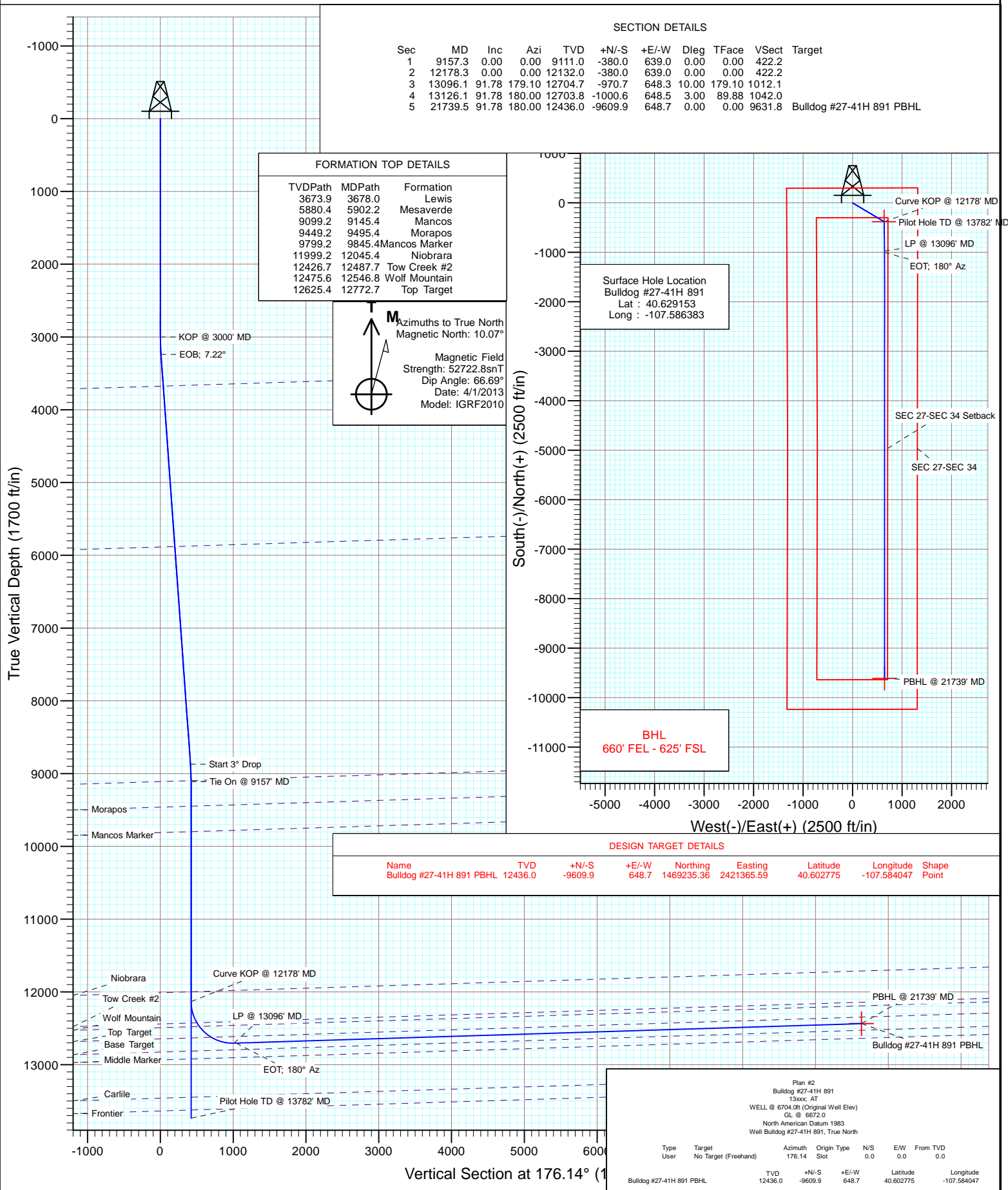




Project: Moffat County, CO
Site: SEC 27-T8N-R91W
Well: Bulldog #27-41H 891
Wellbore: HZ
Design: Plan #2



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #27-41H 891
Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Plan #1		

Project	Moffat County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		SEC 27-T8N-R91W			
Site Position:		Northing:	1,478,857.92 ft	Latitude:	40.629153
From:	Lat/Long	Easting:	2,420,943.21 ft	Longitude:	-107.586383
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.35 °

Well	Bulldog #27-41H 891					
Well Position	+N/-S	0.0 ft	Northing:	1,478,857.91 ft	Latitude:	40.629153
	+E/-W	0.0 ft	Easting:	2,420,943.21 ft	Longitude:	-107.586383
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,672.0 ft

Wellbore	Pilot Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/9/2013	10.05	66.68	52,704

