



Ursa Operating Company, LLC

**Rockies Region
Valley Farms O
23D-10-06-92**

Wellbore #1

Plan: Design #1

Standard Planning Report

13 October, 2013



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well 23D-10-06-92
Company:	Ursa Operating Company, LLC	TVD Reference:	23D-10-06-92 @ 5447.4ft (PAD Est KB)
Project:	Rockies Region	MD Reference:	23D-10-06-92 @ 5447.4ft (PAD Est KB)
Site:	Valley Farms O	North Reference:	True
Well:	23D-10-06-92	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		Valley Farms O			
Site Position:		Northing:	1,627,349.93 ft	Latitude:	39° 32' 9.673 N
From:	Lat/Long	Easting:	2,391,526.28 ft	Longitude:	107° 39' 27.378 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.36 °

Well	23D-10-06-92, SHL LAT: 39.536157588 LONG: -107.657609314					
Well Position	+N/-S	50.0 ft	Northing:	1,627,399.90 ft	Latitude:	39° 32' 10.167 N
	+E/-W	-1.2 ft	Easting:	2,391,526.24 ft	Longitude:	107° 39' 27.394 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	5,447.4 ft	Ground Level:	5,432.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/10/2013	9.87	65.79	52,126

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	36.90

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	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,567.5	14.03	36.90	1,562.9	45.5	34.2	3.00	3.00	0.00	36.90	
4,974.4	14.03	36.90	4,868.1	705.8	529.9	0.00	0.00	0.00	0.00	
5,441.9	0.00	0.00	5,331.0	751.3	564.1	3.00	-3.00	0.00	180.00	23D-10-06-92 TGT
7,711.9	0.00	0.00	7,601.0	751.3	564.1	0.00	0.00	0.00	0.00	

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Site:	Valley Farms O	North Reference:	True
Well:	23D-10-06-92	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
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.00									
1,200.0	3.00	36.90	1,200.0	2.1	1.6	2.6	3.00	3.00	0.00
1,300.0	6.00	36.90	1,299.6	8.4	6.3	10.5	3.00	3.00	0.00
1,400.0	9.00	36.90	1,398.8	18.8	14.1	23.5	3.00	3.00	0.00
1,500.0	12.00	36.90	1,497.1	33.4	25.1	41.7	3.00	3.00	0.00
1,567.5	14.03	36.90	1,562.9	45.5	34.2	56.9	3.00	3.00	0.00
Start 3406.8 hold at 1567.5 MD									
1,600.0	14.03	36.90	1,594.4	51.8	38.9	64.8	0.00	0.00	0.00
1,700.0	14.03	36.90	1,691.4	71.2	53.5	89.0	0.00	0.00	0.00
1,800.0	14.03	36.90	1,788.4	90.6	68.0	113.3	0.00	0.00	0.00
1,900.0	14.03	36.90	1,885.4	110.0	82.6	137.5	0.00	0.00	0.00
2,000.0	14.03	36.90	1,982.5	129.4	97.1	161.8	0.00	0.00	0.00
2,100.0	14.03	36.90	2,079.5	148.7	111.7	186.0	0.00	0.00	0.00
2,200.0	14.03	36.90	2,176.5	168.1	126.2	210.2	0.00	0.00	0.00
2,300.0	14.03	36.90	2,273.5	187.5	140.8	234.5	0.00	0.00	0.00
2,400.0	14.03	36.90	2,370.5	206.9	155.3	258.7	0.00	0.00	0.00
2,500.0	14.03	36.90	2,467.5	226.3	169.9	282.9	0.00	0.00	0.00
2,600.0	14.03	36.90	2,564.6	245.6	184.4	307.2	0.00	0.00	0.00
2,700.0	14.03	36.90	2,661.6	265.0	199.0	331.4	0.00	0.00	0.00
2,800.0	14.03	36.90	2,758.6	284.4	213.5	355.6	0.00	0.00	0.00
2,900.0	14.03	36.90	2,855.6	303.8	228.1	379.9	0.00	0.00	0.00
3,000.0	14.03	36.90	2,952.6	323.2	242.6	404.1	0.00	0.00	0.00
3,100.0	14.03	36.90	3,049.7	342.5	257.2	428.3	0.00	0.00	0.00
3,200.0	14.03	36.90	3,146.7	361.9	271.7	452.6	0.00	0.00	0.00
3,300.0	14.03	36.90	3,243.7	381.3	286.3	476.8	0.00	0.00	0.00
3,400.0	14.03	36.90	3,340.7	400.7	300.8	501.0	0.00	0.00	0.00
3,500.0	14.03	36.90	3,437.7	420.1	315.4	525.3	0.00	0.00	0.00
3,600.0	14.03	36.90	3,534.8	439.4	329.9	549.5	0.00	0.00	0.00
3,700.0	14.03	36.90	3,631.8	458.8	344.5	573.8	0.00	0.00	0.00
3,800.0	14.03	36.90	3,728.8	478.2	359.0	598.0	0.00	0.00	0.00
3,807.8	14.03	36.90	3,736.4	479.7	360.2	599.9	0.00	0.00	0.00
Williams Fork									
3,900.0	14.03	36.90	3,825.8	497.6	373.6	622.2	0.00	0.00	0.00
4,000.0	14.03	36.90	3,922.8	517.0	388.1	646.5	0.00	0.00	0.00
4,100.0	14.03	36.90	4,019.8	536.3	402.7	670.7	0.00	0.00	0.00
4,200.0	14.03	36.90	4,116.9	555.7	417.2	694.9	0.00	0.00	0.00
4,300.0	14.03	36.90	4,213.9	575.1	431.8	719.2	0.00	0.00	0.00
4,400.0	14.03	36.90	4,310.9	594.5	446.3	743.4	0.00	0.00	0.00
4,500.0	14.03	36.90	4,407.9	613.9	460.9	767.6	0.00	0.00	0.00
4,600.0	14.03	36.90	4,504.9	633.3	475.5	791.9	0.00	0.00	0.00
4,700.0	14.03	36.90	4,602.0	652.6	490.0	816.1	0.00	0.00	0.00

