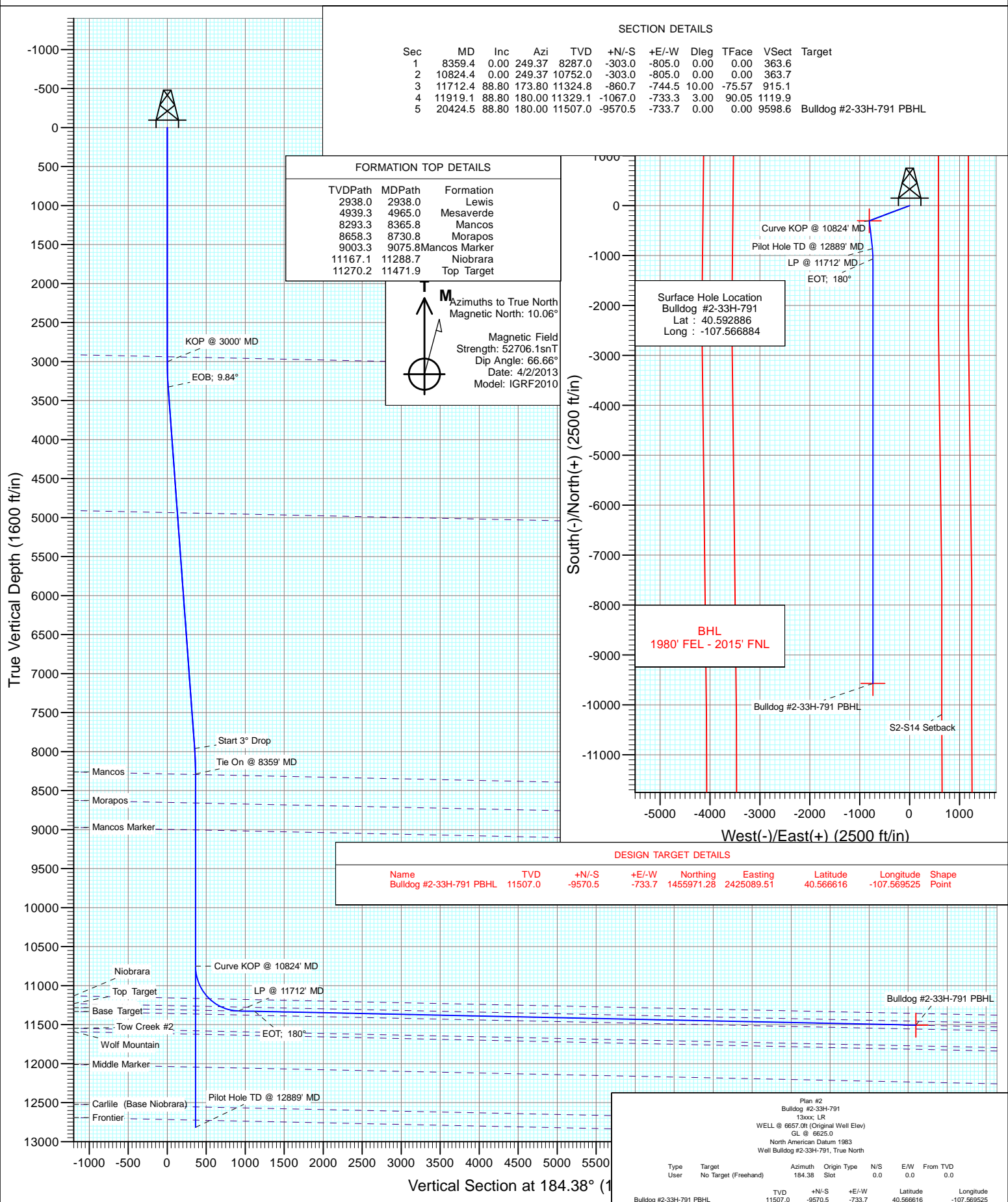




Project: Moffat County, CO
Site: SEC 2-T7N-R91W
Well: Bulldog #2-33H-791
Wellbore: Hz
Design: Plan #2



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:	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 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	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	249.37	

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	
3,328.1	9.84	249.37	3,326.4	-9.9	-26.3	3.00	3.00	0.00	249.37	
8,031.4	9.84	249.37	7,960.6	-293.1	-778.7	0.00	0.00	0.00	0.00	
8,359.4	0.00	0.00	8,287.0	-303.0	-805.0	3.00	-3.00	0.00	180.00	2-33H 791 Vert Tgt
12,889.4	0.00	0.00	12,817.0	-303.0	-805.0	0.00	0.00	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:	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	
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	
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	249.37	3,100.0	-0.9	-2.4	2.6	3.00	3.00	
3,200.0	6.00	249.37	3,199.6	-3.7	-9.8	10.5	3.00	3.00	
3,300.0	9.00	249.37	3,298.8	-8.3	-22.0	23.5	3.00	3.00	
3,328.1	9.84	249.37	3,326.4	-9.9	-26.3	28.1	3.00	3.00	EOB; 9.84°
3,400.0	9.84	249.37	3,397.3	-14.2	-37.8	40.4	0.00	0.00	
3,500.0	9.84	249.37	3,495.9	-20.3	-53.8	57.5	0.00	0.00	
3,600.0	9.84	249.37	3,594.4	-26.3	-69.8	74.6	0.00	0.00	
3,700.0	9.84	249.37	3,692.9	-32.3	-85.8	91.7	0.00	0.00	
3,800.0	9.84	249.37	3,791.4	-38.3	-101.8	108.8	0.00	0.00	
3,900.0	9.84	249.37	3,890.0	-44.3	-117.8	125.9	0.00	0.00	
4,000.0	9.84	249.37	3,988.5	-50.4	-133.8	143.0	0.00	0.00	
4,100.0	9.84	249.37	4,087.0	-56.4	-149.8	160.1	0.00	0.00	
4,200.0	9.84	249.37	4,185.6	-62.4	-165.8	177.1	0.00	0.00	
4,300.0	9.84	249.37	4,284.1	-68.4	-181.8	194.2	0.00	0.00	
4,400.0	9.84	249.37	4,382.6	-74.4	-197.8	211.3	0.00	0.00	
4,500.0	9.84	249.37	4,481.1	-80.5	-213.8	228.4	0.00	0.00	
4,600.0	9.84	249.37	4,579.7	-86.5	-229.8	245.5	0.00	0.00	
4,700.0	9.84	249.37	4,678.2	-92.5	-245.8	262.6	0.00	0.00	
4,800.0	9.84	249.37	4,776.7	-98.5	-261.8	279.7	0.00	0.00	