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	120.74

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	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,240.6	7.22	120.74	3,240.0	-7.7	13.0	3.00	3.00	0.00	120.74	
8,916.6	7.22	120.74	8,871.0	-372.3	626.0	0.00	0.00	0.00	0.00	
9,157.3	0.00	0.00	9,111.0	-380.0	639.0	3.00	-3.00	0.00	180.00	27-41H 891 Vert Tgt
13,782.3	0.00	0.00	13,736.0	-380.0	639.0	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
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	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	KOP @ 3000' MD
3,100.0	3.00	120.74	3,100.0	-1.3	2.2	2.6	3.00	3.00	
3,200.0	6.00	120.74	3,199.6	-5.3	9.0	10.5	3.00	3.00	
3,240.6	7.22	120.74	3,240.0	-7.7	13.0	15.1	3.00	3.00	EOB; 7.22°
3,300.0	7.22	120.74	3,298.9	-11.6	19.4	22.6	0.00	0.00	
3,400.0	7.22	120.74	3,398.1	-18.0	30.2	35.2	0.00	0.00	
3,500.0	7.22	120.74	3,497.3	-24.4	41.0	47.7	0.00	0.00	
3,600.0	7.22	120.74	3,596.5	-30.8	51.8	60.3	0.00	0.00	
3,679.1	7.22	120.74	3,675.0	-35.9	60.4	70.2	0.00	0.00	Lewis
3,700.0	7.22	120.74	3,695.7	-37.2	62.6	72.9	0.00	0.00	
3,800.0	7.22	120.74	3,794.9	-43.7	73.4	85.4	0.00	0.00	
3,900.0	7.22	120.74	3,894.1	-50.1	84.2	98.0	0.00	0.00	
4,000.0	7.22	120.74	3,993.3	-56.5	95.0	110.6	0.00	0.00	
4,100.0	7.22	120.74	4,092.6	-62.9	105.8	123.1	0.00	0.00	
4,200.0	7.22	120.74	4,191.8	-69.4	116.6	135.7	0.00	0.00	
4,300.0	7.22	120.74	4,291.0	-75.8	127.4	148.2	0.00	0.00	
4,400.0	7.22	120.74	4,390.2	-82.2	138.2	160.8	0.00	0.00	
4,500.0	7.22	120.74	4,489.4	-88.6	149.0	173.4	0.00	0.00	
4,600.0	7.22	120.74	4,588.6	-95.0	159.8	185.9	0.00	0.00	
4,700.0	7.22	120.74	4,687.8	-101.5	170.6	198.5	0.00	0.00	
4,800.0	7.22	120.74	4,787.0	-107.9	181.4	211.1	0.00	0.00	
4,900.0	7.22	120.74	4,886.2	-114.3	192.2	223.6	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
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
5,000.0	7.22	120.74	4,985.4	-120.7	203.0	236.2	0.00	0.00	
5,100.0	7.22	120.74	5,084.6	-127.2	213.8	248.8	0.00	0.00	
5,200.0	7.22	120.74	5,183.8	-133.6	224.6	261.3	0.00	0.00	
5,300.0	7.22	120.74	5,283.0	-140.0	235.4	273.9	0.00	0.00	
5,400.0	7.22	120.74	5,382.3	-146.4	246.2	286.5	0.00	0.00	
5,500.0	7.22	120.74	5,481.5	-152.8	257.0	299.0	0.00	0.00	
5,600.0	7.22	120.74	5,580.7	-159.3	267.8	311.6	0.00	0.00	
5,700.0	7.22	120.74	5,679.9	-165.7	278.6	324.2	0.00	0.00	
5,800.0	7.22	120.74	5,779.1	-172.1	289.4	336.7	0.00	0.00	
5,900.0	7.22	120.74	5,878.3	-178.5	300.2	349.3	0.00	0.00	
5,907.8	7.22	120.74	5,886.0	-179.0	301.0	350.3	0.00	0.00	Mesaverde
6,000.0	7.22	120.74	5,977.5	-185.0	311.0	361.8	0.00	0.00	
6,100.0	7.22	120.74	6,076.7	-191.4	321.8	374.4	0.00	0.00	
6,200.0	7.22	120.74	6,175.9	-197.8	332.6	387.0	0.00	0.00	
6,300.0	7.22	120.74	6,275.1	-204.2	343.4	399.5	0.00	0.00	
6,400.0	7.22	120.74	6,374.3	-210.6	354.2	412.1	0.00	0.00	
6,500.0	7.22	120.74	6,473.5	-217.1	365.0	424.7	0.00	0.00	
6,600.0	7.22	120.74	6,572.7	-223.5	375.8	437.2	0.00	0.00	
6,700.0	7.22	120.74	6,671.9	-229.9	386.6	449.8	0.00	0.00	
6,800.0	7.22	120.74	6,771.2	-236.3	397.4	462.4	0.00	0.00	
6,900.0	7.22	120.74	6,870.4	-242.8	408.2	474.9	0.00	0.00	
7,000.0	7.22	120.74	6,969.6	-249.2	419.0	487.5	0.00	0.00	
7,100.0	7.22	120.74	7,068.8	-255.6	429.8	500.1	0.00	0.00	
7,200.0	7.22	120.74	7,168.0	-262.0	440.6	512.6	0.00	0.00	
7,300.0	7.22	120.74	7,267.2	-268.4	451.4	525.2	0.00	0.00	
7,400.0	7.22	120.74	7,366.4	-274.9	462.2	537.8	0.00	0.00	
7,500.0	7.22	120.74	7,465.6	-281.3	473.0	550.3	0.00	0.00	
7,600.0	7.22	120.74	7,564.8	-287.7	483.8	562.9	0.00	0.00	
7,700.0	7.22	120.74	7,664.0	-294.1	494.6	575.4	0.00	0.00	
7,800.0	7.22	120.74	7,763.2	-300.6	505.4	588.0	0.00	0.00	
7,900.0	7.22	120.74	7,862.4	-307.0	516.2	600.6	0.00	0.00	
8,000.0	7.22	120.74	7,961.6	-313.4	527.0	613.1	0.00	0.00	
8,100.0	7.22	120.74	8,060.9	-319.8	537.8	625.7	0.00	0.00	
8,200.0	7.22	120.74	8,160.1	-326.2	548.6	638.3	0.00	0.00	
8,300.0	7.22	120.74	8,259.3	-332.7	559.4	650.8	0.00	0.00	
8,400.0	7.22	120.74	8,358.5	-339.1	570.2	663.4	0.00	0.00	
8,500.0	7.22	120.74	8,457.7	-345.5	581.0	676.0	0.00	0.00	
8,600.0	7.22	120.74	8,556.9	-351.9	591.8	688.5	0.00	0.00	
8,700.0	7.22	120.74	8,656.1	-358.3	602.6	701.1	0.00	0.00	
