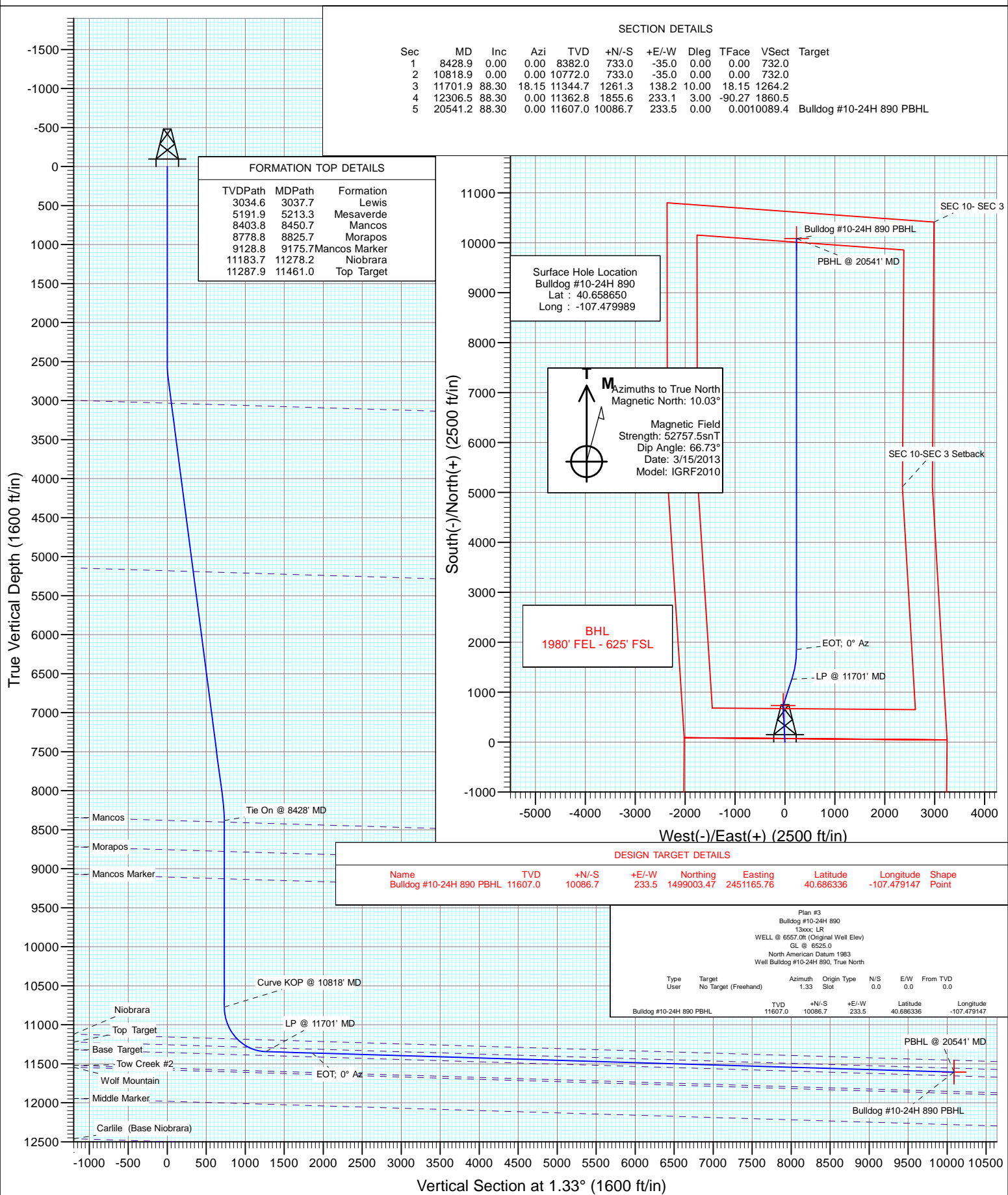




Project: Moffat County, CO
Site: SEC 15-T8N-R90W
Well: Bulldog #10-24H 890
Wellbore: HZ
Design: Plan #3

