



Ursa Operating Company, LLC

Rockies Region

Frei A

Frei A24

Wellbore #1

Plan: Design #1

Standard Planning Report

06 August, 2013



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Frei A24
Company:	Ursa Operating Company, LLC	TVD Reference:	Frei A24 @ 5611.9ft (PAD EST KB)
Project:	Rockies Region	MD Reference:	Frei A24 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A24	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 A24, SHL LAT: 39.535921700, LONG:-107.603332400					
Well Position	+N/-S	12.3 ft	Northing:	1,626,955.04 ft	Latitude:	39° 32' 9.318 N
	+E/-W	1.8 ft	Easting:	2,406,828.27 ft	Longitude:	107° 36' 11.997 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	273.79

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	
1,277.0	29.31	273.79	1,235.0	16.2	-244.0	3.00	3.00	0.00	273.79	
3,472.1	29.31	273.79	3,149.0	87.2	-1,316.2	0.00	0.00	0.00	0.00	
4,449.1	0.00	0.00	4,084.0	103.3	-1,560.2	3.00	-3.00	0.00	180.00	Frei A24 TGT
7,273.1	0.00	0.00	6,908.0	103.3	-1,560.2	0.00	0.00	0.00	0.00	

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Project:	Rockies Region	MD Reference:	Frei A24 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A24	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	273.79	400.0	0.2	-2.6	2.6	3.00	3.00	0.00
500.0	6.00	273.79	499.6	0.7	-10.4	10.5	3.00	3.00	0.00
600.0	9.00	273.79	598.8	1.6	-23.5	23.5	3.00	3.00	0.00
700.0	12.00	273.79	697.1	2.8	-41.6	41.7	3.00	3.00	0.00
800.0	15.00	273.79	794.3	4.3	-64.9	65.1	3.00	3.00	0.00
900.0	18.00	273.79	890.2	6.2	-93.3	93.5	3.00	3.00	0.00
1,000.0	21.00	273.79	984.4	8.4	-126.6	126.9	3.00	3.00	0.00
1,100.0	24.00	273.79	1,076.8	10.9	-164.8	165.1	3.00	3.00	0.00
1,200.0	27.00	273.79	1,167.1	13.8	-207.7	208.2	3.00	3.00	0.00
1,277.0	29.31	273.79	1,235.0	16.2	-244.0	244.5	3.00	3.00	0.00
Start 2195.1 hold at 1277.0 MD									
1,300.0	29.31	273.79	1,255.0	16.9	-255.2	255.8	0.00	0.00	0.00
1,400.0	29.31	273.79	1,342.2	20.1	-304.0	304.7	0.00	0.00	0.00
1,500.0	29.31	273.79	1,429.4	23.4	-352.9	353.7	0.00	0.00	0.00
1,600.0	29.31	273.79	1,516.6	26.6	-401.7	402.6	0.00	0.00	0.00
1,700.0	29.31	273.79	1,603.8	29.8	-450.6	451.6	0.00	0.00	0.00
1,800.0	29.31	273.79	1,691.0	33.1	-499.4	500.5	0.00	0.00	0.00
1,900.0	29.31	273.79	1,778.2	36.3	-548.3	549.5	0.00	0.00	0.00
2,000.0	29.31	273.79	1,865.4	39.5	-597.1	598.4	0.00	0.00	0.00
2,100.0	29.31	273.79	1,952.6	42.8	-646.0	647.4	0.00	0.00	0.00
2,200.0	29.31	273.79	2,039.8	46.0	-694.8	696.3	0.00	0.00	0.00
2,300.0	29.31	273.79	2,127.0	49.2	-743.7	745.3	0.00	0.00	0.00
2,400.0	29.31	273.79	2,214.2	52.5	-792.5	794.3	0.00	0.00	0.00
2,500.0	29.31	273.79	2,301.4	55.7	-841.4	843.2	0.00	0.00	0.00
2,600.0	29.31	273.79	2,388.6	59.0	-890.2	892.2	0.00	0.00	0.00
2,700.0	29.31	273.79	2,475.8	62.2	-939.1	941.1	0.00	0.00	0.00
2,800.0	29.31	273.79	2,563.0	65.4	-987.9	990.1	0.00	0.00	0.00
2,900.0	29.31	273.79	2,650.2	68.7	-1,036.8	1,039.0	0.00	0.00	0.00
3,000.0	29.31	273.79	2,737.4	71.9	-1,085.6	1,088.0	0.00	0.00	0.00
3,100.0	29.31	273.79	2,824.6	75.1	-1,134.4	1,136.9	0.00	0.00	0.00
3,200.0	29.31	273.79	2,911.8	78.4	-1,183.3	1,185.9	0.00	0.00	0.00
3,215.1	29.31	273.79	2,924.9	78.9	-1,190.7	1,193.3	0.00	0.00	0.00
WF									
3,300.0	29.31	273.79	2,999.0	81.6	-1,232.1	1,234.8	0.00	0.00	0.00
3,400.0	29.31	273.79	3,086.2	84.8	-1,281.0	1,283.8	0.00	0.00	0.00
3,472.1	29.31	273.79	3,149.0	87.2	-1,316.2	1,319.1	0.00	0.00	0.00
Start Drop -3.00									
3,500.0	28.47	273.79	3,173.4	88.1	-1,329.7	1,332.6	3.00	-3.00	0.00
3,600.0	25.47	273.79	3,262.6	91.1	-1,374.9	1,377.9	3.00	-3.00	0.00
3,700.0	22.47	273.79	3,353.9	93.7	-1,415.5	1,418.6	3.00	-3.00	0.00
3,800.0	19.47	273.79	3,447.3	96.1	-1,451.2	1,454.3	3.00	-3.00	0.00
3,900.0	16.47	273.79	3,542.4	98.1	-1,482.0	1,485.2	3.00	-3.00	0.00
4,000.0	13.47	273.79	3,639.0	99.9	-1,507.7	1,511.0	3.00	-3.00	0.00
4,100.0	10.47	273.79	3,736.8	101.2	-1,528.4	1,531.8	3.00	-3.00	0.00
4,200.0	7.47	273.79	3,835.6	102.3	-1,544.0	1,547.4	3.00	-3.00	0.00
4,300.0	4.47	273.79	3,935.0	102.9	-1,554.4	1,557.8	3.00	-3.00	0.00
4,400.0	1.47	273.79	4,034.9	103.3	-1,559.6	1,563.0	3.00	-3.00	0.00
4,449.0	0.00	273.79	4,083.9	103.3	-1,560.2	1,563.6	3.00	-3.00	0.00

