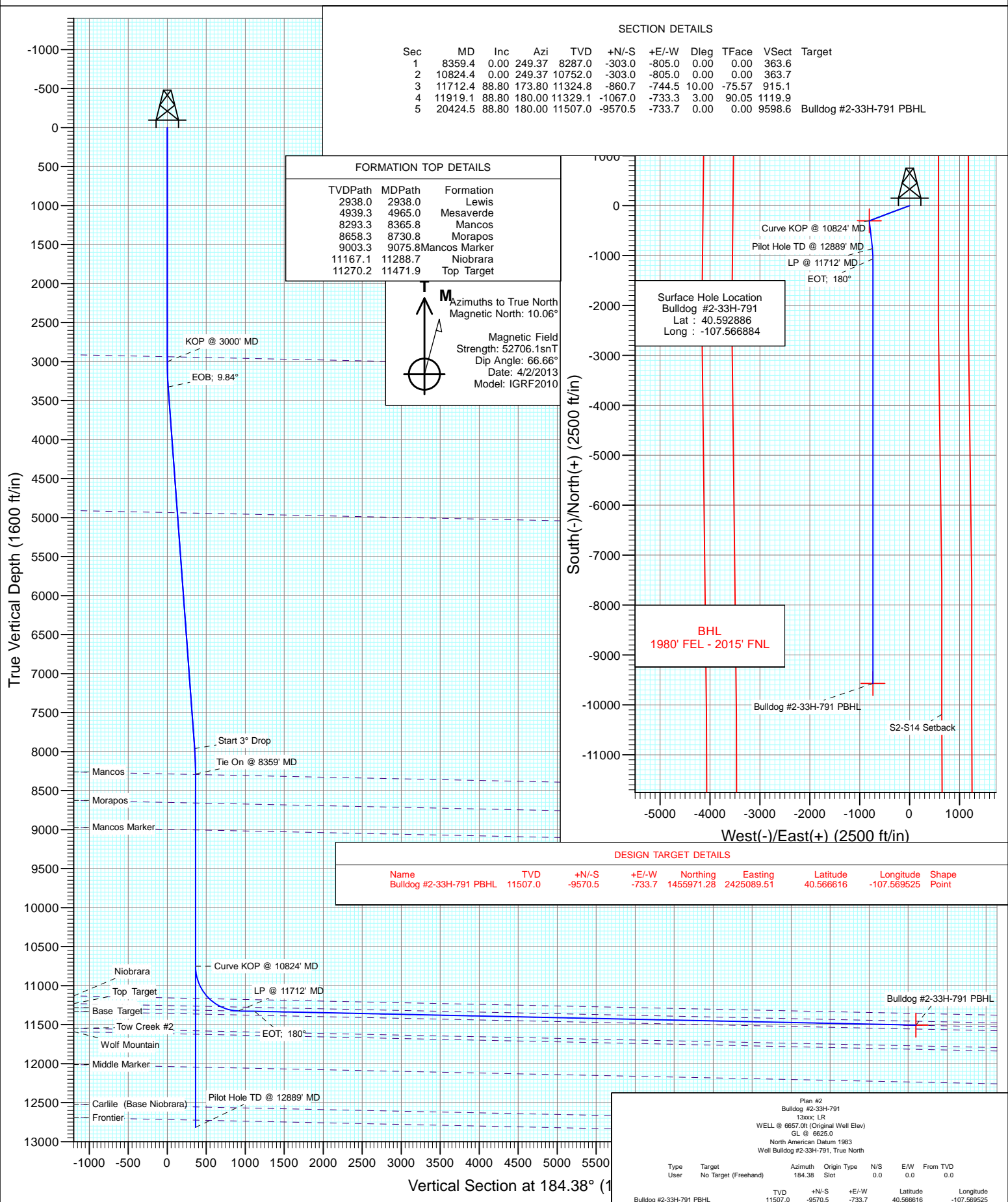




Project: Moffat County, CO
Site: SEC 2-T7N-R91W
Well: Bulldog #2-33H-791
Wellbore: Hz
Design: Plan #2



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #2-33H-791
Company:	Axia Energy	TVD Reference:	WELL @ 6657.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6657.0ft (Original Well Elev)
Site:	SEC 2-T7N-R91W	North Reference:	True
Well:	Bulldog #2-33H-791	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 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 #2-33H-791					
Well Position	+N/-S	0.0 ft	Northing:	1,465,522.08 ft	Latitude:	40.592886
	+E/-W	0.0 ft	Easting:	2,426,046.11 ft	Longitude:	-107.566884
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,625.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/2/2013	10.06	66.66	52,706

Design	Plan #2			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	8,359.4
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	184.38

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
8,359.4	0.00	249.37	8,287.0	-303.0	-805.0	0.00	0.00	0.00	0.00	
10,824.4	0.00	249.37	10,752.0	-303.0	-805.0	0.00	0.00	0.00	0.00	
11,712.4	88.80	173.80	11,324.8	-860.7	-744.5	10.00	10.00	-8.51	-75.57	
11,919.1	88.80	180.00	11,329.1	-1,067.0	-733.3	3.00	0.00	3.00	90.05	
20,424.5	88.80	180.00	11,507.0	-9,570.5	-733.7	0.00	0.00	0.00	0.00	Bulldog #2-33H-791 F

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #2-33H-791
Company:	Axia Energy	TVD Reference:	WELL @ 6657.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6657.0ft (Original Well Elev)
Site:	SEC 2-T7N-R91W	North Reference:	True
Well:	Bulldog #2-33H-791	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
8,359.4	0.00	249.37	8,287.0	-303.0	-805.0	363.6	0.00	0.00	Tie On @ 8359' MD
8,365.8	0.00	249.37	8,293.3	-303.0	-805.0	363.6	0.00	0.00	Mancos
8,400.0	0.00	249.37	8,327.6	-303.0	-805.0	363.6	0.00	0.00	
8,500.0	0.00	249.37	8,427.6	-303.0	-805.0	363.7	0.00	0.00	
8,600.0	0.00	249.37	8,527.6	-303.0	-805.0	363.7	0.00	0.00	
8,700.0	0.00	249.37	8,627.6	-303.0	-805.0	363.7	0.00	0.00	
8,730.8	0.00	249.37	8,658.3	-303.0	-805.0	363.7	0.00	0.00	Morapos
8,800.0	0.00	249.37	8,727.6	-303.0	-805.0	363.7	0.00	0.00	
8,900.0	0.00	249.37	8,827.6	-303.0	-805.0	363.7	0.00	0.00	
9,000.0	0.00	249.37	8,927.6	-303.0	-805.0	363.7	0.00	0.00	
9,075.8	0.00	249.37	9,003.3	-303.0	-805.0	363.7	0.00	0.00	Mancos Marker