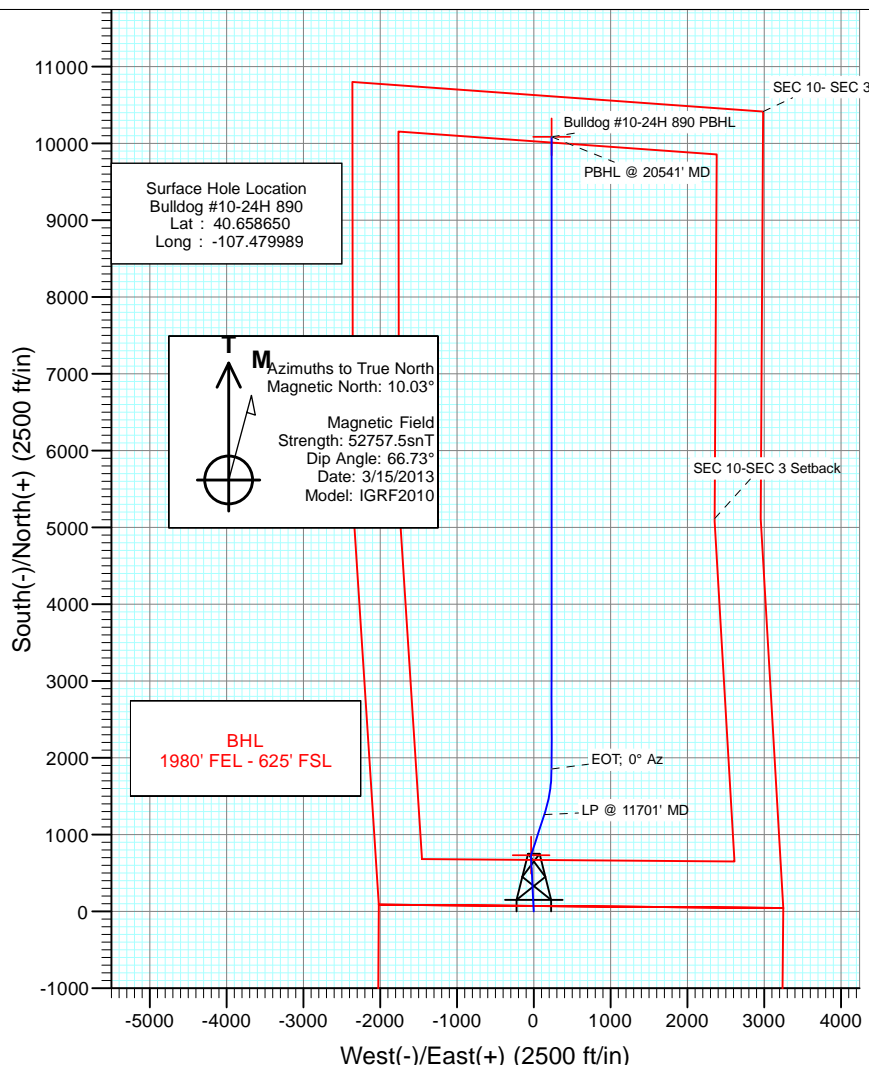


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	8428.9	0.00	0.00	8382.0	733.0	-35.0	0.00	0.00	732.0	
2	10818.9	0.00	0.00	10772.0	733.0	-35.0	0.00	0.00	732.0	
3	11701.9	88.30	18.15	11344.7	1261.3	138.2	10.00	18.15	1264.2	
4	12306.5	88.30	0.00	11362.8	1855.6	233.1	3.00	-90.27	1860.5	
5	20541.2	88.30	0.00	11607.0	10086.7	233.5	0.00	0.0010089.4		Bulldog #10-24H 890 PBHL