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Project:	Rockies Region	MD Reference:	23D-10-06-92 @ 5447.4ft (PAD Est KB)
Site:	Valley Farms O	North Reference:	True
Well:	23D-10-06-92	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)
4,800.0	14.03	36.90	4,699.0	672.0	504.6	840.3	0.00	0.00	0.00
4,900.0	14.03	36.90	4,796.0	691.4	519.1	864.6	0.00	0.00	0.00
4,974.4	14.03	36.90	4,868.1	705.8	529.9	882.6	0.00	0.00	0.00
Start Drop -3.00									
5,000.0	13.26	36.90	4,893.1	710.6	533.6	888.6	3.00	-3.00	0.00
5,100.0	10.26	36.90	4,990.9	726.9	545.8	909.0	3.00	-3.00	0.00
5,200.0	7.26	36.90	5,089.8	739.1	554.9	924.2	3.00	-3.00	0.00
5,300.0	4.26	36.90	5,189.3	747.1	560.9	934.3	3.00	-3.00	0.00
5,400.0	1.26	36.90	5,289.1	751.0	563.8	939.1	3.00	-3.00	0.00
5,441.9	0.00	0.00	5,331.0	751.3	564.1	939.5	3.00	-3.00	0.00
Start 2270.0 hold at 5441.9 MD									
5,442.3	0.00	0.00	5,331.4	751.3	564.1	939.5	0.00	0.00	0.00
Top of Gas									
5,500.0	0.00	0.00	5,389.1	751.3	564.1	939.5	0.00	0.00	0.00
5,600.0	0.00	0.00	5,489.1	751.3	564.1	939.5	0.00	0.00	0.00
5,700.0	0.00	0.00	5,589.1	751.3	564.1	939.5	0.00	0.00	0.00
5,800.0	0.00	0.00	5,689.1	751.3	564.1	939.5	0.00	0.00	0.00
5,900.0	0.00	0.00	5,789.1	751.3	564.1	939.5	0.00	0.00	0.00
6,000.0	0.00	0.00	5,889.1	751.3	564.1	939.5	0.00	0.00	0.00
6,100.0	0.00	0.00	5,989.1	751.3	564.1	939.5	0.00	0.00	0.00
6,200.0	0.00	0.00	6,089.1	751.3	564.1	939.5	0.00	0.00	0.00
6,300.0	0.00	0.00	6,189.1	751.3	564.1	939.5	0.00	0.00	0.00
6,400.0	0.00	0.00	6,289.1	751.3	564.1	939.5	0.00	0.00	0.00
6,414.3	0.00	0.00	6,303.4	751.3	564.1	939.5	0.00	0.00	0.00
Cameo									
6,500.0	0.00	0.00	6,389.1	751.3	564.1	939.5	0.00	0.00	0.00
6,600.0	0.00	0.00	6,489.1	751.3	564.1	939.5	0.00	0.00	0.00
6,700.0	0.00	0.00	6,589.1	751.3	564.1	939.5	0.00	0.00	0.00
6,800.0	0.00	0.00	6,689.1	751.3	564.1	939.5	0.00	0.00	0.00
6,900.0	0.00	0.00	6,789.1	751.3	564.1	939.5	0.00	0.00	0.00
7,000.0	0.00	0.00	6,889.1	751.3	564.1	939.5	0.00	0.00	0.00
7,100.0	0.00	0.00	6,989.1	751.3	564.1	939.5	0.00	0.00	0.00
7,200.0	0.00	0.00	7,089.1	751.3	564.1	939.5	0.00	0.00	0.00
7,300.0	0.00	0.00	7,189.1	751.3	564.1	939.5	0.00	0.00	0.00
7,400.0	0.00	0.00	7,289.1	751.3	564.1	939.5	0.00	0.00	0.00
7,412.3	0.00	0.00	7,301.4	751.3	564.1	939.5	0.00	0.00	0.00
Rollins									
7,500.0	0.00	0.00	7,389.1	751.3	564.1	939.5	0.00	0.00	0.00
7,600.0	0.00	0.00	7,489.1	751.3	564.1	939.5	0.00	0.00	0.00
7,700.0	0.00	0.00	7,589.1	751.3	564.1	939.5	0.00	0.00	0.00
7,711.9	0.00	0.00	7,601.0	751.3	564.1	939.5	0.00	0.00	0.00
TD at 7711.9									

