



Ursa Operating Company, LLC

Rockies Region

Frei A

Frei A12

Wellbore #1

Plan: Design #2

Standard Planning Report

12 August, 2013



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Frei A12
Company:	Ursa Operating Company, LLC	TVD Reference:	Frei A12 @ 5611.9ft (PAD EST KB)
Project:	Rockies Region	MD Reference:	Frei A12 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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 A12, SHL LAT: 39.536159300, LONG: -107.603286500					
Well Position	+N/-S	98.9 ft	Northing:	1,627,041.26 ft	Latitude:	39° 32' 10.173 N
	+E/-W	14.8 ft	Easting:	2,406,843.22 ft	Longitude:	107° 36' 11.831 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 #2			
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	25.04

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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,204.1	35.14	25.04	1,142.3	270.3	126.3	3.50	3.50	0.00	25.04	
3,941.4	35.14	25.04	3,380.7	1,697.9	793.2	0.00	0.00	0.00	0.00	
4,945.5	0.00	0.00	4,323.0	1,968.2	919.5	3.50	-3.50	0.00	180.00	
7,209.5	0.00	0.00	6,587.0	1,968.2	919.5	0.00	0.00	0.00	0.00	Frei A12 BHL

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Site:	Frei A	North Reference:	True
Well:	Frei A12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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
Start Build 3.50									
300.0	3.50	25.04	299.9	2.8	1.3	3.1	3.50	3.50	0.00
400.0	7.00	25.04	399.5	11.1	5.2	12.2	3.50	3.50	0.00
500.0	10.50	25.04	498.3	24.8	11.6	27.4	3.50	3.50	0.00
600.0	14.00	25.04	596.0	44.1	20.6	48.6	3.50	3.50	0.00
700.0	17.50	25.04	692.3	68.6	32.1	75.8	3.50	3.50	0.00
800.0	21.00	25.04	786.7	98.5	46.0	108.7	3.50	3.50	0.00
900.0	24.50	25.04	878.9	133.5	62.4	147.4	3.50	3.50	0.00
1,000.0	28.00	25.04	968.5	173.6	81.1	191.6	3.50	3.50	0.00
1,100.0	31.50	25.04	1,055.3	218.6	102.1	241.2	3.50	3.50	0.00
1,204.1	35.14	25.04	1,142.3	270.3	126.3	298.4	3.50	3.50	0.00
Start 2737.4 hold at 1204.1 MD									
1,300.0	35.14	25.04	1,220.7	320.4	149.7	353.6	0.00	0.00	0.00
1,400.0	35.14	25.04	1,302.5	372.5	174.0	411.2	0.00	0.00	0.00
1,500.0	35.14	25.04	1,384.3	424.7	198.4	468.7	0.00	0.00	0.00
1,600.0	35.14	25.04	1,466.1	476.8	222.8	526.3	0.00	0.00	0.00
1,700.0	35.14	25.04	1,547.8	529.0	247.1	583.8	0.00	0.00	0.00
1,800.0	35.14	25.04	1,629.6	581.1	271.5	641.4	0.00	0.00	0.00
1,900.0	35.14	25.04	1,711.4	633.3	295.9	699.0	0.00	0.00	0.00
2,000.0	35.14	25.04	1,793.1	685.4	320.2	756.5	0.00	0.00	0.00
2,100.0	35.14	25.04	1,874.9	737.6	344.6	814.1	0.00	0.00	0.00
2,200.0	35.14	25.04	1,956.7	789.7	368.9	871.7	0.00	0.00	0.00
2,300.0	35.14	25.04	2,038.5	841.9	393.3	929.2	0.00	0.00	0.00
2,400.0	35.14	25.04	2,120.2	894.0	417.7	986.8	0.00	0.00	0.00
2,500.0	35.14	25.04	2,202.0	946.2	442.0	1,044.3	0.00	0.00	0.00
2,600.0	35.14	25.04	2,283.8	998.3	466.4	1,101.9	0.00	0.00	0.00
2,700.0	35.14	25.04	2,365.6	1,050.5	490.8	1,159.5	0.00	0.00	0.00
2,800.0	35.14	25.04	2,447.3	1,102.6	515.1	1,217.0	0.00	0.00	0.00
2,900.0	35.14	25.04	2,529.1	1,154.8	539.5	1,274.6	0.00	0.00	0.00
2,991.5	35.14	25.04	2,603.9	1,202.5	561.8	1,327.2	0.00	0.00	0.00
WF									
3,000.0	35.14	25.04	2,610.9	1,206.9	563.9	1,332.1	0.00	0.00	0.00
3,100.0	35.14	25.04	2,692.6	1,259.1	588.2	1,389.7	0.00	0.00	0.00
3,200.0	35.14	25.04	2,774.4	1,311.2	612.6	1,447.3	0.00	0.00	0.00
3,300.0	35.14	25.04	2,856.2	1,363.4	636.9	1,504.8	0.00	0.00	0.00
3,400.0	35.14	25.04	2,938.0	1,415.5	661.3	1,562.4	0.00	0.00	0.00
3,500.0	35.14	25.04	3,019.7	1,467.7	685.7	1,619.9	0.00	0.00	0.00
3,600.0	35.14	25.04	3,101.5	1,519.8	710.0	1,677.5	0.00	0.00	0.00
3,700.0	35.14	25.04	3,183.3	1,572.0	734.4	1,735.1	0.00	0.00	0.00
3,800.0	35.14	25.04	3,265.1	1,624.1	758.8	1,792.6	0.00	0.00	0.00
3,900.0	35.14	25.04	3,346.8	1,676.3	783.1	1,850.2	0.00	0.00	0.00
3,941.4	35.14	25.04	3,380.7	1,697.9	793.2	1,874.0	0.00	0.00	0.00
Start Drop -3.50									
4,000.0	33.09	25.04	3,429.2	1,727.6	807.1	1,906.9	3.50	-3.50	0.00
4,100.0	29.59	25.04	3,514.6	1,774.8	829.1	1,958.9	3.50	-3.50	0.00
4,200.0	26.09	25.04	3,603.0	1,817.1	848.9	2,005.6	3.50	-3.50	0.00
4,300.0	22.59	25.04	3,694.1	1,854.4	866.3	2,046.8	3.50	-3.50	0.00
4,373.9	20.01	25.04	3,762.9	1,878.7	877.7	2,073.6	3.50	-3.50	0.00
Top of Gas									
4,400.0	19.09	25.04	3,787.5	1,886.6	881.4	2,082.4	3.50	-3.50	0.00