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3034.6	3037.7	Lewis
5191.9	5213.3	Mesaverde
8403.8	8450.7	Mancos
8778.8	8825.7	Morapos
9128.8	9175.7	Mancos Marker
11183.7	11278.2	Niobrara
11287.9	11461.0	Top Target



DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Bulldog #10-24H 890 PBHL	11607.0	10086.7	233.5	1499003.47	2451165.76	40.686336	-107.479147	Point

Type	Target	Asimuth	Origin Type	N/S	E/W	From TVD
User	No Target (Freehand)	1.33	Slot	0.0	0.0	0.0
Bulldog #10-24H 890 PBHL		TVD 11607.0	+N/-S 10086.7	+E/-W 233.5	Latitude 40.686336	Longitude -107.479147

Plan #3
Bulldog #10-24H 890
13xxx LR
WELL @ 6557.0 (Original Well Elev)
GL @ 6525.0
North American Datum 1983
Well Bulldog #10-24H 890, True North

PBHL @ 20541' MD

Bulldog #10-24H 890 PBHL

Vertical Section at 1.33° (1600 ft/in)

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #10-24H 890
Company:	Axia Energy	TVD Reference:	WELL @ 6557.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6557.0ft (Original Well Elev)
Site:	SEC 15-T8N-R90W	North Reference:	True
Well:	Bulldog #10-24H 890	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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 15-T8N-R90W			
Site Position:		Northing:	1,488,924.54 ft	Latitude:	40.658650
From:	Lat/Long	Easting:	2,450,707.10 ft	Longitude:	-107.479989
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.28 °

Well	Bulldog #10-24H 890					
Well Position	+N/-S	0.0 ft	Northing:	1,488,924.54 ft	Latitude:	40.658650
	+E/-W	0.0 ft	Easting:	2,450,707.10 ft	Longitude:	-107.479989
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,525.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/15/2013	10.03	66.73	52,757

Design	Plan #3			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	8,428.9
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	1.33

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
8,428.9	0.00	0.00	8,382.0	733.0	-35.0	0.00	0.00	0.00	0.00	
10,818.9	0.00	0.00	10,772.0	733.0	-35.0	0.00	0.00	0.00	0.00	
11,701.9	88.30	18.15	11,344.7	1,261.3	138.2	10.00	10.00	0.00	18.15	
12,306.5	88.30	0.00	11,362.8	1,855.6	233.1	3.00	0.00	-3.00	-90.27	
20,541.2	88.30	0.00	11,607.0	10,086.7	233.5	0.00	0.00	0.00	0.00	Bulldog #10-24H 890

Database: USA EDM 5000 Multi Users DB
Company: Axia Energy
Project: Moffat County, CO
Site: SEC 15-T8N-R90W
Well: Bulldog #10-24H 890
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:

Well Bulldog #10-24H 890
 WELL @ 6557.0ft (Original Well Elev)
 WELL @ 6557.0ft (Original Well Elev)
 True
 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
8,428.9	0.00	0.00	8,382.0	733.0	-35.0	732.0	0.00	0.00	Tie On @ 8428' MD
8,450.7	0.00	0.00	8,403.8	733.0	-35.0	732.0	0.00	0.00	Mancos
8,500.0	0.00	0.00	8,453.1	733.0	-35.0	732.0	0.00	0.00	
8,600.0	0.00	0.00	8,553.1	733.0	-35.0	732.0	0.00	0.00	
8,700.0	0.00	0.00	8,653.1	733.0	-35.0	732.0	0.00	0.00	
8,800.0	0.00	0.00	8,753.1	733.0	-35.0	732.0	0.00	0.00	
8,825.7	0.00	0.00	8,778.8	733.0	-35.0	732.0	0.00	0.00	Morapos
8,900.0	0.00	0.00	8,853.1	733.0	-35.0	732.0	0.00	0.00	
9,000.0	0.00	0.00	8,953.1	733.0	-35.0	732.0	0.00	0.00	
9,100.0	0.00	0.00	9,053.1	733.0	-35.0	732.0	0.00	0.00	
9,175.7	0.00	0.00	9,128.8	733.0	-35.0	732.0	0.00	0.00	Mancos Marker
9,200.0	0.00	0.00	9,153.1	733.0	-35.0	732.0	0.00	0.00	
9,300.0	0.00	0.00	9,253.1	733.0	-35.0	732.0	0.00	0.00	
9,400.0	0.00	0.00	9,353.1	733.0	-35.0	732.0	0.00	0.00	
9,500.0	0.00	0.00	9,453.1	733.0	-35.0	732.0	0.00	0.00	
9,600.0	0.00	0.00	9,553.1	733.0	-35.0	732.0	0.00	0.00	
9,700.0	0.00	0.00	9,653.1	733.0	-35.0	732.0	0.00	0.00	
9,800.0	0.00	0.00	9,753.1	733.0	-35.0	732.0	0.00	0.00	
9,900.0	0.00	0.00	9,853.1	733.0	-35.0	732.0	0.00	0.00	
10,000.0	0.00	0.00	9,953.1	733.0	-35.0	732.0	0.00	0.00	
10,100.0	0.00	0.00	10,053.1	733.0	-35.0	732.0	0.00	0.00	
10,200.0	0.00	0.00	10,153.1	733.0	-35.0	732.0	0.00	0.00	
10,300.0	0.00	0.00	10,253.1	733.0	-35.0	732.0	0.00	0.00	
10,400.0	0.00	0.00	10,353.1	733.0	-35.0	732.0	0.00	0.00	
10,500.0	0.00	0.00	10,453.1	733.0	-35.0	732.0	0.00	0.00	
10,600.0	0.00	0.00	10,553.1	733.0	-35.0	732.0	0.00	0.00	
10,700.0	0.00	0.00	10,653.1	733.0	-35.0	732.0	0.00	0.00	
10,800.0	0.00	0.00	10,753.1	733.0	-35.0	732.0	0.00	0.00	
10,818.9	0.00	0.00	10,772.0	733.0	-35.0	732.0	0.00	0.00	Curve KOP @ 10818' MD
10,900.0	8.11	18.15	10,852.8	738.4	-33.2	737.5	10.00	10.00	
11,000.0	18.11	18.15	10,950.1	760.0	-26.2	759.2	10.00	10.00	
11,100.0	28.11	18.15	11,042.0	797.2	-13.9	796.7	10.00	10.00	
11,200.0	38.11	18.15	11,125.6	849.1	3.0	848.9	10.00	10.00	
11,278.2	45.93	18.15	11,183.7	898.8	19.3	899.0	10.00	10.00	Niobrara
11,300.0	48.11	18.15	11,198.5	913.9	24.3	914.2	10.00	10.00	
11,400.0	58.11	18.15	11,258.5	989.8	49.2	990.7	10.00	10.00	
11,461.0	64.21	18.15	11,287.9	1,040.6	65.8	1,041.8	10.00	10.00	Top Target
11,500.0	68.11	18.15	11,303.7	1,074.5	76.9	1,076.0	10.00	10.00	
11,600.0	78.11	18.15	11,332.7	1,165.3	106.7	1,167.4	10.00	10.00	
11,700.0	88.11	18.15	11,344.7	1,259.5	137.6	1,262.3	10.00	10.00	
11,701.9	88.30	18.15	11,344.7	1,261.3	138.2	1,264.2	10.00	10.00	LP @ 11701' MD
11,800.0	88.29	15.21	11,347.6	1,355.2	166.3	1,358.7	3.00	-0.01	
11,900.0	88.28	12.20	11,350.6	1,452.3	190.0	1,456.3	3.00	-0.01	
12,000.0	88.28	9.20	11,353.6	1,550.5	208.6	1,554.9	3.00	0.00	
12,100.0	88.28	6.20	11,356.6	1,649.6	222.0	1,654.3	3.00	0.00	
12,200.0	88.29	3.20	11,359.6	1,749.2	230.2	1,754.0	3.00	0.01	
12,300.0	88.30	0.20	11,362.6	1,849.1	233.1	1,854.0	3.00	0.01	
12,306.5	88.30	0.00	11,362.8	1,855.6	233.1	1,860.5	3.00	0.01	EOT; 0° Az
12,400.0	88.30	0.00	11,365.6	1,949.0	233.1	1,953.9	0.00	0.00	
12,500.0	88.30	0.00	11,368.5	2,049.0	233.1	2,053.8	0.00	0.00	
12,600.0	88.30	0.00	11,371.5	2,148.9	233.1	2,153.8	0.00	0.00	
12,700.0	88.30	0.00	11,374.5	2,248.9	233.1	2,253.7	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Bulldog #10-24H 890
Company:	Axia Energy	TVD Reference:	WELL @ 6557.0ft (Original Well Elev)
Project:	Moffat County, CO	MD Reference:	WELL @ 6557.0ft (Original Well Elev)
Site:	SEC 15-T8N-R90W	North Reference:	True
Well:	Bulldog #10-24H 890	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #3		

