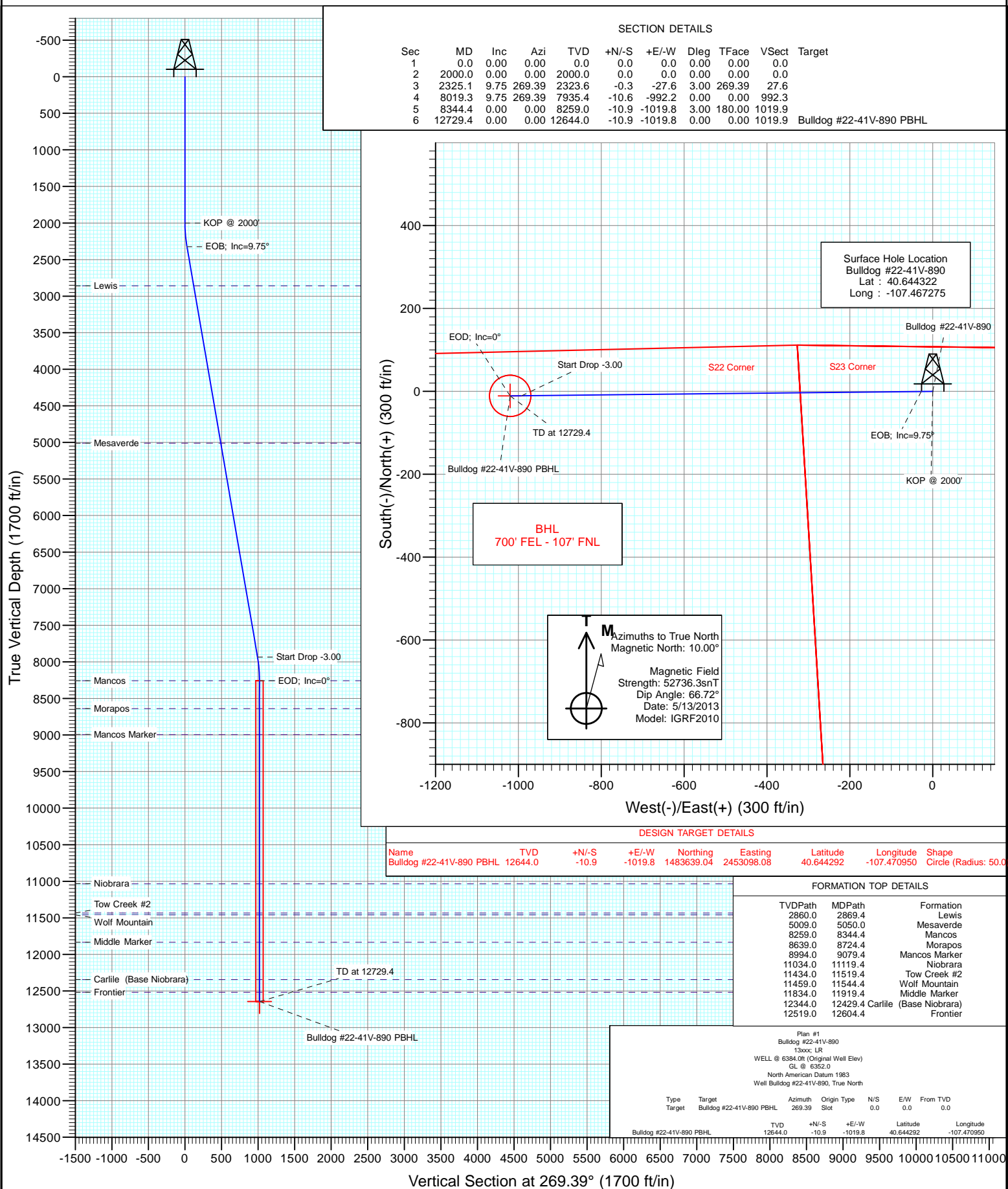




Project: Moffat County, CO
Site: SEC 23-T8N-R90W
Well: Bulldog #22-41V-890
Wellbore: DD
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #22-41V-890
Company:	Axia Energy	TVD Reference:	WELL @ 6384.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6384.0ft (Original Well Elev)
Site:	SEC 23-T8N-R90W	North Reference:	True
Well:	Bulldog #22-41V-890	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
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 23-T8N-R90W			
Site Position:		Northing:	1,483,627.33 ft	Latitude:	40.644322
From:	Lat/Long	Easting:	2,454,117.91 ft	Longitude:	-107.467275
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.27 °

Well	Bulldog #22-41V-890					
Well Position	+N/-S	0.0 ft	Northing:	1,483,627.32 ft	Latitude:	40.644322
	+E/-W	0.0 ft	Easting:	2,454,117.91 ft	Longitude:	-107.467275
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,352.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/13/2013	10.00	66.72	52,736

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	269.39

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	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,325.1	9.75	269.39	2,323.6	-0.3	-27.6	3.00	3.00	0.00	269.39	
8,019.3	9.75	269.39	7,935.4	-10.6	-992.2	0.00	0.00	0.00	0.00	
8,344.4	0.00	0.00	8,259.0	-10.9	-1,019.8	3.00	-3.00	0.00	180.00	
12,729.4	0.00	0.00	12,644.0	-10.9	-1,019.8	0.00	0.00	0.00	0.00	Bulldog #22-41V-890

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #22-41V-890
Company:	Axia Energy	TVD Reference:	WELL @ 6384.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6384.0ft (Original Well Elev)
Site:	SEC 23-T8N-R90W	North Reference:	True
Well:	Bulldog #22-41V-890	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
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	KOP @ 2000'
2,100.0	3.00	269.39	2,100.0	0.0	-2.6	2.6	3.00	3.00	
2,200.0	6.00	269.39	2,199.6	-0.1	-10.5	10.5	3.00	3.00	
2,300.0	9.00	269.39	2,298.8	-0.3	-23.5	23.5	3.00	3.00	
2,325.1	9.75	269.39	2,323.6	-0.3	-27.6	27.6	3.00	3.00	EOB; Inc=9.75°
2,400.0	9.75	269.39	2,397.3	-0.4	-40.3	40.3	0.00	0.00	
2,500.0	9.75	269.39	2,495.9	-0.6	-57.2	57.2	0.00	0.00	
2,600.0	9.75	269.39	2,594.5	-0.8	-74.2	74.2	0.00	0.00	
2,700.0	9.75	269.39	2,693.0	-1.0	-91.1	91.1	0.00	0.00	
2,800.0	9.75	269.39	2,791.6	-1.2	-108.1	108.1	0.00	0.00	
2,869.4	9.75	269.39	2,860.0	-1.3	-119.8	119.8	0.00	0.00	Lewis
2,900.0	9.75	269.39	2,890.1	-1.3	-125.0	125.0	0.00	0.00	
3,000.0	9.75	269.39	2,988.7	-1.5	-141.9	141.9	0.00	0.00	
3,100.0	9.75	269.39	3,087.2	-1.7	-158.9	158.9	0.00	0.00	
3,200.0	9.75	269.39	3,185.8	-1.9	-175.8	175.8	0.00	0.00	
3,300.0	9.75	269.39	3,284.3	-2.1	-192.8	192.8	0.00	0.00	
3,400.0	9.75	269.39	3,382.9	-2.2	-209.7	209.7	0.00	0.00	
3,500.0	9.75	269.39	3,481.4	-2.4	-226.6	226.6	0.00	0.00	
3,600.0	9.75	269.39	3,580.0	-2.6	-243.6	243.6	0.00	0.00	
3,700.0	9.75	269.39	3,678.6	-2.8	-260.5	260.5	0.00	0.00	
3,800.0	9.75	269.39	3,777.1	-3.0	-277.5	277.5	0.00	0.00	
