



Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #13-31H-893
Company:	Axia Energy	TVD Reference:	WELL @ 6667.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6667.0ft (Original Well Elev)
Site:	SEC 13-T8N-R93W	North Reference:	True
Well:	Bulldog #13-31H-893	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 13-T8N-R93W			
Site Position:		Northing:	1,487,811.65 ft	Latitude:	40.650089
From:	Lat/Long	Easting:	2,367,186.24 ft	Longitude:	-107.780819
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.47 °

Well	Bulldog #13-31H-893					
Well Position	+N/-S	0.0 ft	Northing:	1,487,811.65 ft	Latitude:	40.650089
	+E/-W	0.0 ft	Easting:	2,367,186.24 ft	Longitude:	-107.780819
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,645.0 ft

Wellbore	PILOT HOLE				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/13/2013	10.11	66.66	52,664

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	104.19	

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	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,702.5	6.07	104.19	2,702.1	-2.6	10.4	3.00	3.00	0.00	104.19	
7,217.6	6.07	104.19	7,191.9	-119.8	473.5	0.00	0.00	0.00	0.00	
7,420.1	0.00	0.00	7,394.0	-122.4	483.9	3.00	-3.00	0.00	180.00	
12,829.1	0.00	0.00	12,803.0	-122.4	483.9	0.00	0.00	0.00	0.00	Bulldog #13-31H-893

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Company:	Axia Energy	TVD Reference:	WELL @ 6667.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6667.0ft (Original Well Elev)
Site:	SEC 13-T8N-R93W	North Reference:	True
Well:	Bulldog #13-31H-893	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	
394.0	0.00	0.00	394.0	0.0	0.0	0.0	0.00	0.00	Ft Union
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	
1,414.0	0.00	0.00	1,414.0	0.0	0.0	0.0	0.00	0.00	Lance
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	
2,174.0	0.00	0.00	2,174.0	0.0	0.0	0.0	0.00	0.00	Lewis
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	KOP @ 2500'
2,600.0	3.00	104.19	2,600.0	-0.6	2.5	2.6	3.00	3.00	
2,700.0	6.00	104.19	2,699.6	-2.6	10.1	10.5	3.00	3.00	
2,702.5	6.07	104.19	2,702.1	-2.6	10.4	10.7	3.00	3.00	EOB; Inc=6.07°
2,800.0	6.07	104.19	2,799.1	-5.2	20.4	21.0	0.00	0.00	
2,900.0	6.07	104.19	2,898.5	-7.8	30.7	31.6	0.00	0.00	
3,000.0	6.07	104.19	2,998.0	-10.3	40.9	42.2	0.00	0.00	
3,100.0	6.07	104.19	3,097.4	-12.9	51.2	52.8	0.00	0.00	
3,200.0	6.07	104.19	3,196.8	-15.5	61.4	63.4	0.00	0.00	
3,300.0	6.07	104.19	3,296.3	-18.1	71.7	73.9	0.00	0.00	
3,400.0	6.07	104.19	3,395.7	-20.7	81.9	84.5	0.00	0.00	
3,500.0	6.07	104.19	3,495.1	-23.3	92.2	95.1	0.00	0.00	
3,600.0	6.07	104.19	3,594.6	-25.9	102.5	105.7	0.00	0.00	
3,700.0	6.07	104.19	3,694.0	-28.5	112.7	116.3	0.00	0.00	
3,800.0	6.07	104.19	3,793.5	-31.1	123.0	126.8	0.00	0.00	
3,900.0	6.07	104.19	3,892.9	-33.7	133.2	137.4	0.00	0.00	
4,000.0	6.07	104.19	3,992.3	-36.3	143.5	148.0	0.00	0.00	
4,027.8	6.07	104.19	4,020.0	-37.0	146.3	151.0	0.00	0.00	Mesaverde
4,100.0	6.07	104.19	4,091.8	-38.9	153.7	158.6	0.00	0.00	
4,200.0	6.07	104.19	4,191.2	-41.5	164.0	169.2	0.00	0.00	
4,300.0	6.07	104.19	4,290.7	-44.1	174.3	179.7	0.00	0.00	
4,400.0	6.07	104.19	4,390.1	-46.7	184.5	190.3	0.00	0.00	
4,500.0	6.07	104.19	4,489.5	-49.3	194.8	200.9	0.00	0.00	
4,600.0	6.07	104.19	4,589.0	-51.9	205.0	211.5	0.00	0.00	

