° Build
6,550.0	80.54	176.95	6,246.9	-227.8	-63.6	225.2	11.00	11.00	
6,600.0	86.04	176.95	6,252.7	-277.3	-61.0	274.9	11.00	11.00	
6,636.0	90.00	176.95	6,254.0	-313.2	-59.1	310.8	11.00	11.00	LP @ 6,254' TVD, 90° - 7" - 627' FNL, 1314' FV
6,700.0	90.00	176.95	6,254.0	-377.1	-55.7	374.8	0.00	0.00	
6,800.0	90.00	176.95	6,254.0	-477.0	-50.3	474.8	0.00	0.00	
6,900.0	90.00	176.95	6,254.0	-576.9	-45.0	574.8	0.00	0.00	
7,000.0	90.00	176.95	6,254.0	-676.7	-39.7	674.8	0.00	0.00	
7,100.0	90.00	176.95	6,254.0	-776.6	-34.4	774.8	0.00	0.00	
7,200.0	90.00	176.95	6,254.0	-876.4	-29.1	874.8	0.00	0.00	
7,300.0	90.00	176.95	6,254.0	-976.3	-23.7	974.8	0.00	0.00	
7,400.0	90.00	176.95	6,254.0	-1,076.2	-18.4	1,074.7	0.00	0.00	
7,500.0	90.00	176.95	6,254.0	-1,176.0	-13.1	1,174.7	0.00	0.00	
7,600.0	90.00	176.95	6,254.0	-1,275.9	-7.8	1,274.7	0.00	0.00	
7,700.0	90.00	176.95	6,254.0	-1,375.7	-2.5	1,374.7	0.00	0.00	
7,800.0	90.00	176.95	6,254.0	-1,475.6	2.9	1,474.7	0.00	0.00	
7,900.0	90.00	176.95	6,254.0	-1,575.5	8.2	1,574.7	0.00	0.00	
8,000.0	90.00	176.95	6,254.0	-1,675.3	13.5	1,674.7	0.00	0.00	
8,100.0	90.00	176.95	6,254.0	-1,775.2	18.8	1,774.6	0.00	0.00	
8,200.0	90.00	176.95	6,254.0	-1,875.0	24.1	1,874.6	0.00	0.00	
8,300.0	90.00	176.95	6,254.0	-1,974.9	29.5	1,974.6	0.00	0.00	
8,400.0	90.00	176.95	6,254.0	-2,074.7	34.8	2,074.6	0.00	0.00	
8,500.0	90.00	176.95	6,254.0	-2,174.6	40.1	2,174.6	0.00	0.00	
8,600.0	90.00	176.95	6,254.0	-2,274.5	45.4	2,274.6	0.00	0.00	
8,700.0	90.00	176.95	6,254.0	-2,374.3	50.7	2,374.6	0.00	0.00	
8,800.0	90.00	176.95	6,254.0	-2,474.2	56.1	2,474.6	0.00	0.00	
8,900.0	90.00	176.95	6,254.0	-2,574.0	61.4	2,574.5	0.00	0.00	
9,000.0	90.00	176.95	6,254.0	-2,673.9	66.7	2,674.5	0.00	0.00	

Cathedral Energy Services

Planning Report

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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 F-J-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
9,100.0	90.00	176.95	6,254.0	-2,773.8	72.0	2,774.5	0.00	0.00	
9,200.0	90.00	176.95	6,254.0	-2,873.6	77.3	2,874.5	0.00	0.00	
9,300.0	90.00	176.95	6,254.0	-2,973.5	82.7	2,974.5	0.00	0.00	
9,400.0	90.00	176.95	6,254.0	-3,073.3	88.0	3,074.5	0.00	0.00	
9,500.0	90.00	176.95	6,254.0	-3,173.2	93.3	3,174.5	0.00	0.00	
9,600.0	90.00	176.95	6,254.0	-3,273.0	98.6	3,274.5	0.00	0.00	
9,700.0	90.00	176.95	6,254.0	-3,372.9	103.9	3,374.4	0.00	0.00	
9,800.0	90.00	176.95	6,254.0	-3,472.8	109.2	3,474.4	0.00	0.00	
9,900.0	90.00	176.95	6,254.0	-3,572.6	114.6	3,574.4	0.00	0.00	
10,000.0	90.00	176.95	6,254.0	-3,672.5	119.9	3,674.4	0.00	0.00	
10,100.0	90.00	176.95	6,254.0	-3,772.3	125.2	3,774.4	0.00	0.00	
10,200.0	90.00	176.95	6,254.0	-3,872.2	130.5	3,874.4	0.00	0.00	
10,300.0	90.00	176.95	6,254.0	-3,972.1	135.8	3,974.4	0.00	0.00	
10,400.0	90.00	176.95	6,254.0	-4,071.9	141.2	4,074.3	0.00	0.00	
10,500.0	90.00	176.95	6,254.0	-4,171.8	146.5	4,174.3	0.00	0.00	
10,600.0	90.00	176.95	6,254.0	-4,271.6	151.8	4,274.3	0.00	0.00	
10,700.0	90.00	176.95	6,254.0	-4,371.5	157.1	4,374.3	0.00	0.00	
10,800.0	90.00	176.95	6,254.0	-4,471.3	162.4	4,474.3	0.00	0.00	
10,900.0	90.00	176.95	6,254.0	-4,571.2	167.8	4,574.3	0.00	0.00	
10,995.5	90.00	176.95	6,254.0	-4,666.6	172.8	4,669.8	0.00	0.00	TD @ 10,995.5' MD - Niobrara B Target

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
St 70 Holes F-J-4HNB (- plan hits target center	- Point	0.00	0.00	6,254.0	-4,666.6	172.8	1,367,114.72	3,324,693.62	40.335270	-104.335280
F-J-4HNB VP	- plan hits target center	- Point	0.00	0.00	5,657.2	303.4	-91.9	1,372,080.75	3,324,363.65	40.348913	-104.336230
F-J-4HNB TGT	- plan misses target center by 8.6ft at 6542.5ft MD (6245.6 TVD, -220.4 N, -64.0 E)	- Point	0.00	0.00	6,254.0	-218.6	-64.1	1,371,559.24	3,324,398.30	40.347480	-104.336130

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
6,636.0	6,254.0	7" - 627' FNL, 1314' FWL		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
10,995.5	6,254.0	Niobrara B Target		0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: Bonanza Creek Energy Operating Company, LLC
Project: Weld County
Site: State 70 Holes F-4 Pad
Well: State Seventy Holes F-J-4HNB
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well State Seventy Holes F-J-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

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
800.0	800.0	0.0	0.0	KOP @ 800'
994.5	994.3	6.3	-1.9	EOB @ 3.89°
5,473.4	5,462.9	297.0	-90.0	Start 2° Drop
5,667.8	5,657.2	303.4	-91.9	EOD @ Inc. = 0°
5,717.8	5,707.2	303.4	-91.9	Start 11° Build
6,399.6	6,210.3	-82.2	-71.4	EOB @ Inc. = 75°
6,499.6	6,236.2	-178.6	-66.2	Start 11° Build
6,636.0	6,254.0	-313.2	-59.1	LP @ 6,254' TVD, 90°
10,995.5	6,254.0	-4,666.6	172.8	TD @ 10,995.5' MD