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
12,800.0	88.30	0.00	11,377.4	2,348.9	233.1	2,353.6	0.00	0.00	
12,900.0	88.30	0.00	11,380.4	2,448.8	233.2	2,453.5	0.00	0.00	
13,000.0	88.30	0.00	11,383.4	2,548.8	233.2	2,553.5	0.00	0.00	
13,100.0	88.30	0.00	11,386.3	2,648.7	233.2	2,653.4	0.00	0.00	
13,200.0	88.30	0.00	11,389.3	2,748.7	233.2	2,753.3	0.00	0.00	
13,300.0	88.30	0.00	11,392.3	2,848.6	233.2	2,853.3	0.00	0.00	
13,400.0	88.30	0.00	11,395.2	2,948.6	233.2	2,953.2	0.00	0.00	
13,500.0	88.30	0.00	11,398.2	3,048.5	233.2	3,053.1	0.00	0.00	
13,600.0	88.30	0.00	11,401.2	3,148.5	233.2	3,153.1	0.00	0.00	
13,700.0	88.30	0.00	11,404.1	3,248.5	233.2	3,253.0	0.00	0.00	
13,800.0	88.30	0.00	11,407.1	3,348.4	233.2	3,352.9	0.00	0.00	
13,900.0	88.30	0.00	11,410.1	3,448.4	233.2	3,452.8	0.00	0.00	
14,000.0	88.30	0.00	11,413.0	3,548.3	233.2	3,552.8	0.00	0.00	
14,100.0	88.30	0.00	11,416.0	3,648.3	233.2	3,652.7	0.00	0.00	
14,200.0	88.30	0.00	11,418.9	3,748.2	233.2	3,752.6	0.00	0.00	
14,300.0	88.30	0.00	11,421.9	3,848.2	233.2	3,852.6	0.00	0.00	
14,400.0	88.30	0.00	11,424.9	3,948.1	233.2	3,952.5	0.00	0.00	
14,500.0	88.30	0.00	11,427.8	4,048.1	233.2	4,052.4	0.00	0.00	
14,600.0	88.30	0.00	11,430.8	4,148.1	233.2	4,152.3	0.00	0.00	
14,700.0	88.30	0.00	11,433.8	4,248.0	233.2	4,252.3	0.00	0.00	
14,800.0	88.30	0.00	11,436.7	4,348.0	233.2	4,352.2	0.00	0.00	
14,900.0	88.30	0.00	11,439.7	4,447.9	233.2	4,452.1	0.00	0.00	
15,000.0	88.30	0.00	11,442.7	4,547.9	233.3	4,552.1	0.00	0.00	
15,100.0	88.30	0.00	11,445.6	4,647.8	233.3	4,652.0	0.00	0.00	
15,200.0	88.30	0.00	11,448.6	4,747.8	233.3	4,751.9	0.00	0.00	
15,300.0	88.30	0.00	11,451.6	4,847.8	233.3	4,851.9	0.00	0.00	
15,400.0	88.30	0.00	11,454.5	4,947.7	233.3	4,951.8	0.00	0.00	
15,500.0	88.30	0.00	11,457.5	5,047.7	233.3	5,051.7	0.00	0.00	
15,600.0	88.30	0.00	11,460.5	5,147.6	233.3	5,151.6	0.00	0.00	
15,700.0	88.30	0.00	11,463.4	5,247.6	233.3	5,251.6	0.00	0.00	
15,800.0	88.30	0.00	11,466.4	5,347.5	233.3	5,351.5	0.00	0.00	
15,900.0	88.30	0.00	11,469.4	5,447.5	233.3	5,451.4	0.00	0.00	
16,000.0	88.30	0.00	11,472.3	5,547.4	233.3	5,551.4	0.00	0.00	
16,100.0	88.30	0.00	11,475.3	5,647.4	233.3	5,651.3	0.00	0.00	
16,200.0	88.30	0.00	11,478.3	5,747.4	233.3	5,751.2	0.00	0.00	
16,300.0	88.30	0.00	11,481.2	5,847.3	233.3	5,851.1	0.00	0.00	
16,400.0	88.30	0.00	11,484.2	5,947.3	233.3	5,951.1	0.00	0.00	
16,500.0	88.30	0.00	11,487.2	6,047.2	233.3	6,051.0	0.00	0.00	
16,600.0	88.30	0.00	11,490.1	6,147.2	233.3	6,150.9	0.00	0.00	
16,700.0	88.30	0.00	11,493.1	6,247.1	233.3	6,250.9	0.00	0.00	
16,800.0	88.30	0.00	11,496.1	6,347.1	233.3	6,350.8	0.00	0.00	
16,900.0	88.30	0.00	11,499.0	6,447.0	233.3	6,450.7	0.00	0.00	
17,000.0	88.30	0.00	11,502.0	6,547.0	233.3	6,550.7	0.00	0.00	
17,100.0	88.30	0.00	11,504.9	6,647.0	233.4	6,650.6	0.00	0.00	
17,200.0	88.30	0.00	11,507.9	6,746.9	233.4	6,750.5	0.00	0.00	
17,300.0	88.30	0.00	11,510.9	6,846.9	233.4	6,850.4	0.00	0.00	
17,400.0	88.30	0.00	11,513.8	6,946.8	233.4	6,950.4	0.00	0.00	
17,500.0	88.30	0.00	11,516.8	7,046.8	233.4	7,050.3	0.00	0.00	
17,600.0	88.30	0.00	11,519.8	7,146.7	233.4	7,150.2	0.00	0.00	
17,700.0	88.30	0.00	11,522.7	7,246.7	233.4	7,250.2	0.00	0.00	
17,800.0	88.30	0.00	11,525.7	7,346.7	233.4	7,350.1	0.00	0.00	
17,900.0	88.30	0.00	11,528.7	7,446.6	233.4	7,450.0	0.00	0.00	

