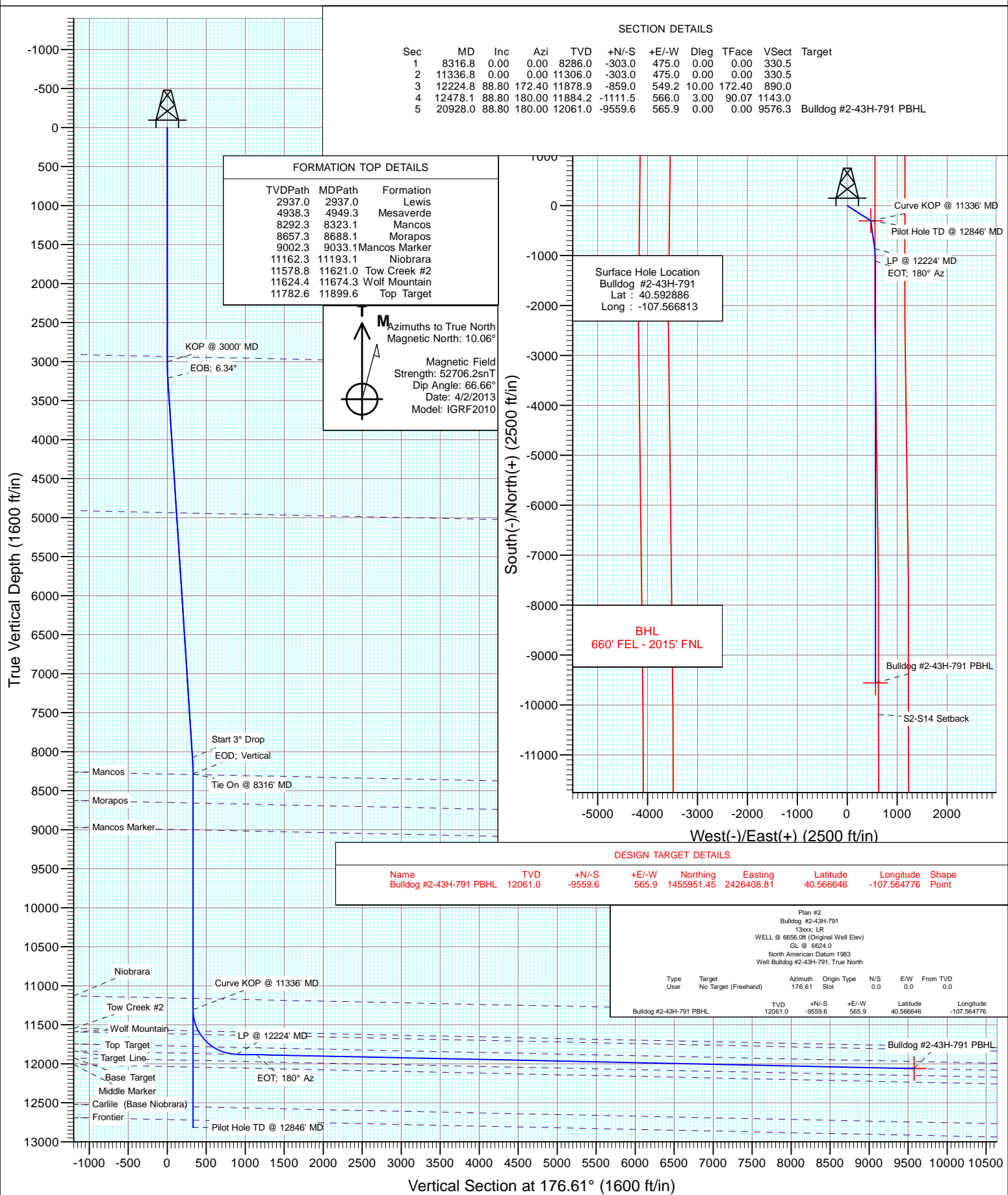




Project: Moffat County, CO  
Site: SEC 2-T7N-R91W  
Well: Bulldog #2-43H-791  
Wellbore: Hz  
Design: Plan #2



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bulldog #2-43H-791
<b>Company:</b>	Axia Energy	<b>TVD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Site:</b>	SEC 2-T7N-R91W	<b>North Reference:</b>	True
<b>Well:</b>	Bulldog #2-43H-791	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot Hole		
<b>Design:</b>	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 2-T7N-R91W			
Site Position:		Northing:	1,465,522.09 ft	Latitude:	40.592886
From:	Lat/Long	Easting:	2,426,046.11 ft	Longitude:	-107.566884
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.34 °

Well	Bulldog #2-43H-791					
Well Position	+N/-S	0.0 ft	Northing:	1,465,521.62 ft	Latitude:	40.592886
	+E/-W	0.0 ft	Easting:	2,426,065.82 ft	Longitude:	-107.566813
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,624.0 ft

Wellbore		Pilot Hole			
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/9/2013	10.03	66.66	52,687

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	122.53

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	
3,211.2	6.34	122.53	3,210.7	-6.3	9.8	3.00	3.00	0.00	122.53	
8,105.6	6.34	122.53	8,075.3	-296.7	465.2	0.00	0.00	0.00	0.00	
8,316.8	0.00	0.00	8,286.0	-303.0	475.0	3.00	-3.00	0.00	180.00	2-43H 791 Vert Tgt
12,846.8	0.00	0.00	12,816.0	-303.0	475.0	0.00	0.00	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bulldog #2-43H-791
<b>Company:</b>	Axia Energy	<b>TVD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Site:</b>	SEC 2-T7N-R91W	<b>North Reference:</b>	True
<b>Well:</b>	Bulldog #2-43H-791	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot Hole		
<b>Design:</b>	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	
2,937.0	0.00	0.00	2,937.0	0.0	0.0	0.0	0.00	0.00	Lewis
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	122.53	3,100.0	-1.4	2.2	2.6	3.00	3.00	
3,200.0	6.00	122.53	3,199.6	-5.6	8.8	10.5	3.00	3.00	
3,211.2	6.34	122.53	3,210.7	-6.3	9.8	11.7	3.00	3.00	EOB; 6.34°
3,300.0	6.34	122.53	3,299.0	-11.5	18.1	21.5	0.00	0.00	