Bonanza Creek Energy Operating Company, LLC

Weld County

State 70 Holes F-4 Pad

State Seventy Holes F-J-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 F-J-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 F-J-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	10,994.9	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	876.8	878.2	35.3	32.3	11.608	CC, ES
State Seventy Holes 21-24-4HNB - OH - Plan #1	1,000.0	1,000.7	39.9	36.3	11.253	SF
State Seventy Holes F21-J24-4HNB - OH - Plan #1	940.5	941.4	14.0	10.8	4.332	CC, ES
State Seventy Holes F21-J24-4HNB - OH - Plan #1	10,995.5	10,982.0	331.5	163.3	1.971	SF
State Seventy Holes F-J-4HC - OH - Plan #1	1,798.9	1,797.8	12.5	6.2	1.998	CC
State Seventy Holes F-J-4HC - OH - Plan #1	2,200.0	2,198.8	13.3	5.5	1.713	ES
State Seventy Holes F-J-4HC - OH - Plan #1	2,600.0	2,598.8	15.6	6.1	1.648	SF
State Seventy Holes K21-024-4HNB - OH - Plan #1	830.6	831.9	53.5	50.6	18.343	CC, ES
State Seventy Holes K21-024-4HNB - OH - Plan #1	900.0	900.8	55.0	51.8	17.157	SF

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-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 F-J-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									
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	Warning		
0.0	0.0	0.0	0.0	0.0	0.0	-176.02	-40.1	-2.8	40.2						
100.0	100.0	100.0	100.0	0.1	0.1	-176.02	-40.1	-2.8	40.2	39.9	0.30	135.370			
200.0	200.0	200.0	200.0	0.3	0.3	-176.02	-40.1	-2.8	40.2	39.5	0.65	62.197			
300.0	300.0	300.0	300.0	0.5	0.5	-176.02	-40.1	-2.8	40.2	39.2	0.99	40.373			
400.0	400.0	400.0	400.0	0.7	0.7	-176.02	-40.1	-2.8	40.2	38.8	1.34	29.887			
500.0	500.0	500.0	500.0	0.8	0.8	-176.02	-40.1	-2.8	40.2	38.5	1.69	23.725			
600.0	600.0	600.0	600.0	1.0	1.0	-176.02	-40.1	-2.8	40.2	38.1	2.04	19.669			
700.0	700.0	700.8	700.7	1.2	1.2	-178.15	-39.2	-1.3	39.2	36.8	2.39	16.374			
800.0	800.0	801.3	801.1	1.4	1.4	174.86	-36.4	3.3	36.6	33.9	2.75	13.314			
876.8	876.8	878.2	877.8	1.5	1.5	-178.07	-33.1	8.8	35.3	32.3	3.04	11.608 CC, ES			
900.0	900.0	901.3	900.8	1.5	1.6	178.26	-31.9	10.8	35.5	32.3	3.13	11.324			
1,000.0	999.8	1,000.7	999.4	1.7	1.8	161.13	-25.7	21.2	39.9	36.3	3.54	11.253 SF			
1,100.0	1,099.6	1,099.7	1,097.4	1.9	2.1	147.17	-18.5	33.2	48.9	45.0	3.96	12.361			
1,200.0	1,199.4	1,198.7	1,195.4	2.1	2.3	137.89	-11.4	45.2	59.9	55.6	4.37	13.723			
1,300.0	1,299.1	1,297.7	1,293.4	2.3	2.6	131.59	-4.2	57.1	72.0	67.2	4.77	15.083			
1,400.0	1,398.9	1,396.7	1,391.4	2.5	2.9	127.13	2.9	69.1	84.7	79.5	5.18	16.351			
1,500.0	1,498.7	1,495.7	1,489.5	2.7	3.2	123.84	10.1	81.1	97.8	92.2	5.59	17.501			
1,600.0	1,598.5	1,594.7	1,587.5	2.9	3.5	121.33	17.3	93.0	111.1	105.1	5.99	18.533			
1,700.0	1,698.2	1,693.7	1,685.5	3.1	3.7	119.36	24.4	105.0	124.6	118.2	6.40	19.458			
1,800.0	1,798.0	1,792.7	1,783.5	3.3	4.0	117.78	31.6	117.0	138.2	131.3	6.81	20.287			
1,900.0	1,897.8	1,891.7	1,881.5	3.5	4.3	116.48	38.7	128.9	151.8	144.6	7.22	21.032			
2,000.0	1,997.5	1,990.7	1,979.6	3.7	4.6	115.39	45.9	140.9	165.6	157.9	7.63	21.704			
2,100.0	2,097.3	2,089.7	2,077.6	3.9	4.9	114.48	53.1	152.9	179.4	171.3	8.04	22.312			
2,200.0	2,197.1	2,188.8	2,175.6	4.1	5.2	113.69	60.2	164.8	193.2	184.7	8.45	22.865			
2,300.0	2,296.8	2,287.8	2,273.6	4.3	5.5	113.01	67.4	176.8	207.1	198.2	8.86	23.369			
2,400.0	2,396.6	2,386.8	2,371.6	4.5	5.8	112.41	74.6	188.8	220.9	211.7	9.27	23.830			
2,500.0	2,496.4	2,485.8	2,469.7	4.8	6.1	111.89	81.7	200.7	234.9	225.2	9.68	24.253			
2,600.0	2,596.2	2,584.8	2,567.7	5.0	6.4	111.42	88.9	212.7	248.8	238.7	10.10	24.643			
2,700.0	2,695.9	2,683.8	2,665.7	5.2	6.7	111.00	96.0	224.7	262.7	252.2	10.51	25.002			
2,800.0	2,795.7	2,782.8	2,763.7	5.4	7.0	110.63	103.2	236.6	276.7	265.7	10.92	25.336			
2,900.0	2,895.5	2,881.8	2,861.7	5.6	7.3	110.29	110.4	248.6	290.6	279.3	11.33	25.645			
3,000.0	2,995.2	2,980.8	2,959.8	5.8	7.6	109.98	117.5	260.6	304.6	292.9	11.75	25.933			
3,100.0	3,095.0	3,079.8	3,057.8	6.0	7.9	109.70	124.7	272.5	318.6	306.4	12.16	26.202			
3,200.0	3,194.8	3,178.8	3,155.8	6.2	8.2	109.44	131.8	284.5	332.6	320.0	12.57	26.454			
3,300.0	3,294.5	3,277.8	3,253.8	6.4	8.5	109.20	139.0	296.5	346.6	333.6	12.98	26.690			
3,400.0	3,394.3	3,376.8	3,351.8	6.6	8.8	108.99	146.2	308.4	360.6	347.2	13.40	26.911			
3,500.0	3,494.1	3,475.8	3,449.8	6.8	9.1	108.78	153.3	320.4	374.6	360.7	13.81	27.119			
3,600.0	3,593.9	3,574.8	3,547.9	7.1	9.4	108.60	160.5	332.4	388.6	374.3	14.23	27.315			
3,700.0	3,693.6	3,673.8	3,645.9	7.3	9.7	108.42	167.7	344.4	402.6	387.9	14.64	27.500			
3,800.0	3,793.4	3,772.9	3,743.9	7.5	9.9	108.26	174.8	356.3	416.6	401.5	15.05	27.675			
3,900.0	3,893.2	3,871.9	3,841.9	7.7	10.2	108.11	182.0	368.3	430.6	415.1	15.47	27.841			
4,000.0	3,992.9	3,970.9	3,939.9	7.9	10.5	107.96	189.1	380.3	444.6	428.7	15.88	27.998			
4,100.0	4,092.7	4,069.9	4,038.0	8.1	10.8	107.83	196.3	392.2	458.6	442.3	16.29	28.148			
4,200.0	4,192.5	4,168.9	4,136.0	8.3	11.1	107.71	203.5	404.2	472.7	456.0	16.71	28.290			
4,300.0	4,292.2	4,267.9	4,234.0	8.5	11.4	107.59	210.6	416.2	486.7	469.6	17.12	28.425			