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Well:	Bulldog #13-31H-893	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
4,700.0	6.07	104.19	4,688.4	-54.5	215.3	222.1	0.00	0.00	
4,800.0	6.07	104.19	4,787.8	-57.0	225.5	232.7	0.00	0.00	
4,900.0	6.07	104.19	4,887.3	-59.6	235.8	243.2	0.00	0.00	
5,000.0	6.07	104.19	4,986.7	-62.2	246.1	253.8	0.00	0.00	
5,100.0	6.07	104.19	5,086.2	-64.8	256.3	264.4	0.00	0.00	
5,200.0	6.07	104.19	5,185.6	-67.4	266.6	275.0	0.00	0.00	
5,300.0	6.07	104.19	5,285.0	-70.0	276.8	285.6	0.00	0.00	
5,400.0	6.07	104.19	5,384.5	-72.6	287.1	296.1	0.00	0.00	
5,500.0	6.07	104.19	5,483.9	-75.2	297.4	306.7	0.00	0.00	
5,600.0	6.07	104.19	5,583.4	-77.8	307.6	317.3	0.00	0.00	
5,700.0	6.07	104.19	5,682.8	-80.4	317.9	327.9	0.00	0.00	
5,800.0	6.07	104.19	5,782.2	-83.0	328.1	338.5	0.00	0.00	
5,900.0	6.07	104.19	5,881.7	-85.6	338.4	349.0	0.00	0.00	
6,000.0	6.07	104.19	5,981.1	-88.2	348.6	359.6	0.00	0.00	
6,100.0	6.07	104.19	6,080.6	-90.8	358.9	370.2	0.00	0.00	
6,200.0	6.07	104.19	6,180.0	-93.4	369.2	380.8	0.00	0.00	
6,300.0	6.07	104.19	6,279.4	-96.0	379.4	391.4	0.00	0.00	
6,400.0	6.07	104.19	6,378.9	-98.6	389.7	401.9	0.00	0.00	
6,500.0	6.07	104.19	6,478.3	-101.2	399.9	412.5	0.00	0.00	
6,600.0	6.07	104.19	6,577.7	-103.7	410.2	423.1	0.00	0.00	
6,700.0	6.07	104.19	6,677.2	-106.3	420.4	433.7	0.00	0.00	
6,800.0	6.07	104.19	6,776.6	-108.9	430.7	444.3	0.00	0.00	
6,900.0	6.07	104.19	6,876.1	-111.5	441.0	454.8	0.00	0.00	
7,000.0	6.07	104.19	6,975.5	-114.1	451.2	465.4	0.00	0.00	
7,100.0	6.07	104.19	7,074.9	-116.7	461.5	476.0	0.00	0.00	
7,200.0	6.07	104.19	7,174.4	-119.3	471.7	486.6	0.00	0.00	
7,217.6	6.07	104.19	7,191.9	-119.8	473.5	488.5	0.00	0.00	Start Drop -3.00
7,300.0	3.60	104.19	7,274.0	-121.5	480.3	495.4	3.00	-3.00	
7,400.0	0.60	104.19	7,373.9	-122.4	483.8	499.1	3.00	-3.00	
7,420.1	0.00	0.00	7,394.0	-122.4	483.9	499.2	3.00	-3.00	EOD; Inc=0° - Mancos
7,500.0	0.00	0.00	7,473.9	-122.4	483.9	499.2	0.00	0.00	
7,600.0	0.00	0.00	7,573.9	-122.4	483.9	499.2	0.00	0.00	
7,692.1	0.00	0.00	7,666.0	-122.4	483.9	499.2	0.00	0.00	Morapos
7,700.0	0.00	0.00	7,673.9	-122.4	483.9	499.2	0.00	0.00	
7,800.0	0.00	0.00	7,773.9	-122.4	483.9	499.2	0.00	0.00	
7,900.0	0.00	0.00	7,873.9	-122.4	483.9	499.2	0.00	0.00	
7,995.1	0.00	0.00	7,969.0	-122.4	483.9	499.2	0.00	0.00	Mancos Marker
8,000.0	0.00	0.00	7,973.9	-122.4	483.9	499.2	0.00	0.00	
8,100.0	0.00	0.00	8,073.9	-122.4	483.9	499.2	0.00	0.00	
8,200.0	0.00	0.00	8,173.9	-122.4	483.9	499.2	0.00	0.00	
8,300.0	0.00	0.00	8,273.9	-122.4	483.9	499.2	0.00	0.00	
8,400.0	0.00	0.00	8,373.9	-122.4	483.9	499.2	0.00	0.00	
8,500.0	0.00	0.00	8,473.9	-122.4	483.9	499.2	0.00	0.00	
8,600.0	0.00	0.00	8,573.9	-122.4	483.9	499.2	0.00	0.00	
8,700.0	0.00	0.00	8,673.9	-122.4	483.9	499.2	0.00	0.00	
8,800.0	0.00	0.00	8,773.9	-122.4	483.9	499.2	0.00	0.00	
8,900.0	0.00	0.00	8,873.9	-122.4	483.9	499.2	0.00	0.00	
9,000.0	0.00	0.00	8,973.9	-122.4	483.9	499.2	0.00	0.00	
9,100.0	0.00	0.00	9,073.9	-122.4	483.9	499.2	0.00	0.00	
9,200.0	0.00	0.00	9,173.9	-122.4	483.9	499.2	0.00	0.00	
9,300.0	0.00	0.00	9,273.9	-122.4	483.9	499.2	0.00	0.00	
9,400.0	0.00	0.00	9,373.9	-122.4	483.9	499.2	0.00	0.00	

