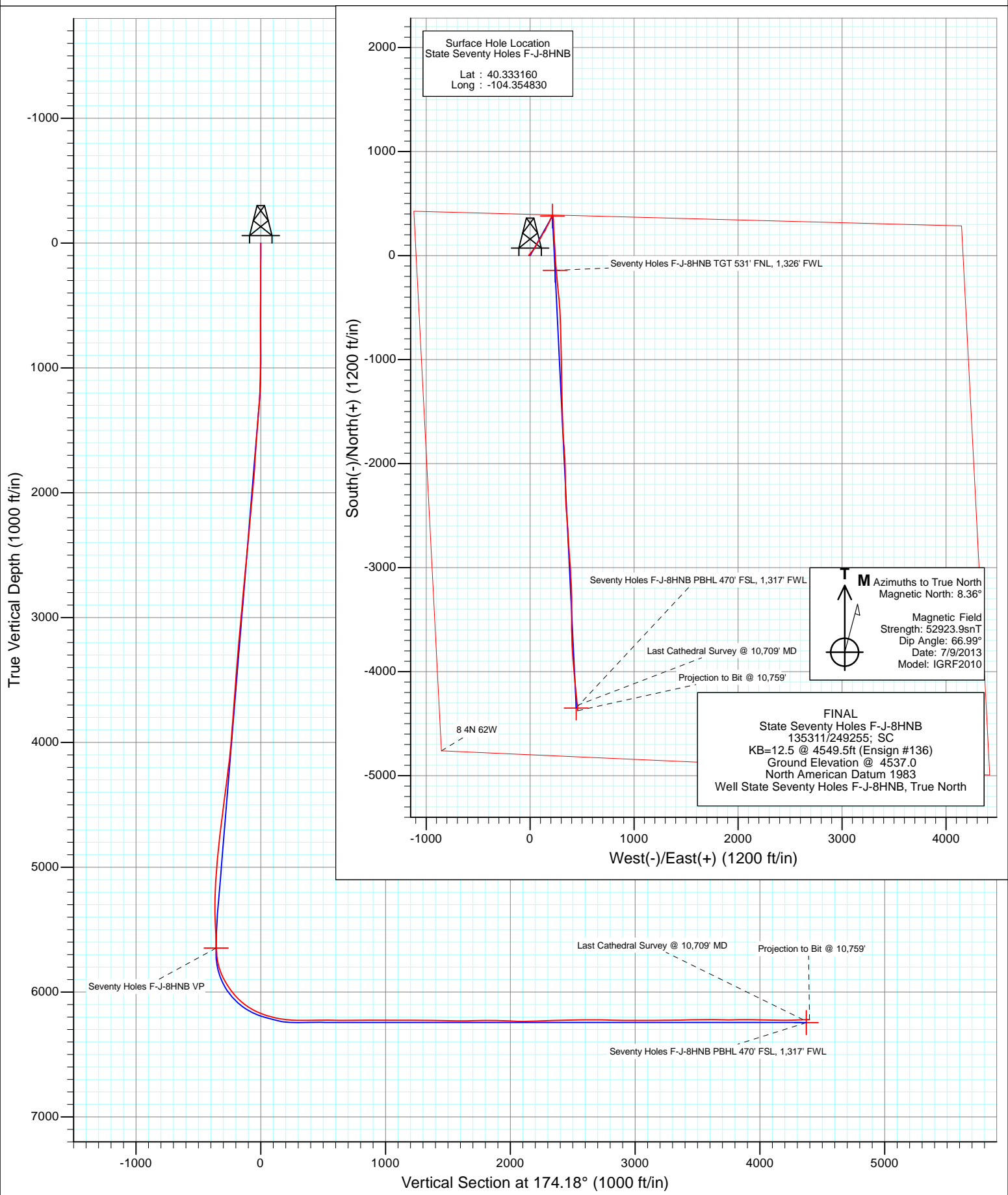


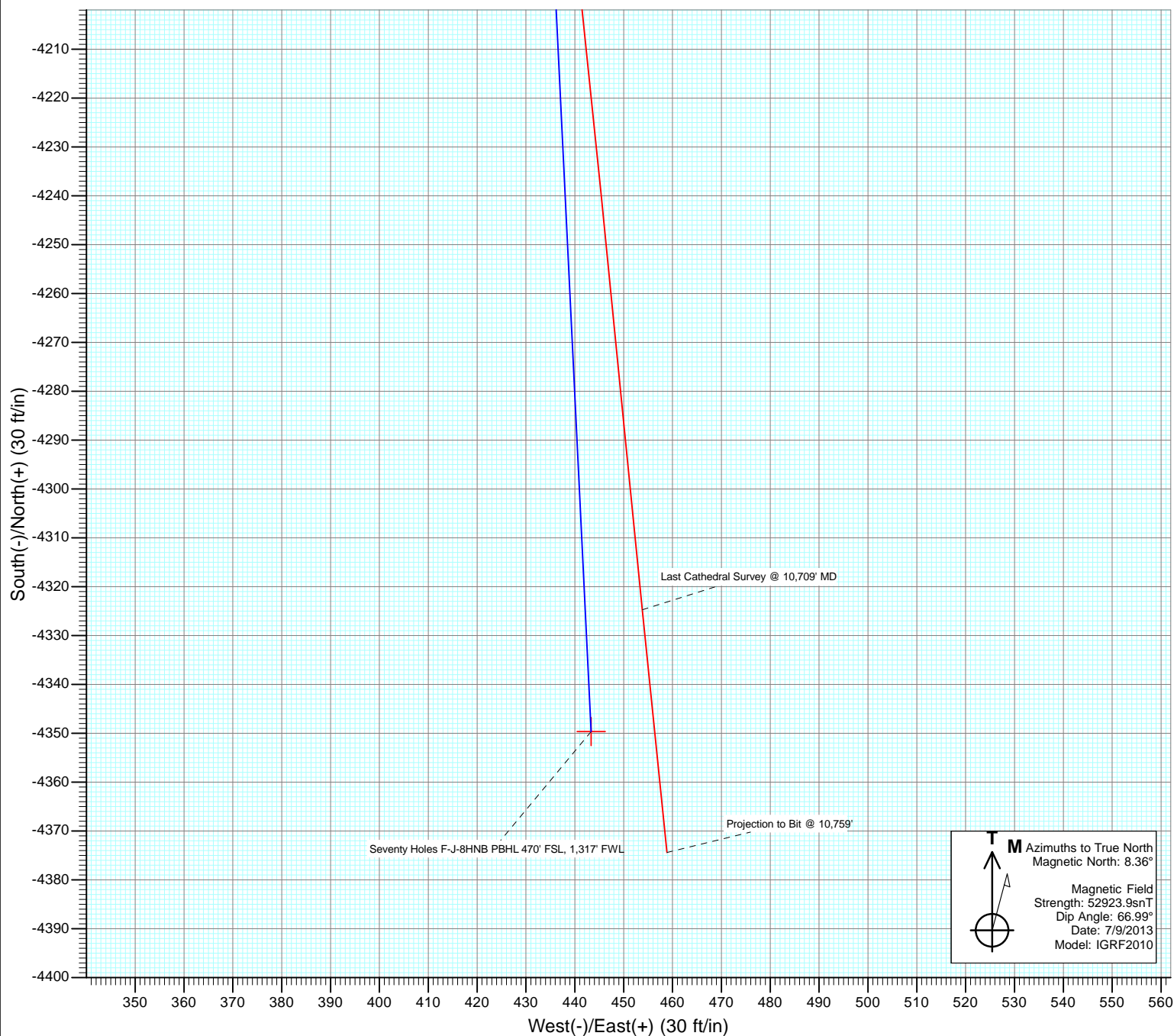


Project: Weld County
Site: State Seventy Holes F-8 Pad
Well: State Seventy Holes F-J-8HNB
Wellbore: OH
Design: FINAL