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-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 F-J-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						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	-171.30	-18.2	-2.8	18.4				
100.0	100.0	100.0	100.0	0.1	0.1	-171.30	-18.2	-2.8	18.4	18.1	0.30	62.104	
200.0	200.0	200.0	200.0	0.3	0.3	-171.30	-18.2	-2.8	18.4	17.8	0.65	28.534	
300.0	300.0	300.0	300.0	0.5	0.5	-171.30	-18.2	-2.8	18.4	17.4	0.99	18.522	
400.0	400.0	400.0	400.0	0.7	0.7	-171.30	-18.2	-2.8	18.4	17.1	1.34	13.711	
500.0	500.0	500.0	500.0	0.8	0.8	-171.30	-18.2	-2.8	18.4	16.7	1.69	10.884	
600.0	600.0	600.0	600.0	1.0	1.0	-171.30	-18.2	-2.8	18.4	16.4	2.04	9.024	
700.0	700.0	700.0	700.0	1.2	1.2	-171.30	-18.2	-2.8	18.4	16.0	2.39	7.706	
800.0	800.0	800.5	800.5	1.4	1.4	-174.12	-16.8	-1.7	16.9	14.2	2.74	6.165	
900.0	900.0	900.9	900.7	1.5	1.6	-170.89	-12.6	1.4	14.4	11.3	3.10	4.652	
940.5	940.5	941.4	941.2	1.6	1.6	179.02	-10.1	3.3	14.0	10.8	3.24	4.332 CC, ES	
1,000.0	999.8	1,000.8	1,000.3	1.7	1.8	163.68	-6.1	6.3	15.2	11.8	3.46	4.394	
1,100.0	1,099.6	1,100.5	1,099.7	1.9	2.0	145.95	0.7	11.3	19.8	15.9	3.85	5.135	
1,200.0	1,199.4	1,200.3	1,199.1	2.1	2.2	135.45	7.4	16.4	25.5	21.2	4.25	6.002	
1,300.0	1,299.1	1,300.0	1,298.5	2.3	2.4	128.93	14.2	21.4	31.7	27.1	4.64	6.832	
1,400.0	1,398.9	1,399.8	1,397.9	2.5	2.6	124.58	20.9	26.5	38.2	33.2	5.04	7.582	
1,500.0	1,498.7	1,499.5	1,497.3	2.7	2.8	121.51	27.6	31.5	44.9	39.5	5.44	8.246	
1,600.0	1,598.5	1,599.3	1,596.7	2.9	3.0	119.24	34.4	36.6	51.7	45.8	5.85	8.833	
1,700.0	1,698.2	1,699.0	1,696.1	3.1	3.2	117.50	41.1	41.6	58.5	52.2	6.25	9.351	
1,800.0	1,798.0	1,798.8	1,795.5	3.3	3.5	116.12	47.9	46.7	65.3	58.7	6.66	9.810	
1,900.0	1,897.8	1,898.6	1,894.9	3.5	3.7	115.01	54.6	51.7	72.2	65.2	7.07	10.220	
2,000.0	1,997.5	1,998.3	1,994.2	3.7	3.9	114.09	61.4	56.7	79.2	71.7	7.48	10.586	
2,100.0	2,097.3	2,098.1	2,093.6	3.9	4.1	113.31	68.1	61.8	86.1	78.2	7.89	10.916	
2,200.0	2,197.1	2,197.8	2,193.0	4.1	4.3	112.65	74.8	66.8	93.1	84.8	8.30	11.213	
2,300.0	2,296.8	2,297.6	2,292.4	4.3	4.6	112.09	81.6	71.9	100.0	91.3	8.71	11.483	
2,400.0	2,396.6	2,397.3	2,391.8	4.5	4.8	111.60	88.3	76.9	107.0	97.9	9.12	11.729	
2,500.0	2,496.4	2,497.1	2,491.2	4.8	5.0	111.16	95.1	82.0	114.0	104.4	9.53	11.954	
2,600.0	2,596.2	2,596.8	2,590.6	5.0	5.2	110.78	101.8	87.0	120.9	111.0	9.95	12.160	
2,700.0	2,695.9	2,696.6	2,690.0	5.2	5.5	110.44	108.6	92.1	127.9	117.6	10.36	12.350	
2,800.0	2,795.7	2,796.3	2,789.4	5.4	5.7	110.14	115.3	97.1	134.9	124.1	10.77	12.526	
2,900.0	2,895.5	2,896.1	2,888.8	5.6	5.9	109.86	122.0	102.1	141.9	130.7	11.18	12.688	
3,000.0	2,995.2	2,995.8	2,988.2	5.8	6.1	109.61	128.8	107.2	148.9	137.3	11.60	12.839	
3,100.0	3,095.0	3,095.6	3,087.6	6.0	6.4	109.39	135.5	112.2	155.9	143.9	12.01	12.979	
3,200.0	3,194.8	3,195.3	3,187.0	6.2	6.6	109.18	142.3	117.3	162.9	150.5	12.43	13.110	
3,300.0	3,294.5	3,295.1	3,286.4	6.4	6.8	108.99	149.0	122.3	169.9	157.1	12.84	13.233	
3,400.0	3,394.3	3,394.8	3,385.8	6.6	7.1	108.81	155.8	127.4	176.9	163.7	13.25	13.348	
3,500.0	3,494.1	3,494.6	3,485.2	6.8	7.3	108.65	162.5	132.4	183.9	170.3	13.67	13.455	
3,600.0	3,593.9	3,594.4	3,584.6	7.1	7.5	108.50	169.2	137.5	190.9	176.8	14.08	13.557	
3,700.0	3,693.6	3,694.1	3,684.0	7.3	7.7	108.36	176.0	142.5	197.9	183.4	14.50	13.653	
3,800.0	3,793.4	3,793.9	3,783.4	7.5	8.0	108.23	182.7	147.5	205.0	190.0	14.91	13.743	
3,900.0	3,893.2	3,893.6	3,882.8	7.7	8.2	108.11	189.5	152.6	212.0	196.6	15.33	13.828	
4,000.0	3,992.9	3,993.4	3,982.2	7.9	8.4	108.00	196.2	157.6	219.0	203.2	15.74	13.909	
4,100.0	4,092.7	4,093.1	4,081.6	8.1	8.6	107.89	202.9	162.7	226.0	209.8	16.16	13.986	
4,200.0	4,192.5	4,192.9	4,181.0	8.3	8.9	107.79	209.7	167.7	233.0	216.4	16.57	14.059	
4,300.0	4,292.2	4,292.6	4,280.4	8.5	9.1	107.70	216.4	172.8	240.0	223.0	16.99	14.128	
4,400.0	4,392.0	4,392.4	4,379.8	8.7	9.3	107.61	223.2	177.8	247.0	229.6	17.40	14.194	
4,500.0	4,491.8	4,492.1	4,479.2	8.9	9.5	107.52	229.9	182.8	254.0	236.2	17.82	14.256	
4,600.0	4,591.5	4,591.9	4,578.6	9.2	9.8	107.44	236.7	187.9	261.1	242.8	18.24	14.316	
4,700.0	4,691.3	4,691.6	4,678.0	9.4	10.0	107.37	243.4	192.9	268.1	249.4	18.65	14.374	
4,800.0	4,791.1	4,791.4	4,777.4	9.6	10.2	107.30	250.1	198.0	275.1	256.0	19.07	14.428	
4,900.0	4,890.9	4,891.1	4,876.8	9.8	10.5	107.23	256.9	203.0	282.1	262.6	19.48	14.481	
5,000.0	4,990.6	4,990.9	4,976.2	10.0	10.7	107.16	263.6	208.1	289.1	269.2	19.90	14.531	