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Site:	Frei A	North Reference:	True
Well:	Frei A24	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									
4,449.1	0.00	0.00	4,084.0	103.3	-1,560.2	1,563.6	3.00	-3.00	0.00
Start 2824.0 hold at 4449.1 MD									
4,500.0	0.00	0.00	4,134.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
4,600.0	0.00	0.00	4,234.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
4,700.0	0.00	0.00	4,334.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
4,800.0	0.00	0.00	4,434.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
4,900.0	0.00	0.00	4,534.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,000.0	0.00	0.00	4,634.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,100.0	0.00	0.00	4,734.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,200.0	0.00	0.00	4,834.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,300.0	0.00	0.00	4,934.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,400.0	0.00	0.00	5,034.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,500.0	0.00	0.00	5,134.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,600.0	0.00	0.00	5,234.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,700.0	0.00	0.00	5,334.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,798.0	0.00	0.00	5,432.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
Cameo									
5,800.0	0.00	0.00	5,434.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,534.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,634.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,100.0	0.00	0.00	5,734.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,834.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,300.0	0.00	0.00	5,934.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,400.0	0.00	0.00	6,034.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,500.0	0.00	0.00	6,134.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,600.0	0.00	0.00	6,234.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,700.0	0.00	0.00	6,334.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,434.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,900.0	0.00	0.00	6,534.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
6,973.0	0.00	0.00	6,607.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
Rollins									
7,000.0	0.00	0.00	6,634.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
7,100.0	0.00	0.00	6,734.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,834.9	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
7,273.1	0.00	0.00	6,908.0	103.3	-1,560.2	1,563.6	0.00	0.00	0.00
TD at 7273.1									

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,215.1	2,924.9	WF		0.00	
4,449.0	4,083.9	Top of Gas		0.00	
5,798.0	5,432.9	Cameo		0.00	
6,973.0	6,607.9	Rollins		0.00	

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Project:	Rockies Region	MD Reference:	Frei A24 @ 5611.9ft (PAD EST KB)
Site:	Frei A	North Reference:	True
Well:	Frei A24	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
1,277.0	1,235.0	16.2	-244.0	Start 2195.1 hold at 1277.0 MD
3,472.1	3,149.0	87.2	-1,316.2	Start Drop -3.00
4,449.1	4,084.0	103.3	-1,560.2	Start 2824.0 hold at 4449.1 MD
7,273.1	6,908.0	103.3	-1,560.2	TD at 7273.1



Well Name: Frei A24
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 1626955.04 2406828.27 39° 32' 9.318 N 107° 36' 11.997 W
PAD EST KB Frei A24 @ 5611.9ft (PAD EST KB)



Azimuths to True North
Magnetic North: 9.87°
Magnetic Field
Strength: 52148.3nT
Dip Angle: 65.80°
Date: 8/6/2013
Model: IGRF200510

Frei A
Frei A24
Design #1
20:25, August 06 2013

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Frei A24 TGT	4084.0	103.3	-1560.2	1627094.45	2405270.90	39° 32' 10.339 N	107° 36' 31.911 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	1277.0	29.31	273.79	1235.0	16.2	-244.0	3.00	273.79	244.5	
4	3472.1	29.31	273.79	3149.0	87.2	-1316.2	0.00	0.00	1319.1	
5	4449.1	0.00	0.00	4084.0	103.3	-1560.2	3.00	180.00	1563.6	Frei A24 TGT
6	7273.1	0.00	0.00	6908.0	103.3	-1560.2	0.00	0.00	1563.6	

ANNOTATIONS

TVD	MD	Annotation
300.0	300.0	Start Build 3.00
1235.0	1277.0	Start 2195.1 hold at 1277.0 MD
3149.0	3472.1	Start Drop -3.00
4084.0	4449.1	Start 2824.0 hold at 4449.1 MD
6908.0	7273.1	TD at 7273.1

FORMATION TOP DETAILS

TVDP	PathMD	Path	Formation
2924.9	3215.1	WF	
4083.9	4449.0	Top of Gas	
5432.9	5798.0	Cameo	
6607.9	6973.0	Rollins	