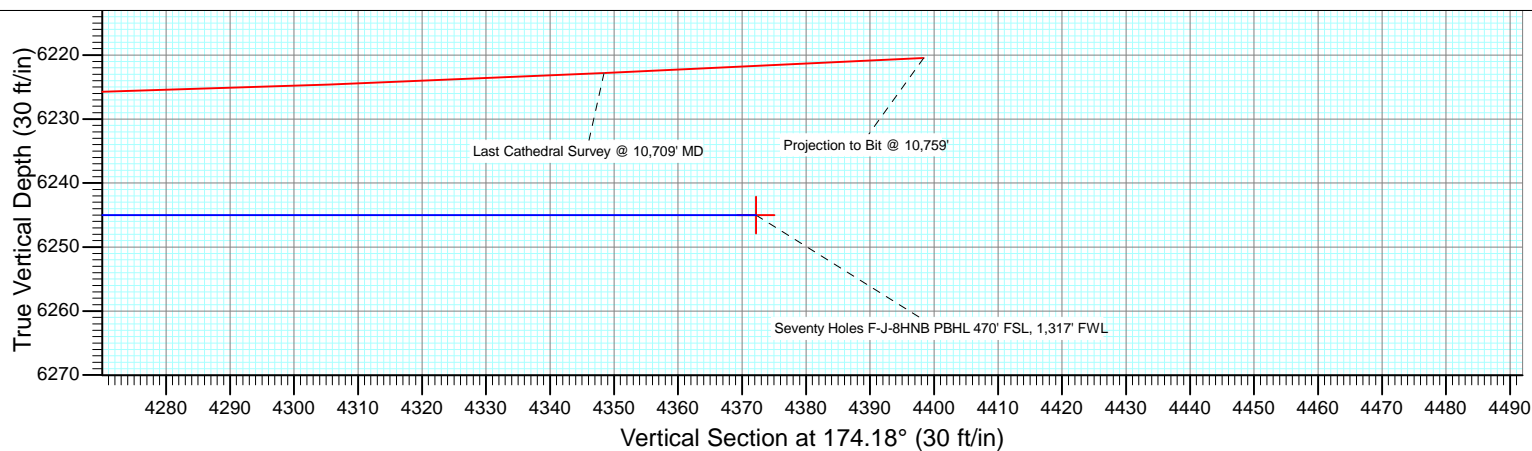




Project: Weld County
Site: State Seventy Holes F-8 Pad
Well: State Seventy Holes F-J-8HNB
Wellbore: OH
Design: FINAL



M Azimuths to True North
Magnetic North: 8.36°
Magnetic Field
Strength: 52923.9snT
Dip Angle: 66.99°
Date: 7/9/2013
Model: IGRF2010



Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-8HNB
Project:	Weld County	TVD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Site:	State Seventy Holes F-8 Pad	MD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Well:	State Seventy Holes F-J-8HNB	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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 Seventy Holes F-8 Pad			
Site Position:		Northing:	1,366,275.14 ft	Latitude:	40.333160
From:	Lat/Long	Easting:	3,319,253.92 ft	Longitude:	-104.354830
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.74 °

Well	State Seventy Holes F-J-8HNB					
Well Position	+N/-S	0.0 ft	Northing:	1,366,275.13 ft	Latitude:	40.333160
	+E/-W	0.0 ft	Easting:	3,319,253.92 ft	Longitude:	-104.354830
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,537.0 ft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/9/2013	8.36	66.99	52,924

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	174.18	

Survey Program	Date	7/22/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
98.4	10,759.0	Survey #1 (OH)	MWD	Geolink MWD	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
98.4	0.53	253.89	98.4	-0.1	-0.4	0.1	0.54	0.54		
196.8	0.73	282.81	196.8	-0.1	-1.5	0.0	0.38	0.21		
295.3	0.82	283.70	295.3	0.2	-2.8	-0.5	0.09	0.09		
388.0	0.90	272.10	388.0	0.4	-4.2	-0.8	0.21	0.08		
450.0	0.60	270.40	450.0	0.4	-5.0	-0.9	0.49	-0.48		
543.0	0.70	272.60	543.0	0.4	-6.0	-1.0	0.11	0.11		
636.0	0.70	272.40	636.0	0.5	-7.2	-1.2	0.00	0.00		
730.0	0.70	295.10	729.9	0.7	-8.3	-1.6	0.29	0.00		
823.0	0.60	292.90	822.9	1.2	-9.2	-2.1	0.11	-0.11		
916.0	0.70	270.40	915.9	1.4	-10.2	-2.4	0.29	0.11		
1,008.0	1.10	223.10	1,007.9	0.7	-11.4	-1.9	0.88	0.43		
1,099.0	1.30	16.20	1,098.9	1.1	-11.7	-2.3	2.57	0.22		

Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-8HNB
Project:	Weld County	TVD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Site:	State Seventy Holes F-8 Pad	MD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Well:	State Seventy Holes F-J-8HNB	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,190.0	3.30	23.10	1,189.8	4.5	-10.4	-5.5	2.21	2.20	
1,280.0	5.50	32.50	1,279.6	10.5	-7.1	-11.2	2.56	2.44	
1,372.0	7.20	46.80	1,371.0	18.2	-0.5	-18.1	2.51	1.85	
1,475.0	6.50	40.00	1,473.3	27.1	8.0	-26.1	1.04	-0.68	
1,559.0	5.90	35.40	1,556.8	34.2	13.5	-32.7	0.93	-0.71	
1,644.0	5.40	37.20	1,641.4	41.0	18.5	-38.9	0.62	-0.59	
1,728.0	4.80	41.70	1,725.0	46.7	23.2	-44.1	0.86	-0.71	
1,813.0	6.40	42.20	1,809.6	52.9	28.7	-49.7	1.88	1.88	
1,898.0	6.20	42.20	1,894.1	59.8	35.0	-56.0	0.24	-0.24	
1,983.0	7.00	33.00	1,978.6	67.6	40.9	-63.1	1.56	0.94	
2,067.0	6.30	31.60	2,062.0	75.8	46.1	-70.7	0.86	-0.83	
2,152.0	6.10	24.50	2,146.5	83.9	50.4	-78.3	0.93	-0.24	
2,237.0	5.70	23.40	2,231.0	91.8	54.0	-85.9	0.49	-0.47	
2,322.0	6.70	28.80	2,315.5	100.1	58.0	-93.7	1.36	1.18	
2,406.0	6.50	25.70	2,399.0	108.6	62.5	-101.7	0.49	-0.24	
2,491.0	6.20	20.20	2,483.5	117.3	66.1	-110.0	0.80	-0.35	
2,576.0	6.90	36.40	2,567.9	125.7	70.8	-117.9	2.32	0.82	
2,662.0	7.20	37.50	2,653.3	134.1	77.1	-125.6	0.38	0.35	
2,747.0	7.20	36.10	2,737.6	142.7	83.5	-133.5	0.21	0.00	
2,833.0	6.50	32.70	2,823.0	151.1	89.3	-141.3	0.94	-0.81	
2,918.0	5.80	32.50	2,907.5	158.8	94.2	-148.4	0.82	-0.82	
3,004.0	7.50	31.10	2,992.9	167.3	99.4	-156.3	1.99	1.98	
3,089.0	6.60	29.00	3,077.3	176.3	104.7	-164.8	1.10	-1.06	
3,175.0	5.90	28.30	3,162.8	184.5	109.2	-172.5	0.82	-0.81	
3,261.0	5.50	23.40	3,248.3	192.2	112.9	-179.7	0.73	-0.47	
3,346.0	5.00	23.10	3,333.0	199.3	116.0	-186.5	0.59	-0.59	
3,432.0	5.50	33.00	3,418.6	206.2	119.7	-193.0	1.20	0.58	
3,517.0	5.70	35.10	3,503.2	213.1	124.3	-199.4	0.34	0.24	
3,603.0	5.80	34.50	3,588.8	220.2	129.2	-205.9	0.14	0.12	
3,689.0	5.80	36.40	3,674.3	227.2	134.3	-212.5	0.22	0.00	
3,774.0	5.50	33.80	3,758.9	234.1	139.1	-218.8	0.46	-0.35	
3,860.0	5.60	33.00	3,844.5	241.0	143.7	-225.2	0.15	0.12	
3,945.0	5.50	26.70	3,929.1	248.1	147.8	-231.9	0.73	-0.12	
4,031.0	5.10	17.10	4,014.8	255.5	150.7	-238.9	1.13	-0.47	
4,117.0	6.50	21.30	4,100.3	263.7	153.6	-246.7	1.70	1.63	
4,202.0	8.80	30.70	4,184.6	273.7	158.7	-256.2	3.07	2.71	
4,288.0	8.60	29.30	4,269.6	285.0	165.2	-266.8	0.34	-0.23	
4,373.0	8.70	27.30	4,353.6	296.3	171.3	-277.4	0.37	0.12	
4,459.0	8.70	24.20	4,438.6	308.0	176.9	-288.4	0.55	0.00	
4,545.0	8.40	24.00	4,523.7	319.6	182.1	-299.5	0.35	-0.35	
4,630.0	8.10	21.60	4,607.8	330.9	186.9	-310.2	0.54	-0.35	
4,716.0	8.00	20.00	4,692.9	342.1	191.1	-321.0	0.29	-0.12	
4,801.0	7.00	28.70	4,777.2	352.2	195.6	-330.6	1.78	-1.18	
4,887.0	6.60	25.40	4,862.6	361.3	200.3	-339.1	0.65	-0.47	
4,972.0	5.90	27.30	4,947.1	369.6	204.4	-347.0	0.86	-0.82	
5,058.0	5.10	8.50	5,032.7	377.3	207.0	-354.4	2.28	-0.93	
5,144.0	3.90	25.50	5,118.4	383.7	208.8	-360.6	2.07	-1.40	
5,229.0	2.40	33.70	5,203.3	387.8	211.0	-364.4	1.84	-1.76	
5,315.0	1.40	358.20	5,289.3	390.4	212.0	-366.9	1.74	-1.16	
5,400.0	2.10	135.30	5,374.2	390.3	213.1	-366.7	3.84	0.82	
5,486.0	3.10	147.80	5,460.2	387.2	215.4	-363.4	1.33	1.16	
5,571.0	2.80	150.60	5,545.0	383.5	217.6	-359.4	0.39	-0.35	
5,657.0	2.70	146.30	5,630.9	379.9	219.8	-355.7	0.27	-0.12	

Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-8HNB
Project:	Weld County	TVD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Site:	State Seventy Holes F-8 Pad	MD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Well:	State Seventy Holes F-J-8HNB	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
5,700.0	2.80	152.10	5,673.9	378.2	220.9	-353.8	0.69	0.23	
5,743.0	6.10	173.40	5,716.8	375.0	221.6	-350.6	8.46	7.67	
5,785.0	11.00	176.20	5,758.3	368.8	222.1	-344.3	11.71	11.67	
5,828.0	15.90	176.80	5,800.1	358.8	222.7	-334.3	11.40	11.40	
5,871.0	20.90	176.70	5,840.9	345.2	223.5	-320.8	11.63	11.63	
5,914.0	27.10	178.30	5,880.1	327.8	224.2	-303.3	14.50	14.42	
5,956.0	30.70	178.60	5,916.9	307.5	224.8	-283.1	8.58	8.57	
5,999.0	32.70	177.60	5,953.5	284.9	225.5	-260.6	4.81	4.65	
6,042.0	34.90	176.90	5,989.2	261.0	226.7	-236.7	5.20	5.12	
6,085.0	39.80	176.70	6,023.4	235.0	228.1	-210.6	11.40	11.40	
6,127.0	46.50	176.90	6,054.0	206.3	229.7	-181.9	15.96	15.95	
6,170.0	51.10	176.80	6,082.3	174.0	231.5	-149.6	10.70	10.70	
6,213.0	55.40	176.50	6,108.1	139.6	233.5	-115.2	10.02	10.00	
6,256.0	59.10	176.10	6,131.3	103.5	235.9	-79.1	8.64	8.60	
6,299.0	62.10	176.70	6,152.4	66.2	238.2	-41.7	7.08	6.98	
6,341.0	66.90	177.30	6,170.5	28.3	240.2	-3.8	11.50	11.43	
6,384.0	72.90	176.40	6,185.3	-12.0	242.4	36.5	14.09	13.95	
6,427.0	75.80	176.90	6,196.9	-53.3	244.8	77.9	6.84	6.74	
6,470.0	76.70	176.40	6,207.1	-95.0	247.3	119.6	2.38	2.09	
6,512.0	80.50	174.80	6,215.4	-136.1	250.5	160.8	9.79	9.05	
6,555.0	83.00	174.60	6,221.6	-178.4	254.4	203.3	5.83	5.81	
6,598.0	86.20	174.40	6,225.6	-221.0	258.5	246.1	7.46	7.44	
6,638.0	88.50	174.60	6,227.5	-260.8	262.3	286.1	5.77	5.75	
6,687.0	90.80	174.60	6,227.8	-309.6	266.9	335.1	4.69	4.69	
6,729.0	90.90	174.30	6,227.1	-351.4	271.0	377.1	0.75	0.24	
6,771.0	91.20	174.20	6,226.4	-393.2	275.2	419.0	0.75	0.71	
6,814.0	90.70	174.90	6,225.6	-436.0	279.3	462.0	2.00	-1.16	
6,856.0	89.30	175.70	6,225.6	-477.8	282.7	504.0	3.84	-3.33	
6,898.0	89.20	176.70	6,226.2	-519.7	285.5	546.0	2.39	-0.24	
6,940.0	89.40	177.20	6,226.7	-561.7	287.7	587.9	1.28	0.48	
6,982.0	89.50	176.70	6,227.1	-603.6	290.0	629.9	1.21	0.24	
7,025.0	90.20	178.00	6,227.2	-646.6	292.0	672.8	3.43	1.63	
7,067.0	90.20	178.90	6,227.1	-688.5	293.1	714.7	2.14	0.00	
7,110.0	90.20	178.40	6,226.9	-731.5	294.1	757.6	1.16	0.00	
7,153.0	90.50	178.30	6,226.7	-774.5	295.3	800.5	0.74	0.70	
7,195.0	90.10	178.60	6,226.4	-816.5	296.5	842.3	1.19	-0.95	
7,238.0	90.80	178.30	6,226.1	-859.5	297.6	885.2	1.77	1.63	
7,281.0	90.00	179.00	6,225.8	-902.5	298.7	928.1	2.47	-1.86	
7,324.0	89.60	179.30	6,226.0	-945.5	299.3	970.9	1.16	-0.93	
7,367.0	89.80	179.10	6,226.2	-988.5	299.9	1,013.8	0.66	0.47	
7,409.0	90.30	179.10	6,226.1	-1,030.4	300.6	1,055.6	1.19	1.19	
7,452.0	89.20	179.90	6,226.3	-1,073.4	300.9	1,098.4	3.16	-2.56	
7,495.0	89.90	179.90	6,226.7	-1,116.4	301.0	1,141.2	1.63	1.63	
7,538.0	90.40	179.20	6,226.6	-1,159.4	301.3	1,184.0	2.00	1.16	
7,581.0	89.30	179.00	6,226.7	-1,202.4	302.0	1,226.9	2.60	-2.56	
7,623.0	89.80	178.50	6,227.0	-1,244.4	302.9	1,268.7	1.68	1.19	
7,666.0	89.90	178.40	6,227.1	-1,287.4	304.1	1,311.6	0.33	0.23	
7,709.0	88.40	178.80	6,227.8	-1,330.4	305.1	1,354.5	3.61	-3.49	
7,752.0	88.90	178.90	6,228.8	-1,373.4	306.0	1,397.3	1.19	1.16	
7,794.0	89.10	178.50	6,229.5	-1,415.4	307.0	1,439.2	1.06	0.48	
7,837.0	88.90	178.30	6,230.2	-1,458.3	308.2	1,482.1	0.66	-0.47	
7,880.0	89.40	177.60	6,230.9	-1,501.3	309.7	1,525.0	2.00	1.16	
7,923.0	89.90	177.60	6,231.2	-1,544.3	311.5	1,567.9	1.16	1.16	

Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-8HNB
Project:	Weld County	TVD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Site:	State Seventy Holes F-8 Pad	MD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Well:	State Seventy Holes F-J-8HNB	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
7,966.0	90.00	177.40	6,231.2	-1,587.2	313.4	1,610.8	0.52	0.23	
8,008.0	90.50	177.50	6,231.0	-1,629.2	315.2	1,652.7	1.21	1.19	
8,051.0	90.60	177.50	6,230.6	-1,672.1	317.1	1,695.7	0.23	0.23	
8,094.0	91.10	177.50	6,230.0	-1,715.1	319.0	1,738.6	1.16	1.16	
8,137.0	91.40	176.80	6,229.0	-1,758.0	321.1	1,781.5	1.77	0.70	
8,180.0	90.60	177.00	6,228.3	-1,801.0	323.5	1,824.5	1.92	-1.86	
8,222.0	89.50	175.10	6,228.2	-1,842.8	326.4	1,866.4	5.23	-2.62	
8,265.0	87.30	176.40	6,229.4	-1,885.7	329.5	1,909.4	5.94	-5.12	
8,308.0	87.40	176.40	6,231.4	-1,928.6	332.2	1,952.3	0.23	0.23	
8,351.0	88.10	177.90	6,233.1	-1,971.5	334.4	1,995.2	3.85	1.63	
8,393.0	88.00	178.00	6,234.5	-2,013.4	335.9	2,037.1	0.34	-0.24	
8,436.0	89.30	178.30	6,235.5	-2,056.4	337.3	2,080.0	3.10	3.02	
8,479.0	90.80	179.10	6,235.5	-2,099.4	338.2	2,122.9	3.95	3.49	
8,522.0	91.40	179.40	6,234.7	-2,142.4	338.8	2,165.7	1.56	1.40	
8,564.0	92.00	179.50	6,233.4	-2,184.4	339.2	2,207.5	1.45	1.43	
8,607.0	92.40	179.30	6,231.8	-2,227.3	339.7	2,250.3	1.04	0.93	
8,650.0	91.90	179.50	6,230.2	-2,270.3	340.1	2,293.1	1.25	-1.16	
8,693.0	91.60	178.00	6,228.9	-2,313.3	341.0	2,335.9	3.56	-0.70	
8,735.0	92.00	177.50	6,227.5	-2,355.2	342.7	2,377.8	1.52	0.95	
8,778.0	91.50	175.90	6,226.2	-2,398.1	345.2	2,420.8	3.90	-1.16	
8,821.0	90.80	175.20	6,225.4	-2,441.0	348.5	2,463.7	2.30	-1.63	
8,864.0	91.10	175.20	6,224.7	-2,483.8	352.1	2,506.7	0.70	0.70	
8,906.0	90.30	176.30	6,224.1	-2,525.7	355.2	2,548.7	3.24	-1.90	
8,949.0	90.50	176.60	6,223.8	-2,568.6	357.9	2,591.7	0.84	0.47	