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 F-J-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 F-J-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						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	5,090.4	5,090.6	5,075.6	10.2	10.9	107.10	270.4	213.1	296.1	275.8	20.31	14.579		
5,200.0	5,190.2	5,190.4	5,174.9	10.4	11.1	107.04	277.1	218.2	303.2	282.4	20.73	14.625		
5,300.0	5,289.9	5,290.2	5,274.3	10.6	11.4	106.99	283.9	223.2	310.2	289.0	21.15	14.669		
5,400.0	5,389.7	5,389.9	5,373.7	10.8	11.6	106.94	290.6	228.2	317.2	295.6	21.56	14.712		
5,500.0	5,489.5	5,493.9	5,477.4	11.0	11.8	106.99	297.1	233.1	323.8	301.8	21.98	14.734		
5,600.0	5,589.4	5,601.0	5,584.4	11.2	12.0	107.13	300.9	235.9	327.6	305.3	22.34	14.667		
5,700.0	5,689.4	5,706.0	5,689.4	11.4	12.1	90.30	301.6	236.5	328.4	305.7	22.72	14.456		
5,800.0	5,789.0	5,803.0	5,786.1	11.4	12.2	-86.69	295.6	236.8	328.4	305.6	22.80	14.404		
5,900.0	5,885.7	5,900.0	5,880.1	11.4	12.2	-86.84	272.1	238.1	328.4	305.7	22.66	14.493		
6,000.0	5,975.8	5,996.3	5,967.4	11.2	12.0	-87.11	232.1	240.2	328.3	306.0	22.34	14.696		
6,100.0	6,056.0	6,093.3	6,046.5	11.1	11.9	-87.48	176.1	243.3	328.2	306.2	21.99	14.924		
6,200.0	6,123.4	6,190.8	6,114.1	11.0	11.8	-87.94	106.2	247.0	328.2	306.4	21.80	15.056		
6,300.0	6,175.5	6,288.8	6,167.7	11.0	11.8	-88.48	24.5	251.4	328.1	306.2	21.92	14.967		
6,373.8	6,203.0	6,361.5	6,197.1	11.3	12.0	-88.91	-41.9	255.0	328.1	305.8	22.33	14.695		
6,400.0	6,210.4	6,387.4	6,205.3	11.4	12.1	-89.08	-66.4	256.3	328.1	305.6	22.51	14.580		
6,500.0	6,236.3	6,487.2	6,231.4	11.9	12.6	-89.13	-162.6	261.5	328.2	304.6	23.58	13.920		
6,600.0	6,252.7	6,586.6	6,251.0	12.7	13.2	-89.71	-259.8	266.8	328.2	303.2	25.08	13.089		
6,700.0	6,254.0	6,686.5	6,254.0	13.6	14.1	-90.00	-359.4	272.2	328.3	301.3	26.97	12.171		
6,800.0	6,254.0	6,786.5	6,254.0	14.7	15.2	-90.00	-459.3	277.6	328.4	299.2	29.18	11.255		
6,900.0	6,254.0	6,886.5	6,254.0	16.0	16.3	-90.00	-559.2	283.0	328.4	296.8	31.61	10.390		
7,000.0	6,254.0	6,986.5	6,254.0	17.3	17.6	-90.00	-659.0	288.3	328.5	294.3	34.24	9.596		
7,100.0	6,254.0	7,086.5	6,254.0	18.7	18.9	-90.00	-758.9	293.7	328.6	291.6	37.01	8.879		
7,200.0	6,254.0	7,186.5	6,254.0	20.1	20.3	-90.00	-858.7	299.1	328.7	288.8	39.90	8.238		
7,300.0	6,254.0	7,286.5	6,254.0	21.6	21.8	-90.00	-958.6	304.5	328.7	285.9	42.88	7.667		
7,400.0	6,254.0	7,386.5	6,254.0	23.1	23.3	-90.00	-1,058.4	309.9	328.8	282.9	45.93	7.158		
7,500.0	6,254.0	7,486.5	6,254.0	24.7	24.8	-90.00	-1,158.3	315.3	328.9	279.8	49.05	6.705		
7,600.0	6,254.0	7,586.5	6,254.0	26.3	26.4	-90.00	-1,258.1	320.7	329.0	276.7	52.22	6.299		
7,700.0	6,254.0	7,686.5	6,254.0	27.9	27.9	-90.00	-1,358.0	326.1	329.0	273.6	55.43	5.936		
7,800.0	6,254.0	7,786.5	6,254.0	29.5	29.5	-90.00	-1,457.8	331.5	329.1	270.4	58.68	5.609		
7,900.0	6,254.0	7,886.5	6,254.0	31.2	31.2	-90.00	-1,557.7	336.9	329.2	267.2	61.95	5.314		
8,000.0	6,254.0	7,986.5	6,254.0	32.8	32.8	-90.00	-1,657.6	342.3	329.3	264.0	65.25	5.046		
8,100.0	6,254.0	8,086.5	6,254.0	34.5	34.4	-90.00	-1,757.4	347.7	329.3	260.8	68.57	4.803		
8,200.0	6,254.0	8,186.5	6,254.0	36.1	36.1	-90.00	-1,857.3	353.1	329.4	257.5	71.91	4.581		
8,300.0	6,254.0	8,286.5	6,254.0	37.8	37.7	-90.00	-1,957.1	358.5	329.5	254.2	75.26	4.378		
8,400.0	6,254.0	8,386.5	6,254.0	39.5	39.4	-90.00	-2,057.0	363.8	329.6	250.9	78.63	4.191		
8,500.0	6,254.0	8,486.5	6,254.0	41.2	41.1	-90.00	-2,156.8	369.2	329.6	247.6	82.01	4.019		
8,600.0	6,254.0	8,586.5	6,254.0	42.9	42.8	-90.00	-2,256.7	374.6	329.7	244.3	85.40	3.860		
8,700.0	6,254.0	8,686.5	6,254.0	44.6	44.5	-90.00	-2,356.5	380.0	329.8	241.0	88.80	3.713		
8,800.0	6,254.0	8,786.5	6,254.0	46.3	46.2	-90.00	-2,456.4	385.4	329.8	237.6	92.21	3.577		
8,900.0	6,254.0	8,886.5	6,254.0	48.0	47.9	-90.00	-2,556.2	390.8	329.9	234.3	95.63	3.450		
9,000.0	6,254.0	8,986.5	6,254.0	49.7	49.6	-90.00	-2,656.1	396.2	330.0	230.9	99.05	3.331		
9,100.0	6,254.0	9,086.5	6,254.0	51.4	51.3	-90.00	-2,756.0	401.6	330.1	227.6	102.48	3.221		
9,200.0	6,254.0	9,186.5	6,254.0	53.1	53.0	-90.00	-2,855.8	407.0	330.1	224.2	105.92	3.117		
9,300.0	6,254.0	9,286.5	6,254.0	54.9	54.7	-90.00	-2,955.7	412.4	330.2	220.9	109.36	3.020		
9,400.0	6,254.0	9,386.5	6,254.0	56.6	56.4	-90.00	-3,055.5	417.8	330.3	217.5	112.80	2.928		
9,500.0	6,254.0	9,486.5	6,254.0	58.3	58.1	-90.00	-3,155.4	423.2	330.4	214.1	116.25	2.842		
9,600.0	6,254.0	9,586.5	6,254.0	60.0	59.9	-90.00	-3,255.2	428.6	330.4	210.7	119.70	2.760		
9,700.0	6,254.0	9,686.5	6,254.0	61.8	61.6	-90.00	-3,355.1	434.0	330.5	207.3	123.16	2.684		
9,800.0	6,254.0	9,786.5	6,254.0	63.5	63.3	-90.00	-3,454.9	439.3	330.6	204.0	126.62	2.611		
9,900.0	6,254.0	9,886.5	6,254.0	65.2	65.0	-90.00	-3,554.8	444.7	330.7	200.6	130.08	2.542		
10,000.0	6,254.0	9,986.5	6,254.0	66.9	66.8	-90.00	-3,654.6	450.1	330.7	197.2	133.54	2.477		
10,100.0	6,254.0	10,086.5	6,254.0	68.7	68.5	-90.00	-3,754.5	455.5	330.8	193.8	137.01	2.414		