Planning Report

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Company:	Axia Energy	TVD Reference:	WELL @ 6667.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6667.0ft (Original Well Elev)
Site:	SEC 13-T8N-R93W	North Reference:	True
Well:	Bulldog #13-31H-893	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
9,500.0	0.00	0.00	9,473.9	-122.4	483.9	499.2	0.00	0.00	
9,600.0	0.00	0.00	9,573.9	-122.4	483.9	499.2	0.00	0.00	
9,700.0	0.00	0.00	9,673.9	-122.4	483.9	499.2	0.00	0.00	
9,800.0	0.00	0.00	9,773.9	-122.4	483.9	499.2	0.00	0.00	
9,900.0	0.00	0.00	9,873.9	-122.4	483.9	499.2	0.00	0.00	
10,000.0	0.00	0.00	9,973.9	-122.4	483.9	499.2	0.00	0.00	
10,100.0	0.00	0.00	10,073.9	-122.4	483.9	499.2	0.00	0.00	
10,200.0	0.00	0.00	10,173.9	-122.4	483.9	499.2	0.00	0.00	
10,273.1	0.00	0.00	10,247.0	-122.4	483.9	499.2	0.00	0.00	Niobrara
10,300.0	0.00	0.00	10,273.9	-122.4	483.9	499.2	0.00	0.00	
10,400.0	0.00	0.00	10,373.9	-122.4	483.9	499.2	0.00	0.00	
10,500.0	0.00	0.00	10,473.9	-122.4	483.9	499.2	0.00	0.00	
10,600.0	0.00	0.00	10,573.9	-122.4	483.9	499.2	0.00	0.00	
10,700.0	0.00	0.00	10,673.9	-122.4	483.9	499.2	0.00	0.00	
10,732.1	0.00	0.00	10,706.0	-122.4	483.9	499.2	0.00	0.00	Tow Creek #2
10,800.0	0.00	0.00	10,773.9	-122.4	483.9	499.2	0.00	0.00	
10,844.1	0.00	0.00	10,818.0	-122.4	483.9	499.2	0.00	0.00	Wolf Mountain
10,900.0	0.00	0.00	10,873.9	-122.4	483.9	499.2	0.00	0.00	
11,000.0	0.00	0.00	10,973.9	-122.4	483.9	499.2	0.00	0.00	
11,000.1	0.00	0.00	10,974.0	-122.4	483.9	499.2	0.00	0.00	Top Target
11,088.1	0.00	0.00	11,062.0	-122.4	483.9	499.2	0.00	0.00	Target Line
11,100.0	0.00	0.00	11,073.9	-122.4	483.9	499.2	0.00	0.00	
11,177.1	0.00	0.00	11,151.0	-122.4	483.9	499.2	0.00	0.00	Base Target
11,200.0	0.00	0.00	11,173.9	-122.4	483.9	499.2	0.00	0.00	
11,276.1	0.00	0.00	11,250.0	-122.4	483.9	499.2	0.00	0.00	Middle Marker
11,300.0	0.00	0.00	11,273.9	-122.4	483.9	499.2	0.00	0.00	
11,400.0	0.00	0.00	11,373.9	-122.4	483.9	499.2	0.00	0.00	
11,500.0	0.00	0.00	11,473.9	-122.4	483.9	499.2	0.00	0.00	
11,600.0	0.00	0.00	11,573.9	-122.4	483.9	499.2	0.00	0.00	
11,700.0	0.00	0.00	11,673.9	-122.4	483.9	499.2	0.00	0.00	
11,800.0	0.00	0.00	11,773.9	-122.4	483.9	499.2	0.00	0.00	
11,848.1	0.00	0.00	11,822.0	-122.4	483.9	499.2	0.00	0.00	Carlile (Base Niobrara)
11,900.0	0.00	0.00	11,873.9	-122.4	483.9	499.2	0.00	0.00	
12,000.0	0.00	0.00	11,973.9	-122.4	483.9	499.2	0.00	0.00	
12,100.0	0.00	0.00	12,073.9	-122.4	483.9	499.2	0.00	0.00	
12,200.0	0.00	0.00	12,173.9	-122.4	483.9	499.2	0.00	0.00	
12,300.0	0.00	0.00	12,273.9	-122.4	483.9	499.2	0.00	0.00	
12,400.0	0.00	0.00	12,373.9	-122.4	483.9	499.2	0.00	0.00	
12,500.0	0.00	0.00	12,473.9	-122.4	483.9	499.2	0.00	0.00	
12,600.0	0.00	0.00	12,573.9	-122.4	483.9	499.2	0.00	0.00	
12,700.0	0.00	0.00	12,673.9	-122.4	483.9	499.2	0.00	0.00	
12,729.1	0.00	0.00	12,703.0	-122.4	483.9	499.2	0.00	0.00	Frontier
12,800.0	0.00	0.00	12,773.9	-122.4	483.9	499.2	0.00	0.00	
12,829.1	0.00	0.00	12,803.0	-122.4	483.9	499.2	0.00	0.00	TD at 12829.1