3,400.0	6.34	122.53	3,398.4	-17.5	27.4	32.5	0.00	0.00	
3,500.0	6.34	122.53	3,497.8	-23.4	36.7	43.5	0.00	0.00	
3,600.0	6.34	122.53	3,597.2	-29.3	46.0	54.6	0.00	0.00	
3,700.0	6.34	122.53	3,696.6	-35.3	55.3	65.6	0.00	0.00	
3,800.0	6.34	122.53	3,796.0	-41.2	64.6	76.6	0.00	0.00	
3,900.0	6.34	122.53	3,895.4	-47.2	73.9	87.7	0.00	0.00	
4,000.0	6.34	122.53	3,994.8	-53.1	83.2	98.7	0.00	0.00	
4,100.0	6.34	122.53	4,094.1	-59.0	92.5	109.7	0.00	0.00	
4,200.0	6.34	122.53	4,193.5	-65.0	101.8	120.8	0.00	0.00	
4,300.0	6.34	122.53	4,292.9	-70.9	111.1	131.8	0.00	0.00	
4,400.0	6.34	122.53	4,392.3	-76.8	120.4	142.8	0.00	0.00	
4,500.0	6.34	122.53	4,491.7	-82.8	129.7	153.9	0.00	0.00	
4,600.0	6.34	122.53	4,591.1	-88.7	139.0	164.9	0.00	0.00	
4,700.0	6.34	122.53	4,690.5	-94.6	148.3	176.0	0.00	0.00	
4,800.0	6.34	122.53	4,789.9	-100.6	157.6	187.0	0.00	0.00	
4,900.0	6.34	122.53	4,889.3	-106.5	166.9	198.0	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bulldog #2-43H-791
<b>Company:</b>	Axia Energy	<b>TVD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Site:</b>	SEC 2-T7N-R91W	<b>North Reference:</b>	True
<b>Well:</b>	Bulldog #2-43H-791	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot Hole		
<b>Design:</b>	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
4,947.0	6.34	122.53	4,936.0	-109.3	171.3	203.2	0.00	0.00	Mesaverde
5,000.0	6.34	122.53	4,988.6	-112.4	176.3	209.1	0.00	0.00	
5,100.0	6.34	122.53	5,088.0	-118.4	185.6	220.1	0.00	0.00	
5,200.0	6.34	122.53	5,187.4	-124.3	194.9	231.1	0.00	0.00	
5,300.0	6.34	122.53	5,286.8	-130.2	204.2	242.2	0.00	0.00	
5,400.0	6.34	122.53	5,386.2	-136.2	213.5	253.2	0.00	0.00	
5,500.0	6.34	122.53	5,485.6	-142.1	222.8	264.2	0.00	0.00	
5,600.0	6.34	122.53	5,585.0	-148.0	232.1	275.3	0.00	0.00	
5,700.0	6.34	122.53	5,684.4	-154.0	241.4	286.3	0.00	0.00	
5,800.0	6.34	122.53	5,783.8	-159.9	250.7	297.3	0.00	0.00	
5,900.0	6.34	122.53	5,883.1	-165.8	260.0	308.4	0.00	0.00	
6,000.0	6.34	122.53	5,982.5	-171.8	269.3	319.4	0.00	0.00	
6,100.0	6.34	122.53	6,081.9	-177.7	278.6	330.4	0.00	0.00	
6,200.0	6.34	122.53	6,181.3	-183.6	287.9	341.5	0.00	0.00	
6,300.0	6.34	122.53	6,280.7	-189.6	297.2	352.5	0.00	0.00	