8,800.0	7.22	120.74	8,755.3	-364.8	613.4	713.7	0.00	0.00	
8,900.0	7.22	120.74	8,854.5	-371.2	624.2	726.2	0.00	0.00	
8,916.6	7.22	120.74	8,871.0	-372.3	626.0	728.3	0.00	0.00	Start 3° Drop
9,000.0	4.72	120.74	8,953.9	-376.7	633.4	737.0	3.00	-3.00	
9,100.0	1.72	120.74	9,053.8	-379.6	638.3	742.6	3.00	-3.00	
9,157.3	0.00	0.00	9,111.0	-380.0	639.0	743.5	3.00	-3.00	EOD; Vertical - Mancos
9,200.0	0.00	0.00	9,153.7	-380.0	639.0	743.5	0.00	0.00	
9,300.0	0.00	0.00	9,253.7	-380.0	639.0	743.5	0.00	0.00	
9,400.0	0.00	0.00	9,353.7	-380.0	639.0	743.5	0.00	0.00	
9,500.0	0.00	0.00	9,453.7	-380.0	639.0	743.5	0.00	0.00	
9,507.3	0.00	0.00	9,461.0	-380.0	639.0	743.5	0.00	0.00	Morapos
9,600.0	0.00	0.00	9,553.7	-380.0	639.0	743.5	0.00	0.00	
9,700.0	0.00	0.00	9,653.7	-380.0	639.0	743.5	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
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Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
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
9,800.0	0.00	0.00	9,753.7	-380.0	639.0	743.5	0.00	0.00	
9,857.3	0.00	0.00	9,811.0	-380.0	639.0	743.5	0.00	0.00	Mancos Marker
9,900.0	0.00	0.00	9,853.7	-380.0	639.0	743.5	0.00	0.00	
10,000.0	0.00	0.00	9,953.7	-380.0	639.0	743.5	0.00	0.00	
10,100.0	0.00	0.00	10,053.7	-380.0	639.0	743.5	0.00	0.00	
10,200.0	0.00	0.00	10,153.7	-380.0	639.0	743.5	0.00	0.00	
10,300.0	0.00	0.00	10,253.7	-380.0	639.0	743.5	0.00	0.00	
10,400.0	0.00	0.00	10,353.7	-380.0	639.0	743.5	0.00	0.00	
10,500.0	0.00	0.00	10,453.7	-380.0	639.0	743.5	0.00	0.00	
10,600.0	0.00	0.00	10,553.7	-380.0	639.0	743.5	0.00	0.00	
10,700.0	0.00	0.00	10,653.7	-380.0	639.0	743.5	0.00	0.00	
10,800.0	0.00	0.00	10,753.7	-380.0	639.0	743.5	0.00	0.00	
10,900.0	0.00	0.00	10,853.7	-380.0	639.0	743.5	0.00	0.00	
11,000.0	0.00	0.00	10,953.7	-380.0	639.0	743.5	0.00	0.00	
11,100.0	0.00	0.00	11,053.7	-380.0	639.0	743.5	0.00	0.00	
11,200.0	0.00	0.00	11,153.7	-380.0	639.0	743.5	0.00	0.00	
11,300.0	0.00	0.00	11,253.7	-380.0	639.0	743.5	0.00	0.00	
11,400.0	0.00	0.00	11,353.7	-380.0	639.0	743.5	0.00	0.00	
11,500.0	0.00	0.00	11,453.7	-380.0	639.0	743.5	0.00	0.00	
11,600.0	0.00	0.00	11,553.7	-380.0	639.0	743.5	0.00	0.00	
11,700.0	0.00	0.00	11,653.7	-380.0	639.0	743.5	0.00	0.00	
11,800.0	0.00	0.00	11,753.7	-380.0	639.0	743.5	0.00	0.00	
11,900.0	0.00	0.00	11,853.7	-380.0	639.0	743.5	0.00	0.00	
12,000.0	0.00	0.00	11,953.7	-380.0	639.0	743.5	0.00	0.00	
12,057.3	0.00	0.00	12,011.0	-380.0	639.0	743.5	0.00	0.00	Niobrara
12,100.0	0.00	0.00	12,053.7	-380.0	639.0	743.5	0.00	0.00	
12,200.0	0.00	0.00	12,153.7	-380.0	639.0	743.5	0.00	0.00	
12,300.0	0.00	0.00	12,253.7	-380.0	639.0	743.5	0.00	0.00	
12,400.0	0.00	0.00	12,353.7	-380.0	639.0	743.5	0.00	0.00	
12,487.3	0.00	0.00	12,441.0	-380.0	639.0	743.5	0.00	0.00	Tow Creek #2
12,500.0	0.00	0.00	12,453.7	-380.0	639.0	743.5	0.00	0.00	
12,537.3	0.00	0.00	12,491.0	-380.0	639.0	743.5	0.00	0.00	Wolf Mountain
12,600.0	0.00	0.00	12,553.7	-380.0	639.0	743.5	0.00	0.00	
12,692.3	0.00	0.00	12,646.0	-380.0	639.0	743.5	0.00	0.00	Top Target
12,700.0	0.00	0.00	12,653.7	-380.0	639.0	743.5	0.00	0.00	
12,800.0	0.00	0.00	12,753.7	-380.0	639.0	743.5	0.00	0.00	
12,872.3	0.00	0.00	12,826.0	-380.0	639.0	743.5	0.00	0.00	Base Target
12,900.0	0.00	0.00	12,853.7	-380.0	639.0	743.5	0.00	0.00	
12,982.3	0.00	0.00	12,936.0	-380.0	639.0	743.5	0.00	0.00	Middle Marker
13,000.0	0.00	0.00	12,953.7	-380.0	639.0	743.5	0.00	0.00	
13,100.0	0.00	0.00	13,053.7	-380.0	639.0	743.5	0.00	0.00	
13,200.0	0.00	0.00	13,153.7	-380.0	639.0	743.5	0.00	0.00	
13,300.0	0.00	0.00	13,253.7	-380.0	639.0	743.5	0.00	0.00	
13,400.0	0.00	0.00	13,353.7	-380.0	639.0	743.5	0.00	0.00	
13,500.0	0.00	0.00	13,453.7	-380.0	639.0	743.5	0.00	0.00	
13,507.3	0.00	0.00	13,461.0	-380.0	639.0	743.5	0.00	0.00	Carlile
13,600.0	0.00	0.00	13,553.7	-380.0	639.0	743.5	0.00	0.00	
13,682.3	0.00	0.00	13,636.0	-380.0	639.0	743.5	0.00	0.00	Frontier
13,700.0	0.00	0.00	13,653.7	-380.0	639.0	743.5	0.00	0.00	
13,782.3	0.00	0.00	13,736.0	-380.0	639.0	743.5	0.00	0.00	Pilot Hole TD @ 13782' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #27-41H 891
Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	Pilot Hole		
Design:	Plan #1		