8,992.0	89.70	176.40	6,223.8	-2,611.5	360.5	2,634.6	1.92	-1.86	
9,035.0	90.20	176.20	6,223.8	-2,654.4	363.3	2,677.6	1.25	1.16	
9,078.0	89.50	176.30	6,223.9	-2,697.4	366.1	2,720.6	1.64	-1.63	
9,120.0	88.60	176.80	6,224.6	-2,739.3	368.6	2,762.5	2.45	-2.14	
9,163.0	88.80	176.80	6,225.6	-2,782.2	371.0	2,805.5	0.47	0.47	
9,206.0	89.00	176.50	6,226.4	-2,825.1	373.5	2,848.4	0.84	0.47	
9,249.0	88.50	175.60	6,227.4	-2,868.0	376.5	2,891.4	2.39	-1.16	
9,292.0	88.90	175.30	6,228.3	-2,910.9	379.9	2,934.4	1.16	0.93	
9,334.0	90.30	176.10	6,228.6	-2,952.7	383.0	2,976.4	3.84	3.33	
9,377.0	90.60	176.00	6,228.3	-2,995.6	386.0	3,019.3	0.74	0.70	
9,420.0	90.10	177.30	6,228.0	-3,038.6	388.5	3,062.3	3.24	-1.16	
9,463.0	90.80	177.50	6,227.7	-3,081.5	390.5	3,105.2	1.69	1.63	
9,505.0	90.20	176.70	6,227.3	-3,123.5	392.6	3,147.2	2.38	-1.43	
9,548.0	90.20	177.70	6,227.2	-3,166.4	394.7	3,190.1	2.33	0.00	
9,591.0	90.80	177.40	6,226.8	-3,209.4	396.5	3,233.0	1.56	1.40	
9,634.0	91.20	177.30	6,226.0	-3,252.3	398.5	3,276.0	0.96	0.93	
9,676.0	90.70	178.50	6,225.3	-3,294.3	400.1	3,317.9	3.09	-1.19	
9,719.0	89.90	180.20	6,225.1	-3,337.3	400.5	3,360.7	4.37	-1.86	
9,762.0	91.70	181.50	6,224.5	-3,380.3	399.9	3,403.4	5.16	4.19	
9,805.0	91.60	180.90	6,223.3	-3,423.2	399.0	3,446.0	1.41	-0.23	
9,848.0	91.10	180.10	6,222.3	-3,466.2	398.6	3,488.8	2.19	-1.16	
9,890.0	90.90	180.30	6,221.5	-3,508.2	398.5	3,530.5	0.67	-0.48	
9,933.0	90.60	179.70	6,221.0	-3,551.2	398.5	3,573.3	1.56	-0.70	
9,975.0	89.30	178.40	6,221.0	-3,593.2	399.2	3,615.1	4.38	-3.10	
10,018.0	88.00	178.00	6,222.0	-3,636.2	400.5	3,658.0	3.16	-3.02	
10,061.0	88.30	177.90	6,223.4	-3,679.1	402.1	3,700.9	0.74	0.70	
10,104.0	89.70	178.00	6,224.2	-3,722.1	403.6	3,743.8	3.26	3.26	
10,147.0	90.80	178.00	6,224.0	-3,765.0	405.1	3,786.7	2.56	2.56	
10,189.0	91.00	177.20	6,223.3	-3,807.0	406.9	3,828.6	1.96	0.48	