9,100.0	0.00	249.37	9,027.6	-303.0	-805.0	363.7	0.00	0.00	
9,200.0	0.00	249.37	9,127.6	-303.0	-805.0	363.7	0.00	0.00	
9,300.0	0.00	249.37	9,227.6	-303.0	-805.0	363.7	0.00	0.00	
9,400.0	0.00	249.37	9,327.6	-303.0	-805.0	363.7	0.00	0.00	
9,500.0	0.00	249.37	9,427.6	-303.0	-805.0	363.7	0.00	0.00	
9,600.0	0.00	249.37	9,527.6	-303.0	-805.0	363.7	0.00	0.00	
9,700.0	0.00	249.37	9,627.6	-303.0	-805.0	363.7	0.00	0.00	
9,800.0	0.00	249.37	9,727.6	-303.0	-805.0	363.7	0.00	0.00	
9,900.0	0.00	249.37	9,827.6	-303.0	-805.0	363.7	0.00	0.00	
10,000.0	0.00	249.37	9,927.6	-303.0	-805.0	363.7	0.00	0.00	
10,100.0	0.00	249.37	10,027.6	-303.0	-805.0	363.7	0.00	0.00	
10,200.0	0.00	249.37	10,127.6	-303.0	-805.0	363.7	0.00	0.00	
10,300.0	0.00	249.37	10,227.6	-303.0	-805.0	363.7	0.00	0.00	
10,400.0	0.00	249.37	10,327.6	-303.0	-805.0	363.7	0.00	0.00	
10,500.0	0.00	249.37	10,427.6	-303.0	-805.0	363.7	0.00	0.00	
10,600.0	0.00	249.37	10,527.6	-303.0	-805.0	363.7	0.00	0.00	
10,700.0	0.00	249.37	10,627.6	-303.0	-805.0	363.7	0.00	0.00	
10,800.0	0.00	249.37	10,727.6	-303.0	-805.0	363.7	0.00	0.00	
10,824.4	0.00	249.37	10,752.0	-303.0	-805.0	363.7	0.00	0.00	Curve KOP @ 10824' MD
10,900.0	7.56	173.81	10,827.3	-308.0	-804.5	368.6	10.00	10.00	
11,000.0	17.56	173.80	10,924.8	-329.6	-802.2	389.9	10.00	10.00	
11,100.0	27.56	173.80	11,017.1	-367.7	-798.0	427.6	10.00	10.00	
11,200.0	37.56	173.80	11,101.2	-421.1	-792.2	480.4	10.00	10.00	
11,288.7	46.43	173.80	11,167.1	-480.0	-785.8	538.7	10.00	10.00	Niobrara
11,300.0	47.56	173.80	11,174.8	-488.2	-784.9	546.8	10.00	10.00	
11,400.0	57.56	173.80	11,235.5	-567.1	-776.4	624.8	10.00	10.00	
11,471.9	64.75	173.80	11,270.2	-629.7	-769.6	686.7	10.00	10.00	Top Target
11,500.0	67.56	173.80	11,281.5	-655.2	-766.8	711.9	10.00	10.00	
11,600.0	77.56	173.80	11,311.5	-749.9	-756.5	805.6	10.00	10.00	
11,700.0	87.56	173.80	11,324.4	-848.4	-745.8	902.9	10.00	10.00	
11,712.4	88.80	173.80	11,324.8	-860.7	-744.5	915.1	10.00	10.00	LP @ 11712' MD
11,800.0	88.80	176.43	11,326.6	-948.0	-737.0	1,001.5	3.00	0.00	
11,900.0	88.80	179.43	11,328.7	-1,047.9	-733.4	1,100.9	3.00	0.00	
11,919.1	88.80	180.00	11,329.1	-1,067.0	-733.3	1,119.9	3.00	0.00	EOT; 180°
12,000.0	88.80	180.00	11,330.8	-1,147.8	-733.3	1,200.5	0.00	0.00	
12,100.0	88.80	180.00	11,332.9	-1,247.8	-733.3	1,300.2	0.00	0.00	
12,200.0	88.80	180.00	11,335.0	-1,347.8	-733.3	1,399.9	0.00	0.00	
12,300.0	88.80	180.00	11,337.1	-1,447.8	-733.3	1,499.6	0.00	0.00	