3,900.0	9.75	269.39	3,875.7	-3.1	-294.4	294.4	0.00	0.00	
4,000.0	9.75	269.39	3,974.2	-3.3	-311.3	311.4	0.00	0.00	
4,100.0	9.75	269.39	4,072.8	-3.5	-328.3	328.3	0.00	0.00	
4,200.0	9.75	269.39	4,171.3	-3.7	-345.2	345.2	0.00	0.00	
4,300.0	9.75	269.39	4,269.9	-3.9	-362.2	362.2	0.00	0.00	
4,400.0	9.75	269.39	4,368.4	-4.1	-379.1	379.1	0.00	0.00	
4,500.0	9.75	269.39	4,467.0	-4.2	-396.0	396.1	0.00	0.00	
4,600.0	9.75	269.39	4,565.5	-4.4	-413.0	413.0	0.00	0.00	
4,700.0	9.75	269.39	4,664.1	-4.6	-429.9	429.9	0.00	0.00	
4,800.0	9.75	269.39	4,762.7	-4.8	-446.9	446.9	0.00	0.00	
4,900.0	9.75	269.39	4,861.2	-5.0	-463.8	463.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #22-41V-890
Company:	Axia Energy	TVD Reference:	WELL @ 6384.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6384.0ft (Original Well Elev)
Site:	SEC 23-T8N-R90W	North Reference:	True
Well:	Bulldog #22-41V-890	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
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	9.75	269.39	4,959.8	-5.1	-480.7	480.8	0.00	0.00	
5,050.0	9.75	269.39	5,009.0	-5.2	-489.2	489.2	0.00	0.00	Mesaverde
5,100.0	9.75	269.39	5,058.3	-5.3	-497.7	497.7	0.00	0.00	
5,200.0	9.75	269.39	5,156.9	-5.5	-514.6	514.7	0.00	0.00	
5,300.0	9.75	269.39	5,255.4	-5.7	-531.6	531.6	0.00	0.00	
5,400.0	9.75	269.39	5,354.0	-5.9	-548.5	548.5	0.00	0.00	
5,500.0	9.75	269.39	5,452.5	-6.0	-565.4	565.5	0.00	0.00	
5,600.0	9.75	269.39	5,551.1	-6.2	-582.4	582.4	0.00	0.00	
5,700.0	9.75	269.39	5,649.6	-6.4	-599.3	599.4	0.00	0.00	
5,800.0	9.75	269.39	5,748.2	-6.6	-616.3	616.3	0.00	0.00	
5,900.0	9.75	269.39	5,846.8	-6.8	-633.2	633.2	0.00	0.00	
6,000.0	9.75	269.39	5,945.3	-7.0	-650.1	650.2	0.00	0.00	
6,100.0	9.75	269.39	6,043.9	-7.1	-667.1	667.1	0.00	0.00	
6,200.0	9.75	269.39	6,142.4	-7.3	-684.0	684.1	0.00	0.00	
6,300.0	9.75	269.39	6,241.0	-7.5	-701.0	701.0	0.00	0.00	
6,400.0	9.75	269.39	6,339.5	-7.7	-717.9	718.0	0.00	0.00	
6,500.0	9.75	269.39	6,438.1	-7.9	-734.9	734.9	0.00	0.00	
6,600.0	9.75	269.39	6,536.6	-8.0	-751.8	751.8	0.00	0.00	
6,700.0	9.75	269.39	6,635.2	-8.2	-768.7	768.8	0.00	0.00	
6,800.0	9.75	269.39	6,733.7	-8.4	-785.7	785.7	0.00	0.00	
6,900.0	9.75	269.39	6,832.3	-8.6	-802.6	802.7	0.00	0.00	
7,000.0	9.75	269.39	6,930.9	-8.8	-819.6	819.6	0.00	0.00	
7,100.0	9.75	269.39	7,029.4	-8.9	-836.5	836.5	0.00	0.00	
7,200.0	9.75	269.39	7,128.0	-9.1	-853.4	853.5	0.00	0.00	
7,300.0	9.75	269.39	7,226.5	-9.3	-870.4	870.4	0.00	0.00	
7,400.0	9.75	269.39	7,325.1	-9.5	-887.3	887.4	0.00	0.00	
7,500.0	9.75	269.39	7,423.6	-9.7	-904.3	904.3	0.00	0.00	
7,600.0	9.75	269.39	7,522.2	-9.8	-921.2	921.3	0.00	0.00	
7,700.0	9.75	269.39	7,620.7	-10.0	-938.1	938.2	0.00	0.00	
7,800.0	9.75	269.39	7,719.3	-10.2	-955.1	955.1	0.00	0.00	
7,900.0	9.75	269.39	7,817.8	-10.4	-972.0	972.1	0.00	0.00	
8,000.0	9.75	269.39	7,916.4	-10.6	-989.0	989.0	0.00	0.00	
8,019.3	9.75	269.39	7,935.4	-10.6	-992.2	992.3	0.00	0.00	Start Drop -3.00
8,100.0	7.33	269.39	8,015.2	-10.7	-1,004.2	1,004.3	3.00	-3.00	