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #13-31H-893
Company:	Axia Energy	TVD Reference:	WELL @ 6667.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6667.0ft (Original Well Elev)
Site:	SEC 13-T8N-R93W	North Reference:	True
Well:	Bulldog #13-31H-893	Survey Calculation Method:	Minimum Curvature
Wellbore:	PILOT HOLE		
Design:	Plan #1		

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Bulldog #13-31H-893 PE	0.00	0.00	10,882.5	-9,238.4	468.0	1,478,564.26	2,367,416.51	40.624731	-107.779133
- plan misses target center by 9116.0ft at 10908.6ft MD (10882.5 TVD, -122.4 N, 483.9 E)									
- Point									
Bulldog #13-31H-893 PI	0.00	0.00	12,803.0	-122.4	483.9	1,487,676.84	2,367,666.87	40.649753	-107.779075
- plan hits target center									
- Point									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
394.0	394.0	Ft Union				
1,414.0	1,414.0	Lance				
2,174.0	2,174.0	Lewis				
4,027.8	4,020.0	Mesaverde				
7,420.1	7,394.0	Mancos				
7,692.1	7,666.0	Morapos				
7,995.1	7,969.0	Mancos Marker				
10,273.1	10,247.0	Niobrara				
10,732.1	10,706.0	Tow Creek #2				
10,844.1	10,818.0	Wolf Mountain				
11,000.1	10,974.0	Top Target				
11,088.1	11,062.0	Target Line		0.00		
11,177.1	11,151.0	Base Target				
11,276.1	11,250.0	Middle Marker				
11,848.1	11,822.0	Carlile (Base Niobrara)				
12,729.1	12,703.0	Frontier				

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
2,500.0	2,500.0	0.0	0.0	KOP @ 2500'
2,702.5	2,702.1	-2.6	10.4	EOB; Inc=6.07°
7,217.6	7,191.9	-119.8	473.5	Start Drop -3.00
7,420.1	7,394.0	-122.4	483.9	EOD; Inc=0°
12,829.1	12,803.0	-122.4	483.9	TD at 12829.1