12,400.0	88.80	180.00	11,339.2	-1,547.7	-733.3	1,599.3	0.00	0.00	
12,500.0	88.80	180.00	11,341.3	-1,647.7	-733.3	1,699.0	0.00	0.00	
12,600.0	88.80	180.00	11,343.4	-1,747.7	-733.3	1,798.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #2-33H-791
Company:	Axia Energy	TVD Reference:	WELL @ 6657.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6657.0ft (Original Well Elev)
Site:	SEC 2-T7N-R91W	North Reference:	True
Well:	Bulldog #2-33H-791	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
12,700.0	88.80	180.00	11,345.5	-1,847.7	-733.3	1,898.3	0.00	0.00	
12,800.0	88.80	180.00	11,347.5	-1,947.7	-733.4	1,998.0	0.00	0.00	
12,900.0	88.80	180.00	11,349.6	-2,047.6	-733.4	2,097.7	0.00	0.00	
13,000.0	88.80	180.00	11,351.7	-2,147.6	-733.4	2,197.4	0.00	0.00	
13,100.0	88.80	180.00	11,353.8	-2,247.6	-733.4	2,297.1	0.00	0.00	
13,200.0	88.80	180.00	11,355.9	-2,347.6	-733.4	2,396.8	0.00	0.00	
13,300.0	88.80	180.00	11,358.0	-2,447.5	-733.4	2,496.4	0.00	0.00	
13,400.0	88.80	180.00	11,360.1	-2,547.5	-733.4	2,596.1	0.00	0.00	
13,500.0	88.80	180.00	11,362.2	-2,647.5	-733.4	2,695.8	0.00	0.00	
13,600.0	88.80	180.00	11,364.3	-2,747.5	-733.4	2,795.5	0.00	0.00	
13,700.0	88.80	180.00	11,366.4	-2,847.5	-733.4	2,895.2	0.00	0.00	
13,800.0	88.80	180.00	11,368.5	-2,947.4	-733.4	2,994.9	0.00	0.00	
13,900.0	88.80	180.00	11,370.5	-3,047.4	-733.4	3,094.6	0.00	0.00	
14,000.0	88.80	180.00	11,372.6	-3,147.4	-733.4	3,194.2	0.00	0.00	
14,100.0	88.80	180.00	11,374.7	-3,247.4	-733.4	3,293.9	0.00	0.00	
14,200.0	88.80	180.00	11,376.8	-3,347.4	-733.4	3,393.6	0.00	0.00	
14,300.0	88.80	180.00	11,378.9	-3,447.3	-733.4	3,493.3	0.00	0.00	
14,400.0	88.80	180.00	11,381.0	-3,547.3	-733.4	3,593.0	0.00	0.00	
14,500.0	88.80	180.00	11,383.1	-3,647.3	-733.4	3,692.7	0.00	0.00	
14,600.0	88.80	180.00	11,385.2	-3,747.3	-733.4	3,792.4	0.00	0.00	
14,700.0	88.80	180.00	11,387.3	-3,847.2	-733.4	3,892.1	0.00	0.00	
14,800.0	88.80	180.00	11,389.4	-3,947.2	-733.5	3,991.7	0.00	0.00	
14,900.0	88.80	180.00	11,391.5	-4,047.2	-733.5	4,091.4	0.00	0.00	
15,000.0	88.80	180.00	11,393.6	-4,147.2	-733.5	4,191.1	0.00	0.00	
15,100.0	88.80	180.00	11,395.6	-4,247.2	-733.5	4,290.8	0.00	0.00	
15,200.0	88.80	180.00	11,397.7	-4,347.1	-733.5	4,390.5	0.00	0.00	
15,300.0	88.80	180.00	11,399.8	-4,447.1	-733.5	4,490.2	0.00	0.00	
15,400.0	88.80	180.00	11,401.9	-4,547.1	-733.5	4,589.9	0.00	0.00	