6,400.0	6.34	122.53	6,380.1	-195.5	306.5	363.5	0.00	0.00	
6,500.0	6.34	122.53	6,479.5	-201.4	315.8	374.6	0.00	0.00	
6,600.0	6.34	122.53	6,578.9	-207.4	325.1	385.6	0.00	0.00	
6,700.0	6.34	122.53	6,678.3	-213.3	334.4	396.6	0.00	0.00	
6,800.0	6.34	122.53	6,777.7	-219.2	343.7	407.7	0.00	0.00	
6,900.0	6.34	122.53	6,877.0	-225.2	353.0	418.7	0.00	0.00	
7,000.0	6.34	122.53	6,976.4	-231.1	362.3	429.8	0.00	0.00	
7,100.0	6.34	122.53	7,075.8	-237.1	371.6	440.8	0.00	0.00	
7,200.0	6.34	122.53	7,175.2	-243.0	380.9	451.8	0.00	0.00	
7,300.0	6.34	122.53	7,274.6	-248.9	390.2	462.9	0.00	0.00	
7,400.0	6.34	122.53	7,374.0	-254.9	399.5	473.9	0.00	0.00	
7,500.0	6.34	122.53	7,473.4	-260.8	408.8	484.9	0.00	0.00	
7,600.0	6.34	122.53	7,572.8	-266.7	418.1	496.0	0.00	0.00	
7,700.0	6.34	122.53	7,672.2	-272.7	427.4	507.0	0.00	0.00	
7,800.0	6.34	122.53	7,771.5	-278.6	436.7	518.0	0.00	0.00	
7,900.0	6.34	122.53	7,870.9	-284.5	446.0	529.1	0.00	0.00	
8,000.0	6.34	122.53	7,970.3	-290.5	455.3	540.1	0.00	0.00	
8,100.0	6.34	122.53	8,069.7	-296.4	464.6	551.1	0.00	0.00	
8,105.6	6.34	122.53	8,075.3	-296.7	465.2	551.7	0.00	0.00	Start 3° Drop
8,200.0	3.50	122.53	8,169.3	-301.1	472.0	559.8	3.00	-3.00	
8,300.0	0.50	122.53	8,269.3	-303.0	474.9	563.3	3.00	-3.00	
8,316.8	0.00	0.00	8,286.0	-303.0	475.0	563.4	3.00	-3.00	EOD; Vertical - Mancos
8,400.0	0.00	0.00	8,369.2	-303.0	475.0	563.4	0.00	0.00	
8,500.0	0.00	0.00	8,469.2	-303.0	475.0	563.4	0.00	0.00	
8,600.0	0.00	0.00	8,569.2	-303.0	475.0	563.4	0.00	0.00	
8,681.8	0.00	0.00	8,651.0	-303.0	475.0	563.4	0.00	0.00	Morapos
8,700.0	0.00	0.00	8,669.2	-303.0	475.0	563.4	0.00	0.00	
8,800.0	0.00	0.00	8,769.2	-303.0	475.0	563.4	0.00	0.00	
8,900.0	0.00	0.00	8,869.2	-303.0	475.0	563.4	0.00	0.00	
9,000.0	0.00	0.00	8,969.2	-303.0	475.0	563.4	0.00	0.00	
9,026.8	0.00	0.00	8,996.0	-303.0	475.0	563.4	0.00	0.00	Mancos Marker
9,100.0	0.00	0.00	9,069.2	-303.0	475.0	563.4	0.00	0.00	
9,200.0	0.00	0.00	9,169.2	-303.0	475.0	563.4	0.00	0.00	
9,300.0	0.00	0.00	9,269.2	-303.0	475.0	563.4	0.00	0.00	
9,400.0	0.00	0.00	9,369.2	-303.0	475.0	563.4	0.00	0.00	
9,500.0	0.00	0.00	9,469.2	-303.0	475.0	563.4	0.00	0.00	
9,600.0	0.00	0.00	9,569.2	-303.0	475.0	563.4	0.00	0.00	