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
27-41H 891 Vert Tgt	0.00	0.00	9,111.0	-380.0	639.0	1,478,462.98	2,421,573.09	40.628110	-107.584081
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
3,679.1	3,675.0	Lewis				
5,907.8	5,886.0	Mesaverde				
9,157.3	9,111.0	Mancos				
9,507.3	9,461.0	Morapos				
9,857.3	9,811.0	Mancos Marker				
12,057.3	12,011.0	Niobrara				
12,487.3	12,441.0	Tow Creek #2				
12,537.3	12,491.0	Wolf Mountain				
12,692.3	12,646.0	Top Target				
12,872.3	12,826.0	Base Target				
12,982.3	12,936.0	Middle Marker				
13,507.3	13,461.0	Carlile				
13,682.3	13,636.0	Frontier				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP @ 3000' MD
3,240.6	3,240.0	-7.7	13.0	EOB; 7.22°
8,916.6	8,871.0	-372.3	626.0	Start 3° Drop
9,157.3	9,111.0	-380.0	639.0	EOD; Vertical
13,782.3	13,736.0	-380.0	639.0	Pilot Hole TD @ 13782' MD

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #27-41H 891
Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Project	Moffat County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		SEC 27-T8N-R91W			
Site Position:		Northing:	1,478,857.92 ft	Latitude:	40.629153
From:	Lat/Long	Easting:	2,420,943.21 ft	Longitude:	-107.586383
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.35 °

Well	Bulldog #27-41H 891					
Well Position	+N/-S	0.0 ft	Northing:	1,478,857.91 ft	Latitude:	40.629153
	+E/-W	0.0 ft	Easting:	2,420,943.21 ft	Longitude:	-107.586383
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,672.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/1/2013	10.07	66.69	52,723

Design	Plan #2				
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	9,157.3	
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	176.14	

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
9,157.3	0.00	0.00	9,111.0	-380.0	639.0	0.00	0.00	0.00	0.00	
12,178.3	0.00	0.00	12,132.0	-380.0	639.0	0.00	0.00	0.00	0.00	
13,096.1	91.78	179.10	12,704.7	-970.7	648.3	10.00	10.00	0.00	179.10	
13,126.1	91.78	180.00	12,703.8	-1,000.6	648.5	3.00	0.01	3.00	89.88	
21,739.5	91.78	180.00	12,436.0	-9,609.9	648.7	0.00	0.00	0.00	0.00	Bulldog #27-41H 891

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: Axia Energy
Project: Moffat County, CO
Site: SEC 27-T8N-R91W
Well: Bulldog #27-41H 891
Wellbore: HZ
Design: Plan #2