Database: USA EDM 5000 Multi Users DB
Company: Axia Energy
Project: Moffat County, CO
Site: SEC 15-T8N-R90W
Well: Bulldog #10-24H 890
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well Bulldog #10-24H 890
TVD Reference: WELL @ 6557.0ft (Original Well Elev)
MD Reference: WELL @ 6557.0ft (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
18,000.0	88.30	0.00	11,531.6	7,546.6	233.4	7,549.9	0.00	0.00	
18,100.0	88.30	0.00	11,534.6	7,646.5	233.4	7,649.9	0.00	0.00	
18,200.0	88.30	0.00	11,537.6	7,746.5	233.4	7,749.8	0.00	0.00	
18,300.0	88.30	0.00	11,540.5	7,846.4	233.4	7,849.7	0.00	0.00	
18,400.0	88.30	0.00	11,543.5	7,946.4	233.4	7,949.7	0.00	0.00	
18,500.0	88.30	0.00	11,546.5	8,046.3	233.4	8,049.6	0.00	0.00	
18,600.0	88.30	0.00	11,549.4	8,146.3	233.4	8,149.5	0.00	0.00	
18,700.0	88.30	0.00	11,552.4	8,246.3	233.4	8,249.5	0.00	0.00	
18,800.0	88.30	0.00	11,555.4	8,346.2	233.4	8,349.4	0.00	0.00	
18,900.0	88.30	0.00	11,558.3	8,446.2	233.4	8,449.3	0.00	0.00	
19,000.0	88.30	0.00	11,561.3	8,546.1	233.4	8,549.2	0.00	0.00	
19,100.0	88.30	0.00	11,564.3	8,646.1	233.4	8,649.2	0.00	0.00	
19,200.0	88.30	0.00	11,567.2	8,746.0	233.5	8,749.1	0.00	0.00	
19,300.0	88.30	0.00	11,570.2	8,846.0	233.5	8,849.0	0.00	0.00	
19,400.0	88.30	0.00	11,573.2	8,945.9	233.5	8,949.0	0.00	0.00	
19,500.0	88.30	0.00	11,576.1	9,045.9	233.5	9,048.9	0.00	0.00	
19,600.0	88.30	0.00	11,579.1	9,145.9	233.5	9,148.8	0.00	0.00	
19,700.0	88.30	0.00	11,582.1	9,245.8	233.5	9,248.7	0.00	0.00	
19,800.0	88.30	0.00	11,585.0	9,345.8	233.5	9,348.7	0.00	0.00	
19,900.0	88.30	0.00	11,588.0	9,445.7	233.5	9,448.6	0.00	0.00	
20,000.0	88.30	0.00	11,590.9	9,545.7	233.5	9,548.5	0.00	0.00	
20,100.0	88.30	0.00	11,593.9	9,645.6	233.5	9,648.5	0.00	0.00	
20,200.0	88.30	0.00	11,596.9	9,745.6	233.5	9,748.4	0.00	0.00	
20,300.0	88.30	0.00	11,599.8	9,845.6	233.5	9,848.3	0.00	0.00	
20,400.0	88.30	0.00	11,602.8	9,945.5	233.5	9,948.2	0.00	0.00	
20,500.0	88.30	0.00	11,605.8	10,045.5	233.5	10,048.2	0.00	0.00	
20,541.2	88.30	0.00	11,607.0	10,086.7	233.5	10,089.4	0.00	0.00	PBHL @ 20541' MD