4,900.0	9.84	249.37	4,875.3	-104.6	-277.8	296.8	0.00	0.00	
5,000.0	9.84	249.37	4,973.8	-110.6	-293.8	313.9	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:	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
5,100.0	9.84	249.37	5,072.3	-116.6	-309.8	331.0	0.00	0.00	
5,200.0	9.84	249.37	5,170.8	-122.6	-325.8	348.1	0.00	0.00	
5,300.0	9.84	249.37	5,269.4	-128.6	-341.8	365.2	0.00	0.00	
5,400.0	9.84	249.37	5,367.9	-134.7	-357.8	382.3	0.00	0.00	
5,500.0	9.84	249.37	5,466.4	-140.7	-373.8	399.3	0.00	0.00	
5,600.0	9.84	249.37	5,565.0	-146.7	-389.7	416.4	0.00	0.00	
5,700.0	9.84	249.37	5,663.5	-152.7	-405.7	433.5	0.00	0.00	
5,800.0	9.84	249.37	5,762.0	-158.7	-421.7	450.6	0.00	0.00	
5,900.0	9.84	249.37	5,860.5	-164.8	-437.7	467.7	0.00	0.00	
6,000.0	9.84	249.37	5,959.1	-170.8	-453.7	484.8	0.00	0.00	
6,100.0	9.84	249.37	6,057.6	-176.8	-469.7	501.9	0.00	0.00	
6,200.0	9.84	249.37	6,156.1	-182.8	-485.7	519.0	0.00	0.00	
6,300.0	9.84	249.37	6,254.7	-188.8	-501.7	536.1	0.00	0.00	
6,400.0	9.84	249.37	6,353.2	-194.9	-517.7	553.2	0.00	0.00	
6,500.0	9.84	249.37	6,451.7	-200.9	-533.7	570.3	0.00	0.00	
6,600.0	9.84	249.37	6,550.2	-206.9	-549.7	587.4	0.00	0.00	
6,700.0	9.84	249.37	6,648.8	-212.9	-565.7	604.5	0.00	0.00	
6,800.0	9.84	249.37	6,747.3	-219.0	-581.7	621.6	0.00	0.00	
6,900.0	9.84	249.37	6,845.8	-225.0	-597.7	638.6	0.00	0.00	
7,000.0	9.84	249.37	6,944.4	-231.0	-613.7	655.7	0.00	0.00	
7,100.0	9.84	249.37	7,042.9	-237.0	-629.7	672.8	0.00	0.00	
7,200.0	9.84	249.37	7,141.4	-243.0	-645.7	689.9	0.00	0.00	
7,300.0	9.84	249.37	7,239.9	-249.1	-661.7	707.0	0.00	0.00	
7,400.0	9.84	249.37	7,338.5	-255.1	-677.7	724.1	0.00	0.00	
7,500.0	9.84	249.37	7,437.0	-261.1	-693.7	741.2	0.00	0.00	
7,600.0	9.84	249.37	7,535.5	-267.1	-709.7	758.3	0.00	0.00	
7,700.0	9.84	249.37	7,634.1	-273.1	-725.7	775.4	0.00	0.00	
7,800.0	9.84	249.37	7,732.6	-279.2	-741.7	792.5	0.00	0.00	
7,900.0	9.84	249.37	7,831.1	-285.2	-757.7	809.6	0.00	0.00	