Local Co-ordinate Reference: Well Bulldog #27-41H 891
TVD Reference: WELL @ 6704.0ft (Original Well Elev)
MD Reference: WELL @ 6704.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,157.3	0.00	0.00	9,111.0	-380.0	639.0	422.2	0.00	0.00	Tie On @ 9157' MD
9,200.0	0.00	0.00	9,153.7	-380.0	639.0	422.2	0.00	0.00	
9,300.0	0.00	0.00	9,253.7	-380.0	639.0	422.2	0.00	0.00	
9,400.0	0.00	0.00	9,353.7	-380.0	639.0	422.2	0.00	0.00	
9,495.4	0.00	0.00	9,449.2	-380.0	639.0	422.2	0.00	0.00	Morapos
9,500.0	0.00	0.00	9,453.7	-380.0	639.0	422.2	0.00	0.00	
9,600.0	0.00	0.00	9,553.7	-380.0	639.0	422.2	0.00	0.00	
9,700.0	0.00	0.00	9,653.7	-380.0	639.0	422.2	0.00	0.00	
9,800.0	0.00	0.00	9,753.7	-380.0	639.0	422.2	0.00	0.00	
9,845.4	0.00	0.00	9,799.2	-380.0	639.0	422.2	0.00	0.00	Mancos Marker
9,900.0	0.00	0.00	9,853.7	-380.0	639.0	422.2	0.00	0.00	
10,000.0	0.00	0.00	9,953.7	-380.0	639.0	422.2	0.00	0.00	
10,100.0	0.00	0.00	10,053.7	-380.0	639.0	422.2	0.00	0.00	
10,200.0	0.00	0.00	10,153.7	-380.0	639.0	422.2	0.00	0.00	
10,300.0	0.00	0.00	10,253.7	-380.0	639.0	422.2	0.00	0.00	
10,400.0	0.00	0.00	10,353.7	-380.0	639.0	422.2	0.00	0.00	
10,500.0	0.00	0.00	10,453.7	-380.0	639.0	422.2	0.00	0.00	
10,600.0	0.00	0.00	10,553.7	-380.0	639.0	422.2	0.00	0.00	
10,700.0	0.00	0.00	10,653.7	-380.0	639.0	422.2	0.00	0.00	
10,800.0	0.00	0.00	10,753.7	-380.0	639.0	422.2	0.00	0.00	
10,900.0	0.00	0.00	10,853.7	-380.0	639.0	422.2	0.00	0.00	
11,000.0	0.00	0.00	10,953.7	-380.0	639.0	422.2	0.00	0.00	
11,100.0	0.00	0.00	11,053.7	-380.0	639.0	422.2	0.00	0.00	
11,200.0	0.00	0.00	11,153.7	-380.0	639.0	422.2	0.00	0.00	
11,300.0	0.00	0.00	11,253.7	-380.0	639.0	422.2	0.00	0.00	
11,400.0	0.00	0.00	11,353.7	-380.0	639.0	422.2	0.00	0.00	
11,500.0	0.00	0.00	11,453.7	-380.0	639.0	422.2	0.00	0.00	
11,600.0	0.00	0.00	11,553.7	-380.0	639.0	422.2	0.00	0.00	
11,700.0	0.00	0.00	11,653.7	-380.0	639.0	422.2	0.00	0.00	
11,800.0	0.00	0.00	11,753.7	-380.0	639.0	422.2	0.00	0.00	
11,900.0	0.00	0.00	11,853.7	-380.0	639.0	422.2	0.00	0.00	
12,000.0	0.00	0.00	11,953.7	-380.0	639.0	422.2	0.00	0.00	
12,045.4	0.00	0.00	11,999.2	-380.0	639.0	422.2	0.00	0.00	Niobrara
12,100.0	0.00	0.00	12,053.7	-380.0	639.0	422.2	0.00	0.00	
12,178.3	0.00	0.00	12,132.0	-380.0	639.0	422.2	0.00	0.00	Curve KOP @ 12178' MD
12,200.0	2.17	179.10	12,153.7	-380.4	639.0	422.6	10.00	10.00	
12,300.0	12.17	179.10	12,252.8	-392.9	639.2	435.0	10.00	10.00	
12,400.0	22.17	179.10	12,348.3	-422.4	639.7	464.5	10.00	10.00	
12,487.7	30.94	179.10	12,426.7	-461.5	640.3	503.6	10.00	10.00	Tow Creek #2
12,500.0	32.17	179.10	12,437.1	-468.0	640.4	510.0	10.00	10.00	
12,546.8	36.85	179.10	12,475.6	-494.4	640.8	536.5	10.00	10.00	Wolf Mountain
12,600.0	42.17	179.10	12,516.7	-528.3	641.3	570.3	10.00	10.00	
12,700.0	52.17	179.10	12,584.6	-601.5	642.5	643.4	10.00	10.00	
12,772.7	59.44	179.10	12,625.4	-661.6	643.4	703.5	10.00	10.00	Top Target
12,800.0	62.17	179.10	12,638.7	-685.4	643.8	727.2	10.00	10.00	
12,900.0	72.17	179.10	12,677.5	-777.5	645.2	819.2	10.00	10.00	
13,000.0	82.17	179.10	12,699.7	-874.8	646.8	916.4	10.00	10.00	