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Site:	Frei A	North Reference:	True
Well:	Frei A12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)	
4,500.0	15.59	25.04	3,883.0	1,913.6	894.0	2,112.2	3.50	-3.50	0.00	
4,600.0	12.09	25.04	3,980.1	1,935.3	904.1	2,136.1	3.50	-3.50	0.00	
4,700.0	8.59	25.04	4,078.4	1,951.6	911.7	2,154.0	3.50	-3.50	0.00	
4,800.0	5.09	25.04	4,177.7	1,962.4	916.8	2,166.0	3.50	-3.50	0.00	
4,900.0	1.59	25.04	4,277.5	1,967.7	919.3	2,171.8	3.50	-3.50	0.00	
4,945.5	0.00	0.00	4,323.0	1,968.2	919.5	2,172.4	3.50	-3.50	0.00	
Start 2264.0 hold at 4945.5 MD										
5,000.0	0.00	0.00	4,377.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,100.0	0.00	0.00	4,477.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,200.0	0.00	0.00	4,577.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,300.0	0.00	0.00	4,677.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,400.0	0.00	0.00	4,777.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,500.0	0.00	0.00	4,877.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,600.0	0.00	0.00	4,977.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,077.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,734.4	0.00	0.00	5,111.9	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
Cameo										
5,800.0	0.00	0.00	5,177.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,277.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,000.0	0.00	0.00	5,377.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,100.0	0.00	0.00	5,477.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,200.0	0.00	0.00	5,577.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,300.0	0.00	0.00	5,677.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,400.0	0.00	0.00	5,777.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,500.0	0.00	0.00	5,877.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,600.0	0.00	0.00	5,977.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,077.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,177.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,277.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
6,909.4	0.00	0.00	6,286.9	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
Rollins										
7,000.0	0.00	0.00	6,377.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
7,100.0	0.00	0.00	6,477.5	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
7,209.5	0.00	0.00	6,587.0	1,968.2	919.5	2,172.4	0.00	0.00	0.00	
TD at 7209.5										

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,991.5	2,603.9	WF		0.00		
4,373.9	3,762.9	Top of Gas		0.00		
5,734.4	5,111.9	Cameo		0.00		
6,909.4	6,286.9	Rollins		0.00		

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Site:	Frei A	North Reference:	True
Well:	Frei A12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	Start Build 3.50
1,204.1	1,142.3	270.3	126.3	Start 2737.4 hold at 1204.1 MD
3,941.4	3,380.7	1,697.9	793.2	Start Drop -3.50
4,945.5	4,323.0	1,968.2	919.5	Start 2264.0 hold at 4945.5 MD
7,209.5	6,587.0	1,968.2	919.5	TD at 7209.5



Well Name: Frei A12
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 1627041.26 2406843.22 39° 32' 10.173 N 107° 36' 11.831 W
PAD EST KB Frei A12 @ 5611.9ft (PAD EST KB)



Azimuths to True North
Magnetic North: 9.87°
Magnetic Field
Strength: 52148.4snT
Dip Angle: 65.80°
Date: 8/6/2013
Model: IGRF200510

Frei A
Frei A12
Design #2
20:45, August 12 2013

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Frei A12 BHL	6587.0	1968.2	919.5	1628987.67	2407808.05	39° 32' 29.626 N	107° 36' 0.094 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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	1204.1	35.14	25.04	1142.3	270.3	126.3	3.50	25.04	298.4	
4	3941.4	35.14	25.04	3380.7	1697.9	793.2	0.00	0.00	1874.0	
5	4945.5	0.00	0.00	4323.0	1968.2	919.5	3.50	180.00	2172.4	
6	7209.5	0.00	0.00	6587.0	1968.2	919.5	0.00	0.00	2172.4	Frei A12 BHL

ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	Start Build 3.50
1142.3	1204.1	Start 2737.4 hold at 1204.1 MD
3380.7	3941.4	Start Drop -3.50
4323.0	4945.5	Start 2264.0 hold at 4945.5 MD
6587.0	7209.5	TD at 7209.5

FORMATION TOP DETAILS

TVDP	MDP	Path	Formation
2603.9	2991.5	WF	WF
3762.9	4373.9	Top of Gas	Top of Gas
5111.9	5734.4	Cameo	Cameo
6286.9	6909.4	Rollins	Rollins