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 F-J-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 F-J-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										
Measured Depth	Vertical	Measured	Vertical	Reference	Offset	Highside	Offset Wellbore	Centre	Between	Between	Total	Separation			Warning		
Depth	Depth	Depth	Depth			Toolface	+N/-S	+E/-W	Centres	Ellipses	Uncertainty	Factor					
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	Axis						
10,200.0	6,254.0	10,186.5	6,254.0	70.4	70.2	-90.00	-3,854.4	460.9	330.9	190.4	140.48	2.355					
10,300.0	6,254.0	10,286.5	6,254.0	72.1	72.0	-90.00	-3,954.2	466.3	330.9	187.0	143.95	2.299					
10,400.0	6,254.0	10,386.5	6,254.0	73.9	73.7	-90.00	-4,054.1	471.7	331.0	183.6	147.42	2.245					
10,500.0	6,254.0	10,486.5	6,254.0	75.6	75.4	-90.00	-4,153.9	477.1	331.1	180.2	150.90	2.194					
10,600.0	6,254.0	10,586.5	6,254.0	77.4	77.2	-90.00	-4,253.8	482.5	331.2	176.8	154.38	2.145					
10,700.0	6,254.0	10,686.5	6,254.0	79.1	78.9	-90.00	-4,353.6	487.9	331.2	173.4	157.85	2.098					
10,800.0	6,254.0	10,786.5	6,254.0	80.8	80.6	-90.00	-4,453.5	493.3	331.3	170.0	161.33	2.054					
10,900.0	6,254.0	10,886.5	6,254.0	82.6	82.4	-90.00	-4,553.3	498.7	331.4	166.6	164.82	2.011					
10,995.5	6,254.0	10,982.0	6,254.0	84.2	84.0	-90.00	-4,648.7	503.8	331.5	163.3	168.14	1.971 SF					

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-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 F-J-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	0.00	21.9	0.0	21.9					
100.0	100.0	100.0	100.0	0.1	0.1	0.00	21.9	0.0	21.9	21.6	0.30	73.668		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	21.9	0.0	21.9	21.2	0.65	33.847		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	21.9	0.0	21.9	20.9	0.99	21.971		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	21.9	0.0	21.9	20.5	1.34	16.264		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	21.9	0.0	21.9	20.2	1.69	12.911		
600.0	600.0	600.0	600.0	1.0	1.0	0.00	21.9	0.0	21.9	19.8	2.04	10.704		
700.0	700.0	700.0	700.0	1.2	1.2	0.00	21.9	0.0	21.9	19.5	2.39	9.141		
800.0	800.0	800.0	800.0	1.4	1.4	0.00	21.9	0.0	21.9	19.1	2.74	7.977		
900.0	900.0	900.0	900.0	1.5	1.5	18.30	21.9	0.0	20.2	17.1	3.09	6.539		
1,000.0	999.8	999.4	999.3	1.7	1.7	21.12	23.4	-0.8	16.8	13.3	3.43	4.885		
1,100.0	1,099.6	1,098.9	1,098.8	1.9	1.9	20.24	28.0	-3.1	14.9	11.1	3.79	3.934		
1,200.0	1,199.4	1,198.9	1,198.5	2.1	2.1	16.32	33.9	-6.1	14.3	10.1	4.14	3.453		
1,300.0	1,299.1	1,298.9	1,298.3	2.3	2.3	12.08	39.8	-9.1	13.8	9.3	4.49	3.065		
1,400.0	1,398.9	1,398.9	1,398.1	2.5	2.5	7.51	45.7	-12.0	13.3	8.5	4.84	2.750		
1,500.0	1,498.7	1,498.9	1,497.9	2.7	2.7	2.66	51.6	-15.0	12.9	7.8	5.18	2.496		
1,600.0	1,598.5	1,598.9	1,597.6	2.9	2.9	-2.43	57.6	-18.0	12.7	7.1	5.53	2.292		
1,700.0	1,698.2	1,698.9	1,697.4	3.1	3.1	-7.69	63.5	-21.0	12.5	6.6	5.88	2.128		
1,798.9	1,796.9	1,797.8	1,796.1	3.3	3.3	-12.99	69.3	-23.9	12.5	6.2	6.23	1.998 CC		
1,800.0	1,798.0	1,798.9	1,797.2	3.3	3.3	-13.05	69.4	-24.0	12.5	6.2	6.24	1.997		
1,900.0	1,897.8	1,898.9	1,896.9	3.5	3.5	-18.40	75.3	-26.9	12.5	5.9	6.60	1.895		
2,000.0	1,997.5	1,998.9	1,996.7	3.7	3.7	-23.66	81.2	-29.9	12.7	5.7	6.98	1.816		
2,100.0	2,097.3	2,098.8	2,096.5	3.9	3.9	-28.75	87.1	-32.9	12.9	5.6	7.37	1.756		
2,200.0	2,197.1	2,198.8	2,196.3	4.1	4.1	-33.60	93.0	-35.9	13.3	5.5	7.77	1.713 ES		
2,300.0	2,296.8	2,298.8	2,296.0	4.3	4.3	-38.15	98.9	-38.9	13.8	5.6	8.18	1.683		
2,400.0	2,396.6	2,398.8	2,395.8	4.5	4.5	-42.39	104.8	-41.8	14.3	5.7	8.60	1.663		
2,500.0	2,496.4	2,498.8	2,495.6	4.8	4.7	-46.30	110.7	-44.8	14.9	5.9	9.03	1.652		
2,600.0	2,596.2	2,598.8	2,595.4	5.0	4.9	-49.89	116.7	-47.8	15.6	6.1	9.46	1.648 SF		
2,700.0	2,695.9	2,698.8	2,695.1	5.2	5.1	-53.18	122.6	-50.8	16.3	6.4	9.89	1.649		
2,800.0	2,795.7	2,798.8	2,794.9	5.4	5.3	-56.17	128.5	-53.8	17.1	6.8	10.33	1.655		
2,900.0	2,895.5	2,898.8	2,894.7	5.6	5.5	-58.90	134.4	-56.7	17.9	7.1	10.76	1.664		
3,000.0	2,995.2	2,998.8	2,994.5	5.8	5.7	-61.38	140.3	-59.7	18.8	7.6	11.20	1.675		
3,100.0	3,095.0	3,098.8	3,094.2	6.0	5.9	-63.64	146.2	-62.7	19.7	8.0	11.63	1.689		
3,200.0	3,194.8	3,198.8	3,194.0	6.2	6.1	-65.70	152.1	-65.7	20.6	8.5	12.07	1.704		
3,300.0	3,294.5	3,298.8	3,293.8	6.4	6.3	-67.59	158.0	-68.7	21.5	9.0	12.51	1.720		
3,400.0	3,394.3	3,398.8	3,393.6	6.6	6.6	-69.32	163.9	-71.6	22.5	9.5	12.94	1.737		
3,500.0	3,494.1	3,498.8	3,493.3	6.8	6.8	-70.90	169.8	-74.6	23.5	10.1	13.37	1.754		
3,600.0	3,593.9	3,598.7	3,593.1	7.1	7.0	-72.35	175.7	-77.6	24.4	10.6	13.80	1.771		
3,700.0	3,693.6	3,698.7	3,692.9	7.3	7.2	-73.69	181.7	-80.6	25.5	11.2	14.24	1.788		
3,800.0	3,793.4	3,798.7	3,792.7	7.5	7.4	-74.93	187.6	-83.5	26.5	11.8	14.67	1.806		
3,900.0	3,893.2	3,898.7	3,892.4	7.7	7.6	-76.07	193.5	-86.5	27.5	12.4	15.10	1.823		
4,000.0	3,992.9	3,998.7	3,992.2	7.9	7.8	-77.13	199.4	-89.5	28.6	13.0	15.53	1.840		
4,100.0	4,092.7	4,098.7	4,092.0	8.1	8.0	-78.12	205.3	-92.5	29.6	13.7	15.95	1.857		
4,200.0	4,192.5	4,198.7	4,191.7	8.3	8.2	-79.04	211.2	-95.5	30.7	14.3	16.38	1.873		
4,300.0	4,292.2	4,298.7	4,291.5	8.5	8.4	-79.89	217.1	-98.4	31.8	15.0	16.81	1.889		
4,400.0	4,392.0	4,398.7	4,391.3	8.7	8.6	-80.69	223.0	-101.4	32.8	15.6	17.23	1.905		
4,500.0	4,491.8	4,498.7	4,491.1	8.9	8.8	-81.44	228.9	-104.4	33.9	16.3	17.66	1.921		
4,600.0	4,591.5	4,598.7	4,590.8	9.2	9.0	-82.14	234.8	-107.4	35.0	16.9	18.09	1.936		
4,700.0	4,691.3	4,698.7	4,690.6	9.4	9.3	-82.80	240.8	-110.4	36.1	17.6	18.51	1.950		
4,800.0	4,791.1	4,798.7	4,790.4	9.6	9.5	-83.42	246.7	-113.3	37.2	18.3	18.93	1.965		
4,900.0	4,890.9	4,898.7	4,890.2	9.8	9.7	-84.01	252.6	-116.3	38.3	18.9	19.36	1.979		
5,000.0	4,990.6	4,998.6	4,989.9	10.0	9.9	-84.56	258.5	-119.3	39.4	19.6	19.78	1.992		