13,096.1	91.78	179.10	12,704.7	-970.7	648.3	1,012.1	10.00	10.00	LP @ 13096' MD
13,100.0	91.78	179.22	12,704.6	-974.6	648.3	1,016.0	3.00	0.01	
13,126.1	91.78	180.00	12,703.8	-1,000.6	648.5	1,042.0	3.00	0.01	EOT; 180° Az
13,200.0	91.78	180.00	12,701.5	-1,074.5	648.5	1,115.8	0.00	0.00	
13,300.0	91.78	180.00	12,698.4	-1,174.5	648.5	1,215.5	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #27-41H 891
Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
13,400.0	91.78	180.00	12,695.3	-1,274.4	648.5	1,315.2	0.00	0.00	
13,500.0	91.78	180.00	12,692.2	-1,374.4	648.5	1,414.9	0.00	0.00	
13,600.0	91.78	180.00	12,689.1	-1,474.3	648.5	1,514.7	0.00	0.00	
13,700.0	91.78	180.00	12,686.0	-1,574.3	648.5	1,614.4	0.00	0.00	
13,800.0	91.78	180.00	12,682.8	-1,674.2	648.5	1,714.1	0.00	0.00	
13,900.0	91.78	180.00	12,679.7	-1,774.2	648.5	1,813.8	0.00	0.00	
14,000.0	91.78	180.00	12,676.6	-1,874.1	648.5	1,913.6	0.00	0.00	
14,100.0	91.78	180.00	12,673.5	-1,974.1	648.5	2,013.3	0.00	0.00	
14,200.0	91.78	180.00	12,670.4	-2,074.0	648.5	2,113.0	0.00	0.00	
14,300.0	91.78	180.00	12,667.3	-2,174.0	648.5	2,212.7	0.00	0.00	
14,400.0	91.78	180.00	12,664.2	-2,274.0	648.5	2,312.5	0.00	0.00	
14,500.0	91.78	180.00	12,661.1	-2,373.9	648.5	2,412.2	0.00	0.00	
14,600.0	91.78	180.00	12,658.0	-2,473.9	648.5	2,511.9	0.00	0.00	
14,700.0	91.78	180.00	12,654.9	-2,573.8	648.5	2,611.6	0.00	0.00	
14,800.0	91.78	180.00	12,651.8	-2,673.8	648.5	2,711.4	0.00	0.00	
14,900.0	91.78	180.00	12,648.6	-2,773.7	648.5	2,811.1	0.00	0.00	
15,000.0	91.78	180.00	12,645.5	-2,873.7	648.5	2,910.8	0.00	0.00	
15,100.0	91.78	180.00	12,642.4	-2,973.6	648.5	3,010.5	0.00	0.00	
15,200.0	91.78	180.00	12,639.3	-3,073.6	648.5	3,110.3	0.00	0.00	
15,300.0	91.78	180.00	12,636.2	-3,173.5	648.6	3,210.0	0.00	0.00	
15,400.0	91.78	180.00	12,633.1	-3,273.5	648.6	3,309.7	0.00	0.00	
15,500.0	91.78	180.00	12,630.0	-3,373.4	648.6	3,409.4	0.00	0.00	
15,600.0	91.78	180.00	12,626.9	-3,473.4	648.6	3,509.2	0.00	0.00	
15,700.0	91.78	180.00	12,623.8	-3,573.3	648.6	3,608.9	0.00	0.00	
15,800.0	91.78	180.00	12,620.7	-3,673.3	648.6	3,708.6	0.00	0.00	
15,900.0	91.78	180.00	12,617.6	-3,773.2	648.6	3,808.3	0.00	0.00	
16,000.0	91.78	180.00	12,614.4	-3,873.2	648.6	3,908.1	0.00	0.00	
16,100.0	91.78	180.00	12,611.3	-3,973.1	648.6	4,007.8	0.00	0.00	
16,200.0	91.78	180.00	12,608.2	-4,073.1	648.6	4,107.5	0.00	0.00	
16,300.0	91.78	180.00	12,605.1	-4,173.0	648.6	4,207.2	0.00	0.00	
16,400.0	91.78	180.00	12,602.0	-4,273.0	648.6	4,307.0	0.00	0.00	
16,500.0	91.78	180.00	12,598.9	-4,372.9	648.6	4,406.7	0.00	0.00	
16,600.0	91.78	180.00	12,595.8	-4,472.9	648.6	4,506.4	0.00	0.00	
16,700.0	91.78	180.00	12,592.7	-4,572.8	648.6	4,606.1	0.00	0.00	
16,800.0	91.78	180.00	12,589.6	-4,672.8	648.6	4,705.9	0.00	0.00	
16,900.0	91.78	180.00	12,586.5	-4,772.7	648.6	4,805.6	0.00	0.00	
17,000.0	91.78	180.00	12,583.4	-4,872.7	648.6	4,905.3	0.00	0.00	
17,100.0	91.78	180.00	12,580.2	-4,972.6	648.6	5,005.0	0.00	0.00	
17,200.0	91.78	180.00	12,577.1	-5,072.6	648.6	5,104.8	0.00	0.00	
17,300.0	91.78	180.00	12,574.0	-5,172.5	648.6	5,204.5	0.00	0.00	