15,500.0	88.80	180.00	11,404.0	-4,647.1	-733.5	4,689.5	0.00	0.00	
15,600.0	88.80	180.00	11,406.1	-4,747.0	-733.5	4,789.2	0.00	0.00	
15,700.0	88.80	180.00	11,408.2	-4,847.0	-733.5	4,888.9	0.00	0.00	
15,800.0	88.80	180.00	11,410.3	-4,947.0	-733.5	4,988.6	0.00	0.00	
15,900.0	88.80	180.00	11,412.4	-5,047.0	-733.5	5,088.3	0.00	0.00	
16,000.0	88.80	180.00	11,414.5	-5,147.0	-733.5	5,188.0	0.00	0.00	
16,100.0	88.80	180.00	11,416.6	-5,246.9	-733.5	5,287.7	0.00	0.00	
16,200.0	88.80	180.00	11,418.7	-5,346.9	-733.5	5,387.3	0.00	0.00	
16,300.0	88.80	180.00	11,420.7	-5,446.9	-733.5	5,487.0	0.00	0.00	
16,400.0	88.80	180.00	11,422.8	-5,546.9	-733.5	5,586.7	0.00	0.00	
16,500.0	88.80	180.00	11,424.9	-5,646.8	-733.5	5,686.4	0.00	0.00	
16,600.0	88.80	180.00	11,427.0	-5,746.8	-733.5	5,786.1	0.00	0.00	
16,700.0	88.80	180.00	11,429.1	-5,846.8	-733.5	5,885.8	0.00	0.00	
16,800.0	88.80	180.00	11,431.2	-5,946.8	-733.6	5,985.5	0.00	0.00	
16,900.0	88.80	180.00	11,433.3	-6,046.8	-733.6	6,085.1	0.00	0.00	
17,000.0	88.80	180.00	11,435.4	-6,146.7	-733.6	6,184.8	0.00	0.00	
17,100.0	88.80	180.00	11,437.5	-6,246.7	-733.6	6,284.5	0.00	0.00	
17,200.0	88.80	180.00	11,439.6	-6,346.7	-733.6	6,384.2	0.00	0.00	
17,300.0	88.80	180.00	11,441.7	-6,446.7	-733.6	6,483.9	0.00	0.00	
17,400.0	88.80	180.00	11,443.7	-6,546.7	-733.6	6,583.6	0.00	0.00	
17,500.0	88.80	180.00	11,445.8	-6,646.6	-733.6	6,683.3	0.00	0.00	
17,600.0	88.80	180.00	11,447.9	-6,746.6	-733.6	6,782.9	0.00	0.00	
17,700.0	88.80	180.00	11,450.0	-6,846.6	-733.6	6,882.6	0.00	0.00	
17,800.0	88.80	180.00	11,452.1	-6,946.6	-733.6	6,982.3	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Axia Energy	TVD Reference:	WELL @ 6657.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6657.0ft (Original Well Elev)
Site:	SEC 2-T7N-R91W	North Reference:	True
Well:	Bulldog #2-33H-791	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
17,900.0	88.80	180.00	11,454.2	-7,046.5	-733.6	7,082.0	0.00	0.00	
18,000.0	88.80	180.00	11,456.3	-7,146.5	-733.6	7,181.7	0.00	0.00	
18,100.0	88.80	180.00	11,458.4	-7,246.5	-733.6	7,281.4	0.00	0.00	
18,200.0	88.80	180.00	11,460.5	-7,346.5	-733.6	7,381.1	0.00	0.00	
18,300.0	88.80	180.00	11,462.6	-7,446.5	-733.6	7,480.7	0.00	0.00	
18,400.0	88.80	180.00	11,464.7	-7,546.4	-733.6	7,580.4	0.00	0.00	
18,500.0	88.80	180.00	11,466.8	-7,646.4	-733.6	7,680.1	0.00	0.00	
18,600.0	88.80	180.00	11,468.8	-7,746.4	-733.6	7,779.8	0.00	0.00	