8,200.0	4.33	269.39	8,114.7	-10.8	-1,014.4	1,014.4	3.00	-3.00	
8,300.0	1.33	269.39	8,214.6	-10.9	-1,019.3	1,019.4	3.00	-3.00	
8,344.4	0.00	0.00	8,259.0	-10.9	-1,019.8	1,019.9	3.00	-3.00	EOD; Inc=0° - Mancos
8,400.0	0.00	0.00	8,314.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
8,500.0	0.00	0.00	8,414.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
8,600.0	0.00	0.00	8,514.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
8,700.0	0.00	0.00	8,614.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
8,724.4	0.00	0.00	8,639.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Morapos
8,800.0	0.00	0.00	8,714.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
8,900.0	0.00	0.00	8,814.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,000.0	0.00	0.00	8,914.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,079.4	0.00	0.00	8,994.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Mancos Marker
9,100.0	0.00	0.00	9,014.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,200.0	0.00	0.00	9,114.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,300.0	0.00	0.00	9,214.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,400.0	0.00	0.00	9,314.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,500.0	0.00	0.00	9,414.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,600.0	0.00	0.00	9,514.6	-10.9	-1,019.8	1,019.9	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	Axia Energy	TVD Reference:	WELL @ 6384.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6384.0ft (Original Well Elev)
Site:	SEC 23-T8N-R90W	North Reference:	True
Well:	Bulldog #22-41V-890	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
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
9,700.0	0.00	0.00	9,614.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,800.0	0.00	0.00	9,714.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
9,900.0	0.00	0.00	9,814.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,000.0	0.00	0.00	9,914.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,100.0	0.00	0.00	10,014.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,200.0	0.00	0.00	10,114.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,300.0	0.00	0.00	10,214.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,400.0	0.00	0.00	10,314.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,500.0	0.00	0.00	10,414.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,600.0	0.00	0.00	10,514.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,700.0	0.00	0.00	10,614.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,800.0	0.00	0.00	10,714.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
10,900.0	0.00	0.00	10,814.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,000.0	0.00	0.00	10,914.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,100.0	0.00	0.00	11,014.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,119.4	0.00	0.00	11,034.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Niobrara