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 F-J-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 F-J-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: O-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	5,090.4	5,098.6	5,089.7	10.2	10.1	-85.08	264.4	-122.3	40.5	20.3	20.21	2.005		
5,200.0	5,190.2	5,198.6	5,189.5	10.4	10.3	-85.58	270.3	-125.3	41.6	21.0	20.63	2.018		
5,300.0	5,289.9	5,298.6	5,289.3	10.6	10.5	-86.04	276.2	-128.2	42.7	21.7	21.05	2.031		
5,400.0	5,389.7	5,398.6	5,389.0	10.8	10.7	-86.49	282.1	-131.2	43.9	22.4	21.47	2.043		
5,500.0	5,489.5	5,498.6	5,488.8	11.0	10.9	-86.76	288.0	-134.2	45.0	23.1	21.89	2.055		
5,600.0	5,589.4	5,598.6	5,588.5	11.2	11.1	-83.89	293.9	-137.2	46.3	24.1	22.23	2.084		
5,700.0	5,689.4	5,698.6	5,688.4	11.4	11.3	-94.33	299.7	-140.1	48.3	26.0	22.35	2.162		
5,800.0	5,789.0	5,798.8	5,788.5	11.4	11.5	99.91	303.1	-141.8	50.6	28.3	22.31	2.270		
5,900.0	5,885.7	5,896.0	5,885.7	11.4	11.7	122.93	303.7	-142.1	60.9	39.7	21.17	2.875		
6,000.0	5,975.8	5,998.8	5,988.0	11.2	11.7	142.84	295.9	-141.7	86.8	67.2	19.63	4.421		
6,100.0	6,056.0	6,111.7	6,096.3	11.1	11.7	153.31	264.6	-140.0	117.1	98.9	18.26	6.414		
6,200.0	6,123.4	6,235.6	6,204.2	11.0	11.5	159.15	204.4	-136.8	146.4	129.5	16.94	8.643		
6,300.0	6,175.5	6,371.7	6,302.7	11.0	11.4	162.56	111.3	-131.8	171.3	155.5	15.79	10.845		
6,400.0	6,210.4	6,519.1	6,378.3	11.4	11.6	164.48	-14.6	-125.1	188.9	173.8	15.06	12.540		
6,500.0	6,236.3	6,644.2	6,415.3	11.9	12.2	164.87	-133.8	-118.8	191.9	176.2	15.73	12.198		
6,600.0	6,252.7	6,774.6	6,442.4	12.7	13.1	165.27	-261.0	-112.0	197.1	181.4	15.62	12.614		
6,700.0	6,254.0	6,893.7	6,445.0	13.6	14.2	165.30	-379.8	-105.7	197.5	181.2	16.23	12.164		
6,800.0	6,254.0	6,993.7	6,445.0	14.7	15.4	165.30	-479.7	-100.4	197.5	180.5	16.96	11.641		
6,900.0	6,254.0	7,093.7	6,445.0	16.0	16.6	165.30	-579.5	-95.0	197.5	179.7	17.71	11.147		
7,000.0	6,254.0	7,193.7	6,445.0	17.3	17.9	165.30	-679.4	-89.7	197.5	179.0	18.49	10.681		
7,100.0	6,254.0	7,293.7	6,445.0	18.7	19.3	165.30	-779.2	-84.4	197.5	178.2	19.28	10.243		
7,200.0	6,254.0	7,393.7	6,445.0	20.1	20.7	165.30	-879.1	-79.1	197.5	177.4	20.08	9.832		
7,300.0	6,254.0	7,493.7	6,445.0	21.6	22.2	165.30	-979.0	-73.8	197.5	176.6	20.90	9.447		
7,400.0	6,254.0	7,593.7	6,445.0	23.1	23.7	165.30	-1,078.8	-68.4	197.5	175.7	21.73	9.085		
7,500.0	6,254.0	7,693.7	6,445.0	24.7	25.3	165.30	-1,178.7	-63.1	197.5	174.9	22.58	8.746		
7,600.0	6,254.0	7,793.7	6,445.0	26.3	26.8	165.30	-1,278.5	-57.8	197.5	174.0	23.43	8.428		
7,700.0	6,254.0	7,893.7	6,445.0	27.9	28.4	165.30	-1,378.4	-52.5	197.5	173.2	24.29	8.129		
7,800.0	6,254.0	7,993.7	6,445.0	29.5	30.1	165.30	-1,478.3	-47.2	197.5	172.3	25.16	7.848		
7,900.0	6,254.0	8,093.7	6,445.0	31.2	31.7	165.30	-1,578.1	-41.9	197.5	171.4	26.04	7.584		
8,000.0	6,254.0	8,193.7	6,445.0	32.8	33.3	165.30	-1,678.0	-36.5	197.5	170.5	26.92	7.336		
8,100.0	6,254.0	8,293.7	6,445.0	34.5	35.0	165.30	-1,777.8	-31.2	197.5	169.7	27.81	7.102		
8,200.0	6,254.0	8,393.7	6,445.0	36.1	36.7	165.30	-1,877.7	-25.9	197.5	168.8	28.70	6.881		
8,300.0	6,254.0	8,493.7	6,445.0	37.8	38.3	165.30	-1,977.5	-20.6	197.5	167.9	29.60	6.672		
8,400.0	6,254.0	8,593.7	6,445.0	39.5	40.0	165.30	-2,077.4	-15.3	197.5	167.0	30.50	6.475		
8,500.0	6,254.0	8,693.7	6,445.0	41.2	41.7	165.30	-2,177.3	-9.9	197.5	166.1	31.40	6.288		
8,600.0	6,254.0	8,793.7	6,445.0	42.9	43.4	165.30	-2,277.1	-4.6	197.5	165.1	32.31	6.111		
8,700.0	6,254.0	8,893.7	6,445.0	44.6	45.1	165.30	-2,377.0	0.7	197.5	164.2	33.23	5.943		
8,800.0	6,254.0	8,993.7	6,445.0	46.3	46.8	165.30	-2,476.8	6.0	197.5	163.3	34.14	5.783		
8,900.0	6,254.0	9,093.7	6,445.0	48.0	48.5	165.30	-2,576.7	11.3	197.5	162.4	35.06	5.632		
9,000.0	6,254.0	9,193.7	6,445.0	49.7	50.2	165.30	-2,676.6	16.7	197.5	161.5	35.98	5.488		
9,100.0	6,254.0	9,293.7	6,445.0	51.4	51.9	165.30	-2,776.4	22.0	197.5	160.6	36.91	5.350		
9,200.0	6,254.0	9,393.7	6,445.0	53.1	53.6	165.30	-2,876.3	27.3	197.5	159.6	37.83	5.219		
9,300.0	6,254.0	9,493.7	6,445.0	54.9	55.3	165.30	-2,976.1	32.6	197.5	158.7	38.76	5.094		
9,400.0	6,254.0	9,593.7	6,445.0	56.6	57.1	165.30	-3,076.0	37.9	197.5	157.8	39.69	4.975		
9,500.0	6,254.0	9,693.7	6,445.0	58.3	58.8	165.30	-3,175.8	43.3	197.5	156.8	40.62	4.861		
9,600.0	6,254.0	9,793.7	6,445.0	60.0	60.5	165.30	-3,275.7	48.6	197.5	155.9	41.56	4.752		
9,700.0	6,254.0	9,893.7	6,445.0	61.8	62.2	165.30	-3,375.6	53.9	197.5	155.0	42.49	4.647		
9,800.0	6,254.0	9,993.7	6,445.0	63.5	64.0	165.30	-3,475.4	59.2	197.5	154.0	43.43	4.547		
9,900.0	6,254.0	10,093.7	6,445.0	65.2	65.7	165.30	-3,575.3	64.5	197.5	153.1	44.36	4.451		
10,000.0	6,254.0	10,193.7	6,445.0	66.9	67.4	165.30	-3,675.1	69.9	197.5	152.2	45.30	4.359		
10,100.0	6,254.0	10,293.7	6,445.0	68.7	69.2	165.30	-3,775.0	75.2	197.5	151.2	46.24	4.270		
10,200.0	6,254.0	10,393.7	6,445.0	70.4	70.9	165.30	-3,874.9	80.5	197.5	150.3	47.19	4.185		