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bulldog #2-43H-791
<b>Company:</b>	Axia Energy	<b>TVD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Site:</b>	SEC 2-T7N-R91W	<b>North Reference:</b>	True
<b>Well:</b>	Bulldog #2-43H-791	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot Hole		
<b>Design:</b>	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
9,700.0	0.00	0.00	9,669.2	-303.0	475.0	563.4	0.00	0.00	
9,800.0	0.00	0.00	9,769.2	-303.0	475.0	563.4	0.00	0.00	
9,900.0	0.00	0.00	9,869.2	-303.0	475.0	563.4	0.00	0.00	
10,000.0	0.00	0.00	9,969.2	-303.0	475.0	563.4	0.00	0.00	
10,100.0	0.00	0.00	10,069.2	-303.0	475.0	563.4	0.00	0.00	
10,200.0	0.00	0.00	10,169.2	-303.0	475.0	563.4	0.00	0.00	
10,300.0	0.00	0.00	10,269.2	-303.0	475.0	563.4	0.00	0.00	
10,400.0	0.00	0.00	10,369.2	-303.0	475.0	563.4	0.00	0.00	
10,500.0	0.00	0.00	10,469.2	-303.0	475.0	563.4	0.00	0.00	
10,600.0	0.00	0.00	10,569.2	-303.0	475.0	563.4	0.00	0.00	
10,700.0	0.00	0.00	10,669.2	-303.0	475.0	563.4	0.00	0.00	
10,800.0	0.00	0.00	10,769.2	-303.0	475.0	563.4	0.00	0.00	
10,900.0	0.00	0.00	10,869.2	-303.0	475.0	563.4	0.00	0.00	
11,000.0	0.00	0.00	10,969.2	-303.0	475.0	563.4	0.00	0.00	
11,100.0	0.00	0.00	11,069.2	-303.0	475.0	563.4	0.00	0.00	
11,186.8	0.00	0.00	11,156.0	-303.0	475.0	563.4	0.00	0.00	Niobrara
11,200.0	0.00	0.00	11,169.2	-303.0	475.0	563.4	0.00	0.00	
11,300.0	0.00	0.00	11,269.2	-303.0	475.0	563.4	0.00	0.00	
11,400.0	0.00	0.00	11,369.2	-303.0	475.0	563.4	0.00	0.00	
11,500.0	0.00	0.00	11,469.2	-303.0	475.0	563.4	0.00	0.00	
11,600.0	0.00	0.00	11,569.2	-303.0	475.0	563.4	0.00	0.00	
11,601.8	0.00	0.00	11,571.0	-303.0	475.0	563.4	0.00	0.00	Tow Creek #2
11,646.8	0.00	0.00	11,616.0	-303.0	475.0	563.4	0.00	0.00	Wolf Mountain
11,700.0	0.00	0.00	11,669.2	-303.0	475.0	563.4	0.00	0.00	
11,800.0	0.00	0.00	11,769.2	-303.0	475.0	563.4	0.00	0.00	
11,801.8	0.00	0.00	11,771.0	-303.0	475.0	563.4	0.00	0.00	Top Target
11,891.8	0.00	0.00	11,861.0	-303.0	475.0	563.4	0.00	0.00	Target Line
11,900.0	0.00	0.00	11,869.2	-303.0	475.0	563.4	0.00	0.00	
11,981.8	0.00	0.00	11,951.0	-303.0	475.0	563.4	0.00	0.00	Base Target