11,200.0	0.00	0.00	11,114.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,300.0	0.00	0.00	11,214.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,400.0	0.00	0.00	11,314.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,500.0	0.00	0.00	11,414.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,519.4	0.00	0.00	11,434.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Tow Creek #2
11,544.4	0.00	0.00	11,459.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Wolf Mountain
11,600.0	0.00	0.00	11,514.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,700.0	0.00	0.00	11,614.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,800.0	0.00	0.00	11,714.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,900.0	0.00	0.00	11,814.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
11,919.4	0.00	0.00	11,834.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Middle Marker
12,000.0	0.00	0.00	11,914.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,100.0	0.00	0.00	12,014.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,200.0	0.00	0.00	12,114.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,300.0	0.00	0.00	12,214.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,400.0	0.00	0.00	12,314.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,429.4	0.00	0.00	12,344.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Carlile (Base Niobrara)
12,500.0	0.00	0.00	12,414.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,600.0	0.00	0.00	12,514.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,604.4	0.00	0.00	12,519.0	-10.9	-1,019.8	1,019.9	0.00	0.00	Frontier
12,700.0	0.00	0.00	12,614.6	-10.9	-1,019.8	1,019.9	0.00	0.00	
12,729.4	0.00	0.00	12,644.0	-10.9	-1,019.8	1,019.9	0.00	0.00	TD at 12729.4 - Bulldog #22-41V-890 PBHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Bulldog #22-41V-890 PE	0.00	0.00	12,644.0	-10.9	-1,019.8	1,483,639.04	2,453,098.08	40.644292	-107.470950
- hit/miss target									
- Shape									
- plan hits target center									
- Circle (radius 50.0)									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #22-41V-890
Company:	Axia Energy	TVD Reference:	WELL @ 6384.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6384.0ft (Original Well Elev)
Site:	SEC 23-T8N-R90W	North Reference:	True
Well:	Bulldog #22-41V-890	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,869.4	2,860.0	Lewis			
5,050.0	5,009.0	Mesaverde			
8,344.4	8,259.0	Mancos			
8,724.4	8,639.0	Morapos			
9,079.4	8,994.0	Mancos Marker			
11,119.4	11,034.0	Niobrara			
11,519.4	11,434.0	Tow Creek #2			
11,544.4	11,459.0	Wolf Mountain			
11,919.4	11,834.0	Middle Marker			
12,429.4	12,344.0	Carlile (Base Niobrara)			
12,604.4	12,519.0	Frontier			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,000.0	2,000.0	0.0	0.0	KOP @ 2000'
2,325.1	2,323.6	-0.3	-27.6	EOB; Inc=9.75°
8,019.3	7,935.4	-10.6	-992.2	Start Drop -3.00
8,344.4	8,259.0	-10.9	-1,019.8	EOD; Inc=0°
12,729.4	12,644.0	-10.9	-1,019.8	TD at 12729.4