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 F-J-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 F-J-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	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)							
10,300.0	6,254.0	10,493.7	6,445.0	72.1	72.6	165.30	-3,974.7	85.8	197.5	149.3	48.13	4.103					
10,400.0	6,254.0	10,593.7	6,445.0	73.9	74.4	165.30	-4,074.6	91.1	197.5	148.4	49.07	4.024					
10,500.0	6,254.0	10,693.7	6,445.0	75.6	76.1	165.30	-4,174.4	96.4	197.5	147.4	50.02	3.948					
10,600.0	6,254.0	10,793.7	6,445.0	77.4	77.8	165.30	-4,274.3	101.8	197.5	146.5	50.96	3.875					
10,700.0	6,254.0	10,893.7	6,445.0	79.1	79.6	165.30	-4,374.2	107.1	197.5	145.6	51.91	3.804					
10,800.0	6,254.0	10,993.7	6,445.0	80.8	81.3	165.30	-4,474.0	112.4	197.5	144.6	52.85	3.736					
10,900.0	6,254.0	11,093.7	6,445.0	82.6	83.0	165.30	-4,573.9	117.7	197.5	143.7	53.80	3.670					
10,957.2	6,254.0	11,150.9	6,445.0	83.6	84.0	165.30	-4,631.0	120.8	197.5	143.1	54.34	3.634					
10,995.5	6,254.0	11,186.6	6,445.0	84.2	84.7	165.30	-4,666.6	122.7	197.5	142.8	54.70	3.611					