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Project:	Rockies Region	MD Reference:	23D-10-06-92 @ 5447.4ft (PAD Est KB)
Site:	Valley Farms O	North Reference:	True
Well:	23D-10-06-92	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,807.8	3,736.4	Williams Fork		0.00	
5,442.3	5,331.4	Top of Gas		0.00	
6,414.3	6,303.4	Cameo		0.00	
7,412.3	7,301.4	Rollins		0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,100.0	1,100.0	0.0	0.0	Start Build 3.00	
1,567.5	1,562.9	45.5	34.2	Start 3406.8 hold at 1567.5 MD	
4,974.4	4,868.1	705.8	529.9	Start Drop -3.00	
5,441.9	5,331.0	751.3	564.1	Start 2270.0 hold at 5441.9 MD	
7,711.9	7,601.0	751.3	564.1	TD at 7711.9	



Well Name: 23D-10-06-92
Surface Location: Valley Farms O
North American Datum 1983, US State Plane 1983, Colorado Central Zone
Ground Elevation: 5432.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1627399.90 2391526.24 39° 32' 10.167 N 107° 39' 27.394 W
PAD Est KB 23D-10-06-92 @ 5447.4ft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.87°
Magnetic Field
Strength: 52125.6snT
Dip Angle: 65.79°
Date: 10/10/2013
Model: IGRF200510

Valley Farms O
23D-10-06-92
Design #1
19:46, October 13 2013

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
23D-10-06-92 TGT	5331.0	751.3	564.1	1628137.63	2392108.03	39° 32' 17.593 N	107° 39' 20.193 W	Rectangle (Sides: L40.0 W100.0)

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	1100.0	0.00	0.00	1100.0	0.0	0.0	0.00	0.00	0.0	
3	1567.5	14.03	36.90	1562.9	45.5	34.2	3.00	36.90	56.9	
4	4974.4	14.03	36.90	4868.1	705.8	529.9	0.00	0.00	882.6	
5	5441.9	0.00	0.00	5331.0	751.3	564.1	3.00	180.00	939.5	23D-10-06-92 TGT
6	7711.9	0.00	0.00	7601.0	751.3	564.1	0.00	0.00	939.5	

ANNOTATIONS

TVD	MD	Annotation
1100.0	1100.0	Start Build 3.00
1562.9	1567.5	Start 3406.8 hold at 1567.5 MD
4868.1	4974.4	Start Drop -3.00
5331.0	5441.9	Start 2270.0 hold at 5441.9 MD
7601.0	7711.9	TD at 7711.9

FORMATION TOP DETAILS

TVDP	MDP	Formation
3736.4	3807.8	Williams Fork
5331.4	5442.3	Top of Gas
6303.4	6414.3	Cameo
7301.4	7412.3	Rollins