Cathedral Energy Services

Survey Report

Company:	Bonanza Creek Energy Operating Company, LLC	Local Co-ordinate Reference:	Well State Seventy Holes F-J-8HNB
Project:	Weld County	TVD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Site:	State Seventy Holes F-8 Pad	MD Reference:	KB=12.5 @ 4549.5ft (Ensign #136)
Well:	State Seventy Holes F-J-8HNB	North Reference:	True
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
10,232.0	91.40	175.60	6,222.4	-3,849.9	409.6	3,871.6	3.83	0.93	
10,275.0	90.50	174.60	6,221.7	-3,892.7	413.2	3,914.6	3.13	-2.09	
10,318.0	88.20	175.40	6,222.2	-3,935.6	417.0	3,957.6	5.66	-5.35	
10,363.0	88.30	175.20	6,223.6	-3,980.4	420.7	4,002.5	0.50	0.22	
10,407.0	88.50	175.00	6,224.8	-4,024.2	424.4	4,046.5	0.64	0.45	
10,452.0	89.10	174.70	6,225.7	-4,069.0	428.5	4,091.5	1.49	1.33	
10,495.0	89.30	174.60	6,226.3	-4,111.8	432.5	4,134.5	0.52	0.47	
10,537.0	89.80	174.30	6,226.7	-4,153.6	436.5	4,176.5	1.39	1.19	
10,580.0	90.20	174.00	6,226.7	-4,196.4	440.9	4,219.5	1.16	0.93	
10,623.0	91.60	174.30	6,226.0	-4,239.2	445.3	4,262.5	3.33	3.26	
10,666.0	92.10	174.40	6,224.6	-4,282.0	449.5	4,305.5	1.19	1.16	
10,709.0	92.70	174.20	6,222.8	-4,324.7	453.8	4,348.4	1.47	1.40	Last Cathedral Survey @ 10,709' MD
10,759.0	92.70	174.20	6,220.4	-4,374.4	458.8	4,398.4	0.00	0.00	Projection to Bit @ 10,759'

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Seventy Holes F-J-8HNB	0.00	0.00	6,245.0	-142.1	239.8	1,366,136.18	3,319,495.50	40.332770	-104.353970
- actual wellpath misses target center by 30.6ft at 6521.2ft MD (6216.9 TVD, -145.1 N, 251.3 E)									
- Point									
Seventy Holes F-J-8HNB	0.00	0.00	6,245.0	-4,349.6	443.3	1,361,931.59	3,319,753.41	40.321220	-104.353240
- actual wellpath misses target center by 35.0ft at 10709.0ft MD (6222.8 TVD, -4324.7 N, 453.8 E)									
- Point									
Seventy Holes F-J-8HNB	0.00	0.00	5,648.2	380.4	214.4	1,366,658.23	3,319,463.35	40.334204	-104.354061
- actual wellpath misses target center by 6.0ft at 5674.1ft MD (5648.0 TVD, 379.3 N, 220.2 E)									
- Point									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	Comment
		+N/-S (ft)	+E/-W (ft)
10,709.0	6,222.8	-4,324.7	453.8
10,759.0	6,220.4	-4,374.4	458.8
			Last Cathedral Survey @ 10,709' MD
			Projection to Bit @ 10,759'

Checked By: _____ Approved By: _____ Date: _____