



Ursa Operating Company, LLC

Rockies Region

Frei A

Frei A4

Wellbore #1

Plan: Design #1

Standard Planning Report

06 August, 2013



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Frei A4
Company:	Ursa Operating Company, LLC	TVD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Project:	Rockies Region	MD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Rockies Region		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		Frei A			
Site Position:		Northing:	1,626,942.75 ft	Latitude:	39° 32' 9.196 N
From:	Lat/Long	Easting:	2,406,826.15 ft	Longitude:	107° 36' 12.020 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.33 °

Well	Frei A4, SHL LAT: 39.535786000 LONG: -107.603358600					
Well Position	+N/-S	-37.1 ft	Northing:	1,626,905.80 ft	Latitude:	39° 32' 8.829 N
	+E/-W	-5.6 ft	Easting:	2,406,819.74 ft	Longitude:	107° 36' 12.091 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	5,611.9 ft	Ground Level:	5,596.5 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/6/2013	9.87	65.80	52,148

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	149.41

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,527.5	36.82	149.41	1,444.7	-328.0	193.9	3.00	3.00	0.00	149.41	
3,362.1	36.82	149.41	2,913.3	-1,274.6	753.4	0.00	0.00	0.00	0.00	
4,589.6	0.00	0.00	4,058.0	-1,602.7	947.4	3.00	-3.00	0.00	180.00	Frei A4 TGT
7,413.6	0.00	0.00	6,882.0	-1,602.7	947.4	0.00	0.00	0.00	0.00	

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Frei A4
Company:	Ursa Operating Company, LLC	TVD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Project:	Rockies Region	MD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #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)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.00									
400.0	3.00	149.41	400.0	-2.3	1.3	2.6	3.00	3.00	0.00
500.0	6.00	149.41	499.6	-9.0	5.3	10.5	3.00	3.00	0.00
600.0	9.00	149.41	598.8	-20.2	12.0	23.5	3.00	3.00	0.00
700.0	12.00	149.41	697.1	-35.9	21.2	41.7	3.00	3.00	0.00
800.0	15.00	149.41	794.3	-56.0	33.1	65.1	3.00	3.00	0.00
900.0	18.00	149.41	890.2	-80.5	47.6	93.5	3.00	3.00	0.00
1,000.0	21.00	149.41	984.4	-109.2	64.5	126.9	3.00	3.00	0.00
1,100.0	24.00	149.41	1,076.8	-142.1	84.0	165.1	3.00	3.00	0.00
1,200.0	27.00	149.41	1,167.1	-179.2	105.9	208.2	3.00	3.00	0.00
1,300.0	30.00	149.41	1,254.9	-220.3	130.2	255.9	3.00	3.00	0.00
1,400.0	33.00	149.41	1,340.2	-265.2	156.8	308.1	3.00	3.00	0.00
1,500.0	36.00	149.41	1,422.6	-314.0	185.6	364.7	3.00	3.00	0.00
1,527.5	36.82	149.41	1,444.7	-328.0	193.9	381.1	3.00	3.00	0.00
Start 1834.7 hold at 1527.5 MD									
1,600.0	36.82	149.41	1,502.8	-365.5	216.0	424.5	0.00	0.00	0.00
1,700.0	36.82	149.41	1,582.8	-417.1	246.5	484.5	0.00	0.00	0.00
1,800.0	36.82	149.41	1,662.8	-468.6	277.0	544.4	0.00	0.00	0.00
1,900.0	36.82	149.41	1,742.9	-520.2	307.5	604.3	0.00	0.00	0.00
2,000.0	36.82	149.41	1,822.9	-571.8	338.0	664.3	0.00	0.00	0.00
2,100.0	36.82	149.41	1,903.0	-623.4	368.5	724.2	0.00	0.00	0.00
2,200.0	36.82	149.41	1,983.0	-675.0	399.0	784.1	0.00	0.00	0.00
2,300.0	36.82	149.41	2,063.1	-726.6	429.5	844.1	0.00	0.00	0.00
2,400.0	36.82	149.41	2,143.1	-778.2	460.0	904.0	0.00	0.00	0.00
2,500.0	36.82	149.41	2,223.2	-829.8	490.5	964.0	0.00	0.00	0.00
2,600.0	36.82	149.41	2,303.2	-881.4	521.0	1,023.9	0.00	0.00	0.00
2,700.0	36.82	149.41	2,383.3	-933.0	551.5	1,083.8	0.00	0.00	0.00
2,800.0	36.82	149.41	2,463.3	-984.6	582.0	1,143.8	0.00	0.00	0.00
2,900.0	36.82	149.41	2,543.4	-1,036.2	612.5	1,203.7	0.00	0.00	0.00
3,000.0	36.82	149.41	2,623.4	-1,087.8	643.0	1,263.6	0.00	0.00	0.00
3,100.0	36.82	149.41	2,703.5	-1,139.4	673.5	1,323.6	0.00	0.00	0.00
3,200.0	36.82	149.41	2,783.5	-1,191.0	704.0	1,383.5	0.00	0.00	0.00
3,300.0	36.82	149.41	2,863.6	-1,242.6	734.5	1,443.4	0.00	0.00	0.00
3,344.1	36.82	149.41	2,898.9	-1,265.4	748.0	1,469.9	0.00	0.00	0.00
WF									
3,362.1	36.82	149.41	2,913.3	-1,274.6	753.4	1,480.7	0.00	0.00	0.00
Start Drop -3.00									
3,400.0	35.69	149.41	2,943.8	-1,293.9	764.8	1,503.1	3.00	-3.00	0.00
3,500.0	32.69	149.41	3,026.5	-1,342.3	793.4	1,559.3	3.00	-3.00	0.00
3,600.0	29.69	149.41	3,112.1	-1,386.9	819.8	1,611.0	3.00	-3.00	0.00
3,700.0	26.69	149.41	3,200.2	-1,427.5	843.8	1,658.3	3.00	-3.00	0.00
3,800.0	23.69	149.41	3,290.7	-1,464.2	865.5	1,700.8	3.00	-3.00	0.00
3,900.0	20.69	149.41	3,383.3	-1,496.7	884.7	1,738.6	3.00	-3.00	0.00
4,000.0	17.69	149.41	3,477.7	-1,525.0	901.4	1,771.5	3.00	-3.00	0.00
4,100.0	14.69	149.41	3,573.7	-1,549.0	915.6	1,799.3	3.00	-3.00	0.00
4,200.0	11.69	149.41	3,671.1	-1,568.6	927.2	1,822.1	3.00	-3.00	0.00
4,300.0	8.69	149.41	3,769.5	-1,583.8	936.2	1,839.8	3.00	-3.00	0.00
4,400.0	5.69	149.41	3,868.7	-1,594.6	942.6	1,852.3	3.00	-3.00	0.00
4,500.0	2.69	149.41	3,968.4	-1,600.9	946.3	1,859.6	3.00	-3.00	0.00
4,589.5	0.00	149.41	4,057.9	-1,602.7	947.4	1,861.7	3.00	-3.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Frei A4
Company:	Ursa Operating Company, LLC	TVD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Project:	Rockies Region	MD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #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)	Turn Rate (°/100ft)
Top of Gas									
4,589.6	0.00	0.00	4,058.0	-1,602.7	947.4	1,861.7	3.00	-3.00	0.00
Start 2824.0 hold at 4589.6 MD									
4,600.0	0.00	0.00	4,068.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
4,700.0	0.00	0.00	4,168.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
4,800.0	0.00	0.00	4,268.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
4,900.0	0.00	0.00	4,368.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,000.0	0.00	0.00	4,468.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,100.0	0.00	0.00	4,568.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,200.0	0.00	0.00	4,668.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,300.0	0.00	0.00	4,768.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,400.0	0.00	0.00	4,868.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,500.0	0.00	0.00	4,968.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,068.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,700.0	0.00	0.00	5,168.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,268.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,900.0	0.00	0.00	5,368.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
5,938.5	0.00	0.00	5,406.9	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
Cameo									
6,000.0	0.00	0.00	5,468.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,100.0	0.00	0.00	5,568.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,200.0	0.00	0.00	5,668.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,300.0	0.00	0.00	5,768.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,400.0	0.00	0.00	5,868.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,500.0	0.00	0.00	5,968.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,068.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,700.0	0.00	0.00	6,168.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,268.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
6,900.0	0.00	0.00	6,368.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,468.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
7,100.0	0.00	0.00	6,568.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
7,113.5	0.00	0.00	6,581.9	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
Rollins									
7,200.0	0.00	0.00	6,668.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
7,300.0	0.00	0.00	6,768.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
7,400.0	0.00	0.00	6,868.4	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
7,413.6	0.00	0.00	6,882.0	-1,602.7	947.4	1,861.7	0.00	0.00	0.00
TD at 7413.6									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,344.1	2,898.9	WF		0.00	
4,589.5	4,057.9	Top of Gas		0.00	
5,938.5	5,406.9	Cameo		0.00	
7,113.5	6,581.9	Rollins		0.00	