8,000.0	9.84	249.37	7,929.6	-291.2	-773.7	826.7	0.00	0.00	
8,031.4	9.84	249.37	7,960.6	-293.1	-778.7	832.0	0.00	0.00	Start 3° Drop
8,100.0	7.78	249.37	8,028.4	-296.8	-788.5	842.5	3.00	-3.00	
8,200.0	4.78	249.37	8,127.7	-300.7	-798.8	853.5	3.00	-3.00	
8,300.0	1.78	249.37	8,227.6	-302.7	-804.1	859.2	3.00	-3.00	
8,359.4	0.00	0.00	8,287.0	-303.0	-805.0	860.1	3.00	-3.00	EOD; Vertical
8,400.0	0.00	0.00	8,327.6	-303.0	-805.0	860.1	0.00	0.00	
8,500.0	0.00	0.00	8,427.6	-303.0	-805.0	860.1	0.00	0.00	
8,600.0	0.00	0.00	8,527.6	-303.0	-805.0	860.1	0.00	0.00	
8,700.0	0.00	0.00	8,627.6	-303.0	-805.0	860.1	0.00	0.00	
8,800.0	0.00	0.00	8,727.6	-303.0	-805.0	860.1	0.00	0.00	
8,900.0	0.00	0.00	8,827.6	-303.0	-805.0	860.1	0.00	0.00	
9,000.0	0.00	0.00	8,927.6	-303.0	-805.0	860.1	0.00	0.00	
9,100.0	0.00	0.00	9,027.6	-303.0	-805.0	860.1	0.00	0.00	
9,200.0	0.00	0.00	9,127.6	-303.0	-805.0	860.1	0.00	0.00	
9,300.0	0.00	0.00	9,227.6	-303.0	-805.0	860.1	0.00	0.00	
9,400.0	0.00	0.00	9,327.6	-303.0	-805.0	860.1	0.00	0.00	
9,500.0	0.00	0.00	9,427.6	-303.0	-805.0	860.1	0.00	0.00	
9,600.0	0.00	0.00	9,527.6	-303.0	-805.0	860.1	0.00	0.00	
9,700.0	0.00	0.00	9,627.6	-303.0	-805.0	860.1	0.00	0.00	
9,800.0	0.00	0.00	9,727.6	-303.0	-805.0	860.1	0.00	0.00	
9,900.0	0.00	0.00	9,827.6	-303.0	-805.0	860.1	0.00	0.00	
10,000.0	0.00	0.00	9,927.6	-303.0	-805.0	860.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: Axia Energy
Project: Moffat County, CO
Site: SEC 2-T7N-R91W
Well: Bulldog #2-33H-791
Wellbore: Pilot Hole
Design: Plan #1

Local Co-ordinate Reference: Well Bulldog #2-33H-791
TVD Reference: WELL @ 6657.0ft (Original Well Elev)
MD Reference: WELL @ 6657.0ft (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
10,100.0	0.00	0.00	10,027.6	-303.0	-805.0	860.1	0.00	0.00	
10,200.0	0.00	0.00	10,127.6	-303.0	-805.0	860.1	0.00	0.00	
10,300.0	0.00	0.00	10,227.6	-303.0	-805.0	860.1	0.00	0.00	
10,400.0	0.00	0.00	10,327.6	-303.0	-805.0	860.1	0.00	0.00	