18,700.0	88.80	180.00	11,470.9	-7,846.4	-733.7	7,879.5	0.00	0.00	
18,800.0	88.80	180.00	11,473.0	-7,946.3	-733.7	7,979.2	0.00	0.00	
18,900.0	88.80	180.00	11,475.1	-8,046.3	-733.7	8,078.9	0.00	0.00	
19,000.0	88.80	180.00	11,477.2	-8,146.3	-733.7	8,178.5	0.00	0.00	
19,100.0	88.80	180.00	11,479.3	-8,246.3	-733.7	8,278.2	0.00	0.00	
19,200.0	88.80	180.00	11,481.4	-8,346.3	-733.7	8,377.9	0.00	0.00	
19,300.0	88.80	180.00	11,483.5	-8,446.2	-733.7	8,477.6	0.00	0.00	
19,400.0	88.80	180.00	11,485.6	-8,546.2	-733.7	8,577.3	0.00	0.00	
19,500.0	88.80	180.00	11,487.7	-8,646.2	-733.7	8,677.0	0.00	0.00	
19,600.0	88.80	180.00	11,489.8	-8,746.2	-733.7	8,776.7	0.00	0.00	
19,700.0	88.80	180.00	11,491.8	-8,846.1	-733.7	8,876.4	0.00	0.00	
19,800.0	88.80	180.00	11,493.9	-8,946.1	-733.7	8,976.0	0.00	0.00	
19,900.0	88.80	180.00	11,496.0	-9,046.1	-733.7	9,075.7	0.00	0.00	
20,000.0	88.80	180.00	11,498.1	-9,146.1	-733.7	9,175.4	0.00	0.00	
20,100.0	88.80	180.00	11,500.2	-9,246.1	-733.7	9,275.1	0.00	0.00	
20,200.0	88.80	180.00	11,502.3	-9,346.0	-733.7	9,374.8	0.00	0.00	
20,300.0	88.80	180.00	11,504.4	-9,446.0	-733.7	9,474.5	0.00	0.00	
20,400.0	88.80	180.00	11,506.5	-9,546.0	-733.7	9,574.2	0.00	0.00	
20,424.5	88.80	180.00	11,507.0	-9,570.5	-733.7	9,598.6	0.00	0.00	PBHL @ 20424' 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 #2-33H-791 PBH	0.00	0.00	11,507.0	-9,570.5	-733.7	1,455,971.28	2,425,089.51	40.566616	-107.569525
- plan hits target center									
- Point									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,938.0	2,938.0	Lewis		1.20	180.00
4,965.0	4,937.0	Mesaverde		1.20	180.00
8,365.8	8,287.0	Mancos		1.20	180.00
8,730.8	8,652.0	Morapos		1.20	180.00
9,075.8	8,997.0	Mancos Marker		1.20	180.00
11,288.7	11,157.0	Niobrara		1.20	180.00
11,471.9	11,257.0	Top Target		1.20	180.00

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #2-33H-791
Company:	Axia Energy	TVD Reference:	WELL @ 6657.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6657.0ft (Original Well Elev)
Site:	SEC 2-T7N-R91W	North Reference:	True
Well:	Bulldog #2-33H-791	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #2		

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
8,359.4	8,287.0	-303.0	-805.0	Tie On @ 8359' MD	
10,824.4	10,752.0	-303.0	-805.0	Curve KOP @ 10824' MD	
11,712.4	11,324.8	-860.7	-744.5	LP @ 11712' MD	
11,919.1	11,329.1	-1,067.0	-733.3	EOT; 180°	
20,424.5	11,507.0	-9,570.5	-733.7	PBHL @ 20424' MD	