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Frei A4
Company:	Ursa Operating Company, LLC	TVD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Project:	Rockies Region	MD Reference:	Frei A4 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.0	300.0	0.0	0.0	Start Build 3.00
1,527.5	1,444.7	-328.0	193.9	Start 1834.7 hold at 1527.5 MD
3,362.1	2,913.3	-1,274.6	753.4	Start Drop -3.00
4,589.6	4,058.0	-1,602.7	947.4	Start 2824.0 hold at 4589.6 MD
7,413.6	6,882.0	-1,602.7	947.4	TD at 7413.6



Well Name: Frei A4
Surface Location: Frei A
North American Datum 1983 , US State Plane 1983 , Colorado Central Zone
Ground Elevation: 5596.5
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1626905.80 2406819.74 39° 32' 8.829 N 107° 36' 12.091 W
PAD EST KB Frei A4 @ 5611.9ft (PAD EST KB)



Azimuths to True North
Magnetic North: 9.87°
Magnetic Field
Strength: 52148.2snT
Dip Angle: 65.80°
Date: 8/6/2013
Model: IGRF200510

Frei A
Frei A4
Design #1
20:54, August 06 2013

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Frei A4 TGT	4058.0	-1602.7	947.4	1625281.61	2407729.73	39° 31' 52.989 N	107° 36' 0.000 W	Point

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.0	
3	1527.5	36.82	149.41	1444.7	-328.0	193.9	3.00	149.41	381.1	
4	3362.1	36.82	149.41	2913.3	-1274.6	753.4	0.00	0.00	1480.7	
5	4589.6	0.00	0.00	4058.0	-1602.7	947.4	3.00	180.00	1861.7	Frei A4 TGT
6	7413.6	0.00	0.00	6882.0	-1602.7	947.4	0.00	0.00	1861.7	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.00
1444.7	1527.5	Start 1834.7 hold at 1527.5 MD
2913.3	3362.1	Start Drop -3.00
4058.0	4589.6	Start 2824.0 hold at 4589.6 MD
6882.0	7413.6	TD at 7413.6

FORMATION TOP DETAILS

TVDP	PathMD	Path	Formation
2898.9	3344.1	WF	
4057.9	4589.5	Top of Gas	
5406.9	5938.5	Cameo	
6581.9	7113.5	Rollins	