Cathedral Energy Services

Anticollision Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-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 F-J-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 K21-024-4HNB - 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	-177.26	-58.3	-2.8	58.4					
100.0	100.0	100.0	100.0	0.1	0.1	-177.26	-58.3	-2.8	58.4	58.1	0.30	196.671		
200.0	200.0	200.0	200.0	0.3	0.3	-177.26	-58.3	-2.8	58.4	57.7	0.65	90.362		
300.0	300.0	300.0	300.0	0.5	0.5	-177.26	-58.3	-2.8	58.4	57.4	0.99	58.656		
400.0	400.0	400.0	400.0	0.7	0.7	-177.26	-58.3	-2.8	58.4	57.0	1.34	43.421		
500.0	500.0	500.0	500.0	0.8	0.8	-177.26	-58.3	-2.8	58.4	56.7	1.69	34.468		
600.0	600.0	600.8	600.8	1.0	1.0	-178.87	-57.6	-1.1	57.6	55.6	2.04	28.196		
700.0	700.0	701.4	701.2	1.2	1.2	176.11	-55.7	3.8	55.8	53.4	2.40	23.225		
800.0	800.0	801.4	800.9	1.4	1.4	167.18	-52.4	11.9	53.8	51.0	2.78	19.329		
830.6	830.6	831.9	831.2	1.4	1.5	-179.54	-51.2	15.1	53.5	50.6	2.92	18.343 CC, ES		
900.0	900.0	900.8	899.5	1.5	1.7	171.29	-48.0	23.2	55.0	51.8	3.21	17.157 SF		
1,000.0	999.8	999.1	996.6	1.7	1.9	157.81	-42.3	37.5	63.0	59.4	3.64	17.301		
1,100.0	1,099.6	1,096.2	1,091.9	1.9	2.3	146.24	-35.5	54.7	76.6	72.5	4.09	18.743		
1,200.0	1,199.4	1,193.9	1,187.5	2.1	2.6	137.41	-28.0	73.5	93.4	88.9	4.51	20.710		
1,300.0	1,299.1	1,291.6	1,283.1	2.3	3.0	131.34	-20.5	92.3	111.7	106.8	4.92	22.694		
1,400.0	1,398.9	1,389.3	1,378.7	2.5	3.4	127.00	-13.0	111.1	130.9	125.5	5.33	24.557		
1,500.0	1,498.7	1,487.1	1,474.3	2.7	3.7	123.77	-5.6	129.9	150.6	144.9	5.74	26.258		
1,600.0	1,598.5	1,584.8	1,569.9	2.9	4.1	121.29	1.9	148.7	170.7	164.5	6.14	27.794		
1,700.0	1,698.2	1,682.5	1,665.5	3.1	4.5	119.34	9.4	167.5	191.0	184.5	6.55	29.177		
1,800.0	1,798.0	1,780.2	1,761.1	3.3	4.9	117.76	16.8	186.3	211.5	204.6	6.95	30.422		
1,900.0	1,897.8	1,878.0	1,856.7	3.5	5.3	116.46	24.3	205.1	232.1	224.8	7.36	31.546		
2,000.0	1,997.5	1,975.7	1,952.3	3.7	5.7	115.37	31.8	223.9	252.9	245.1	7.77	32.562		
2,100.0	2,097.3	2,073.4	2,047.9	3.9	6.0	114.45	39.3	242.7	273.7	265.5	8.17	33.485		
2,200.0	2,197.1	2,171.1	2,143.6	4.1	6.4	113.65	46.7	261.5	294.5	285.9	8.58	34.326		
2,300.0	2,296.8	2,268.9	2,239.2	4.3	6.8	112.97	54.2	280.3	315.4	306.4	8.99	35.094		
2,400.0	2,396.6	2,366.6	2,334.8	4.5	7.2	112.36	61.7	299.1	336.4	327.0	9.40	35.798		
2,500.0	2,496.4	2,464.3	2,430.4	4.8	7.6	111.83	69.2	317.9	357.3	347.5	9.80	36.446		
2,600.0	2,596.2	2,562.0	2,526.0	5.0	8.0	111.36	76.6	336.7	378.3	368.1	10.21	37.044		
2,700.0	2,695.9	2,659.8	2,621.6	5.2	8.4	110.94	84.1	355.5	399.4	388.7	10.62	37.597		
2,800.0	2,795.7	2,757.5	2,717.2	5.4	8.8	110.55	91.6	374.3	420.4	409.4	11.03	38.110		
2,900.0	2,895.5	2,855.2	2,812.8	5.6	9.2	110.21	99.0	393.2	441.5	430.0	11.44	38.587		
3,000.0	2,995.2	2,952.9	2,908.4	5.8	9.6	109.90	106.5	412.0	462.5	450.7	11.85	39.032		
3,100.0	3,095.0	3,050.7	3,004.0	6.0	10.0	109.61	114.0	430.8	483.6	471.4	12.26	39.448		

Cathedral Energy Services

Anticollision Report

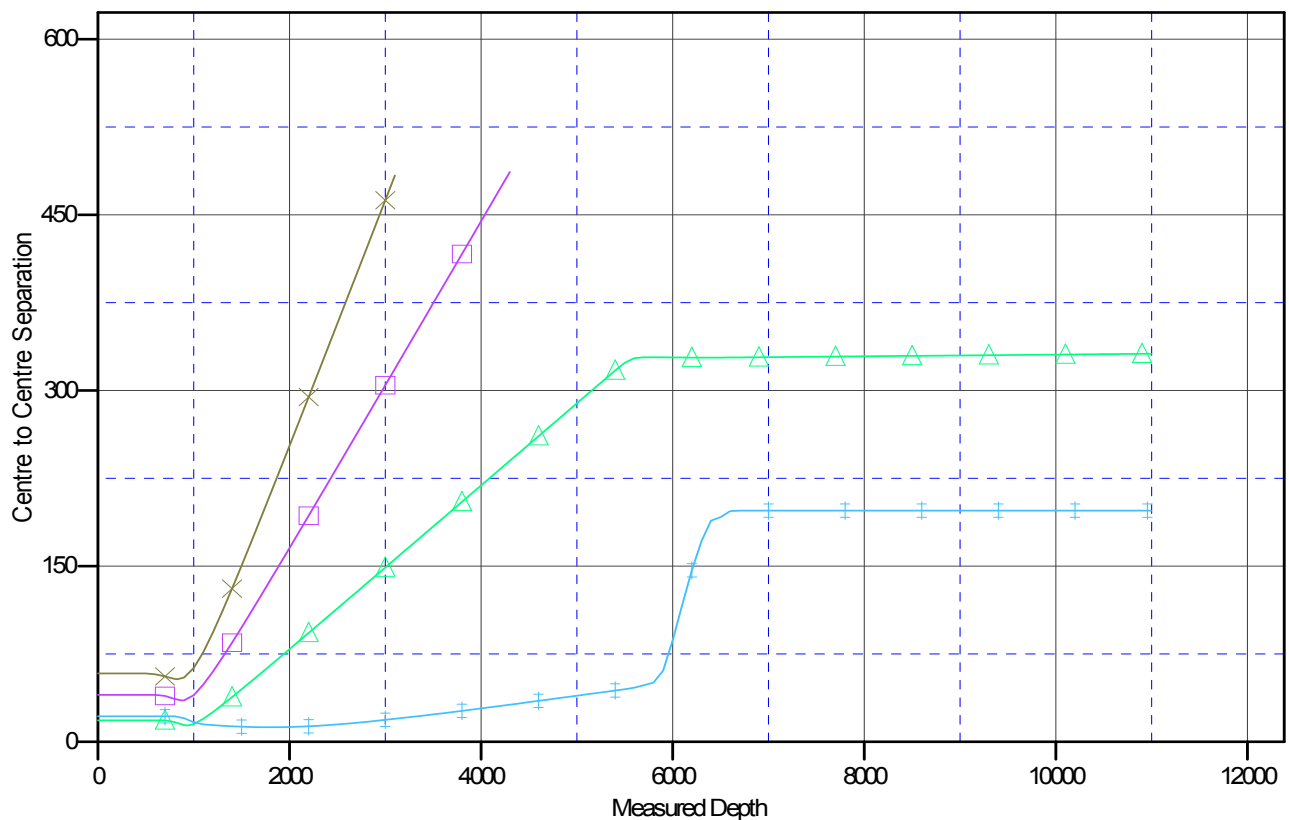
Company: Bonanza Creek Energy Operating Company, LLC
Project: Weld County
Reference Site: State 70 Holes F-4 Pad
Site Error: 0.0ft
Reference Well: State Seventy Holes F-J-4HNB
Well Error: 0.0ft
Reference Wellbore: OH
Reference Design: Plan #1

Local Co-ordinate Reference: Well State Seventy Holes F-J-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 F-J-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-4HC, OH, Plan #1 V0
 State Seventy Holes F21-J24-4HNB, OH, Plan #1 V0 State Seventy Holes 21-24-4HNB, OH, Plan #1 V0