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Bulldog #10-24H 890 PE - plan hits target center - Point	0.00	0.00	11,607.0	10,086.7	233.5	1,499,003.47	2,451,165.76	40.686336	-107.479147

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,037.7	3,033.0	Lewis		1.70	0.00
5,213.3	5,182.0	Mesaverde		1.70	0.00
8,450.7	8,382.0	Mancos		1.70	0.00
8,825.7	8,757.0	Morapos		1.70	0.00
9,175.7	9,107.0	Mancos Marker		1.70	0.00
11,278.2	11,157.0	Niobrara		1.70	0.00
11,461.0	11,257.0	Top Target		1.70	0.00

Database: USA EDM 5000 Multi Users DB
Company: Axia Energy
Project: Moffat County, CO
Site: SEC 15-T8N-R90W
Well: Bulldog #10-24H 890
Wellbore: Hz
Design: Plan #3

Local Co-ordinate Reference: Well Bulldog #10-24H 890
TVD Reference: WELL @ 6557.0ft (Original Well Elev)
MD Reference: WELL @ 6557.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
8,428.9	8,382.0	733.0	-35.0	Tie On @ 8428' MD
10,818.9	10,772.0	733.0	-35.0	Curve KOP @ 10818' MD
11,701.9	11,344.7	1,261.3	138.2	LP @ 11701' MD
12,306.5	11,362.8	1,855.6	233.1	EOT; 0° Az
20,541.2	11,607.0	10,086.7	233.5	PBHL @ 20541' MD