12,000.0	0.00	0.00	11,969.2	-303.0	475.0	563.4	0.00	0.00	
12,066.8	0.00	0.00	12,036.0	-303.0	475.0	563.4	0.00	0.00	Middle Marker
12,100.0	0.00	0.00	12,069.2	-303.0	475.0	563.4	0.00	0.00	
12,200.0	0.00	0.00	12,169.2	-303.0	475.0	563.4	0.00	0.00	
12,300.0	0.00	0.00	12,269.2	-303.0	475.0	563.4	0.00	0.00	
12,400.0	0.00	0.00	12,369.2	-303.0	475.0	563.4	0.00	0.00	
12,500.0	0.00	0.00	12,469.2	-303.0	475.0	563.4	0.00	0.00	
12,576.8	0.00	0.00	12,546.0	-303.0	475.0	563.4	0.00	0.00	Carlile (Base Niobrara)
12,600.0	0.00	0.00	12,569.2	-303.0	475.0	563.4	0.00	0.00	
12,700.0	0.00	0.00	12,669.2	-303.0	475.0	563.4	0.00	0.00	
12,746.8	0.00	0.00	12,716.0	-303.0	475.0	563.4	0.00	0.00	Frontier
12,800.0	0.00	0.00	12,769.2	-303.0	475.0	563.4	0.00	0.00	
12,846.8	0.00	0.00	12,816.0	-303.0	475.0	563.4	0.00	0.00	Pilot Hole TD @ 12846' MD

# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Bulldog #2-43H-791
<b>Company:</b>	Axia Energy	<b>TVD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Project:</b>	Moffat County, CO	<b>MD Reference:</b>	WELL @ 6656.0ft (Original Well Elev)
<b>Site:</b>	SEC 2-T7N-R91W	<b>North Reference:</b>	True
<b>Well:</b>	Bulldog #2-43H-791	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Pilot Hole		
<b>Design:</b>	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									
2-43H 791 Vert Tgt	0.00	0.00	8,286.0	-303.0	475.0	1,465,207.63	2,426,533.63	40.592054	-107.565103
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
2,937.0	2,937.0	Lewis				
4,947.0	4,936.0	Mesaverde				
8,316.8	8,286.0	Mancos				
8,681.8	8,651.0	Morapos				
9,026.8	8,996.0	Mancos Marker				
11,186.8	11,156.0	Niobrara				
11,601.8	11,571.0	Tow Creek #2				
11,646.8	11,616.0	Wolf Mountain				
11,801.8	11,771.0	Top Target				
11,891.8	11,861.0	Target Line				
11,981.8	11,951.0	Base Target				
12,066.8	12,036.0	Middle Marker				
12,576.8	12,546.0	Carlile (Base Niobrara)				
12,746.8	12,716.0	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
3,211.2	3,210.7	-6.3	9.8	EOB; 6.34°
8,105.6	8,075.3	-296.7	465.2	Start 3° Drop
8,316.8	8,286.0	-303.0	475.0	EOD; Vertical
12,846.8	12,816.0	-303.0	475.0	Pilot Hole TD @ 12846' MD