17,400.0	91.78	180.00	12,570.9	-5,272.5	648.6	5,304.2	0.00	0.00	
17,500.0	91.78	180.00	12,567.8	-5,372.5	648.6	5,403.9	0.00	0.00	
17,600.0	91.78	180.00	12,564.7	-5,472.4	648.6	5,503.7	0.00	0.00	
17,700.0	91.78	180.00	12,561.6	-5,572.4	648.6	5,603.4	0.00	0.00	
17,800.0	91.78	180.00	12,558.5	-5,672.3	648.6	5,703.1	0.00	0.00	
17,900.0	91.78	180.00	12,555.4	-5,772.3	648.6	5,802.8	0.00	0.00	
18,000.0	91.78	180.00	12,552.3	-5,872.2	648.6	5,902.6	0.00	0.00	
18,100.0	91.78	180.00	12,549.2	-5,972.2	648.6	6,002.3	0.00	0.00	
18,200.0	91.78	180.00	12,546.0	-6,072.1	648.6	6,102.0	0.00	0.00	
18,300.0	91.78	180.00	12,542.9	-6,172.1	648.6	6,201.7	0.00	0.00	
18,400.0	91.78	180.00	12,539.8	-6,272.0	648.6	6,301.5	0.00	0.00	
18,500.0	91.78	180.00	12,536.7	-6,372.0	648.6	6,401.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #27-41H 891
Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
18,600.0	91.78	180.00	12,533.6	-6,471.9	648.6	6,500.9	0.00	0.00	
18,700.0	91.78	180.00	12,530.5	-6,571.9	648.6	6,600.6	0.00	0.00	
18,800.0	91.78	180.00	12,527.4	-6,671.8	648.6	6,700.4	0.00	0.00	
18,900.0	91.78	180.00	12,524.3	-6,771.8	648.6	6,800.1	0.00	0.00	
19,000.0	91.78	180.00	12,521.2	-6,871.7	648.6	6,899.8	0.00	0.00	
19,100.0	91.78	180.00	12,518.1	-6,971.7	648.6	6,999.5	0.00	0.00	
19,200.0	91.78	180.00	12,515.0	-7,071.6	648.6	7,099.3	0.00	0.00	
19,300.0	91.78	180.00	12,511.8	-7,171.6	648.6	7,199.0	0.00	0.00	
19,400.0	91.78	180.00	12,508.7	-7,271.5	648.6	7,298.7	0.00	0.00	
19,500.0	91.78	180.00	12,505.6	-7,371.5	648.6	7,398.4	0.00	0.00	
19,600.0	91.78	180.00	12,502.5	-7,471.4	648.6	7,498.2	0.00	0.00	
19,700.0	91.78	180.00	12,499.4	-7,571.4	648.6	7,597.9	0.00	0.00	
19,800.0	91.78	180.00	12,496.3	-7,671.3	648.6	7,697.6	0.00	0.00	
19,900.0	91.78	180.00	12,493.2	-7,771.3	648.6	7,797.3	0.00	0.00	
20,000.0	91.78	180.00	12,490.1	-7,871.2	648.6	7,897.1	0.00	0.00	
20,100.0	91.78	180.00	12,487.0	-7,971.2	648.6	7,996.8	0.00	0.00	
20,200.0	91.78	180.00	12,483.9	-8,071.1	648.6	8,096.5	0.00	0.00	
20,300.0	91.78	180.00	12,480.8	-8,171.1	648.6	8,196.2	0.00	0.00	
20,400.0	91.78	180.00	12,477.6	-8,271.0	648.6	8,296.0	0.00	0.00	
20,500.0	91.78	180.00	12,474.5	-8,371.0	648.6	8,395.7	0.00	0.00	
20,600.0	91.78	180.00	12,471.4	-8,471.0	648.6	8,495.4	0.00	0.00	
20,700.0	91.78	180.00	12,468.3	-8,570.9	648.6	8,595.1	0.00	0.00	
20,800.0	91.78	180.00	12,465.2	-8,670.9	648.6	8,694.9	0.00	0.00	
20,900.0	91.78	180.00	12,462.1	-8,770.8	648.6	8,794.6	0.00	0.00	
21,000.0	91.78	180.00	12,459.0	-8,870.8	648.6	8,894.3	0.00	0.00	
21,100.0	91.78	180.00	12,455.9	-8,970.7	648.6	8,994.0	0.00	0.00	
21,200.0	91.78	180.00	12,452.8	-9,070.7	648.6	9,093.8	0.00	0.00	
21,300.0	91.78	180.00	12,449.7	-9,170.6	648.6	9,193.5	0.00	0.00	
21,400.0	91.78	180.00	12,446.6	-9,270.6	648.6	9,293.2	0.00	0.00	
21,500.0	91.78	180.00	12,443.4	-9,370.5	648.7	9,392.9	0.00	0.00	
21,600.0	91.78	180.00	12,440.3	-9,470.5	648.7	9,492.7	0.00	0.00	
21,700.0	91.78	180.00	12,437.2	-9,570.4	648.7	9,592.4	0.00	0.00	
21,739.5	91.78	180.00	12,436.0	-9,609.9	648.7	9,631.8	0.00	0.00	PBHL @ 21739' MD