10,500.0	0.00	0.00	10,427.6	-303.0	-805.0	860.1	0.00	0.00	
10,600.0	0.00	0.00	10,527.6	-303.0	-805.0	860.1	0.00	0.00	
10,700.0	0.00	0.00	10,627.6	-303.0	-805.0	860.1	0.00	0.00	
10,800.0	0.00	0.00	10,727.6	-303.0	-805.0	860.1	0.00	0.00	
10,900.0	0.00	0.00	10,827.6	-303.0	-805.0	860.1	0.00	0.00	
11,000.0	0.00	0.00	10,927.6	-303.0	-805.0	860.1	0.00	0.00	
11,100.0	0.00	0.00	11,027.6	-303.0	-805.0	860.1	0.00	0.00	
11,200.0	0.00	0.00	11,127.6	-303.0	-805.0	860.1	0.00	0.00	
11,300.0	0.00	0.00	11,227.6	-303.0	-805.0	860.1	0.00	0.00	
11,400.0	0.00	0.00	11,327.6	-303.0	-805.0	860.1	0.00	0.00	
11,500.0	0.00	0.00	11,427.6	-303.0	-805.0	860.1	0.00	0.00	
11,600.0	0.00	0.00	11,527.6	-303.0	-805.0	860.1	0.00	0.00	
11,700.0	0.00	0.00	11,627.6	-303.0	-805.0	860.1	0.00	0.00	
11,800.0	0.00	0.00	11,727.6	-303.0	-805.0	860.1	0.00	0.00	
11,900.0	0.00	0.00	11,827.6	-303.0	-805.0	860.1	0.00	0.00	
12,000.0	0.00	0.00	11,927.6	-303.0	-805.0	860.1	0.00	0.00	
12,100.0	0.00	0.00	12,027.6	-303.0	-805.0	860.1	0.00	0.00	
12,200.0	0.00	0.00	12,127.6	-303.0	-805.0	860.1	0.00	0.00	
12,300.0	0.00	0.00	12,227.6	-303.0	-805.0	860.1	0.00	0.00	
12,400.0	0.00	0.00	12,327.6	-303.0	-805.0	860.1	0.00	0.00	
12,500.0	0.00	0.00	12,427.6	-303.0	-805.0	860.1	0.00	0.00	
12,600.0	0.00	0.00	12,527.6	-303.0	-805.0	860.1	0.00	0.00	
12,700.0	0.00	0.00	12,627.6	-303.0	-805.0	860.1	0.00	0.00	
12,800.0	0.00	0.00	12,727.6	-303.0	-805.0	860.1	0.00	0.00	
12,889.4	0.00	0.00	12,817.0	-303.0	-805.0	860.1	0.00	0.00	Pilot Hole TD @ 12889' 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									
2-33H 791 Vert Tgt	0.00	0.00	8,287.0	-303.0	-805.0	1,465,237.93	2,425,234.26	40.592054	-107.569783
- plan hits target center									
- Point									

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,000.0	3,000.0	0.0	0.0	KOP @ 3000' MD
3,328.1	3,326.4	-9.9	-26.3	EOB; 9.84°
8,031.4	7,960.6	-293.1	-778.7	Start 3° Drop
8,359.4	8,287.0	-303.0	-805.0	EOD; Vertical
12,889.4	12,817.0	-303.0	-805.0	Pilot Hole TD @ 12889' MD