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									
Bulldog #27-41H 891 PE	0.00	0.00	12,436.0	-9,609.9	648.7	1,469,235.36	2,421,365.59	40.602775	-107.584047
- plan hits target center									
- Point									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #27-41H 891
Company:	Axia Energy	TVD Reference:	WELL @ 6704.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6704.0ft (Original Well Elev)
Site:	SEC 27-T8N-R91W	North Reference:	True
Well:	Bulldog #27-41H 891	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,678.0	3,675.0	Lewis		-1.78	180.00
5,902.2	5,886.0	Mesaverde		-1.78	180.00
9,145.4	9,111.0	Mancos		-1.78	180.00
9,495.4	9,461.0	Morapos		-1.78	180.00
9,845.4	9,811.0	Mancos Marker		-1.78	180.00
12,045.4	12,011.0	Niobrara		-1.78	180.00
12,487.7	12,441.0	Tow Creek #2		-1.78	180.00
12,546.8	12,491.0	Wolf Mountain		-1.78	180.00
12,772.7	12,646.0	Top Target		-1.78	180.00

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
9,157.3	9,111.0	-380.0	639.0	Tie On @ 9157' MD	
12,178.3	12,132.0	-380.0	639.0	Curve KOP @ 12178' MD	
13,096.1	12,704.7	-970.7	648.3	LP @ 13096' MD	
13,126.1	12,703.8	-1,000.6	648.5	EOT; 180° Az	
21,739.5	12,436.0	-9,609.9	648.7	PBHL @ 21739' MD	