



Ursa Operating Company, LLC

**Rockies Region
Valley Farms L
41A-14-06-92**

Wellbore #1

Plan: Design #1

Standard Planning Report

25 November, 2013



Database:	MasterDB	Local Co-ordinate Reference:	Well 41A-14-06-92
Company:	Ursa Operating Company, LLC	TVD Reference:	41A-14-06-92 @ 5564.4usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	41A-14-06-92 @ 5564.4usft (PAD Est KB)
Site:	Valley Farms L	North Reference:	True
Well:	41A-14-06-92	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 L			
Site Position:		Northing:	1,627,813.25 usft	Latitude:	39° 32' 16.142 N
From:	Lat/Long	Easting:	2,399,633.87 usft	Longitude:	107° 37' 44.058 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.34 °

Well	41A-14-06-92, SHL LAT: 39.537632691 LONG: -107.629330336					
Well Position	+N/-S	-67.2 usft	Northing:	1,627,748.88 usft	Latitude:	39° 32' 15.478 N
	+E/-W	-119.9 usft	Easting:	2,399,512.40 usft	Longitude:	107° 37' 45.589 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,564.4 usft	Ground Level:	5,549.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	11/25/2013	9.84	65.79	52,117

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	158.77

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	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	
2,169.4	32.08	158.77	2,114.4	-271.8	105.6	3.00	3.00	0.00	158.77	
3,800.8	32.08	158.77	3,496.6	-1,079.5	419.4	0.00	0.00	0.00	0.00	
4,870.1	0.00	0.00	4,511.0	-1,351.3	525.0	3.00	-3.00	0.00	180.00	41A-14-06-92 TGT
7,654.1	0.00	0.00	7,295.0	-1,351.3	525.0	0.00	0.00	0.00	0.00	

Database:	MasterDB	Local Co-ordinate Reference:	Well 41A-14-06-92
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Project:	Rockies Region	MD Reference:	41A-14-06-92 @ 5564.4usft (PAD Est KB)
Site:	Valley Farms L	North Reference:	True
Well:	41A-14-06-92	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
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	158.77	1,200.0	-2.4	0.9	2.6	3.00	3.00	0.00
1,300.0	6.00	158.77	1,299.6	-9.8	3.8	10.5	3.00	3.00	0.00
1,400.0	9.00	158.77	1,398.8	-21.9	8.5	23.5	3.00	3.00	0.00
1,500.0	12.00	158.77	1,497.1	-38.9	15.1	41.7	3.00	3.00	0.00
1,600.0	15.00	158.77	1,594.3	-60.7	23.6	65.1	3.00	3.00	0.00
1,700.0	18.00	158.77	1,690.2	-87.1	33.9	93.5	3.00	3.00	0.00
1,800.0	21.00	158.77	1,784.4	-118.2	45.9	126.9	3.00	3.00	0.00
1,900.0	24.00	158.77	1,876.8	-153.9	59.8	165.1	3.00	3.00	0.00
2,000.0	27.00	158.77	1,967.1	-194.0	75.4	208.2	3.00	3.00	0.00
2,100.0	30.00	158.77	2,054.9	-238.5	92.7	255.9	3.00	3.00	0.00
2,169.4	32.08	158.77	2,114.4	-271.8	105.6	291.6	3.00	3.00	0.00
Start 1631.4 hold at 2169.4 MD									
2,200.0	32.08	158.77	2,140.3	-287.0	111.5	307.9	0.00	0.00	0.00
2,300.0	32.08	158.77	2,225.0	-336.5	130.7	361.0	0.00	0.00	0.00
2,400.0	32.08	158.77	2,309.8	-386.0	150.0	414.1	0.00	0.00	0.00
2,500.0	32.08	158.77	2,394.5	-435.5	169.2	467.2	0.00	0.00	0.00
2,600.0	32.08	158.77	2,479.2	-485.0	188.5	520.4	0.00	0.00	0.00
2,700.0	32.08	158.77	2,564.0	-534.5	207.7	573.5	0.00	0.00	0.00
2,800.0	32.08	158.77	2,648.7	-584.0	226.9	626.6	0.00	0.00	0.00
2,900.0	32.08	158.77	2,733.4	-633.5	246.2	679.7	0.00	0.00	0.00
3,000.0	32.08	158.77	2,818.2	-683.1	265.4	732.8	0.00	0.00	0.00
3,100.0	32.08	158.77	2,902.9	-732.6	284.6	785.9	0.00	0.00	0.00
3,200.0	32.08	158.77	2,987.6	-782.1	303.9	839.0	0.00	0.00	0.00
3,300.0	32.08	158.77	3,072.3	-831.6	323.1	892.1	0.00	0.00	0.00
3,400.0	32.08	158.77	3,157.1	-881.1	342.3	945.2	0.00	0.00	0.00
3,500.0	32.08	158.77	3,241.8	-930.6	361.6	998.4	0.00	0.00	0.00
3,600.0	32.08	158.77	3,326.5	-980.1	380.8	1,051.5	0.00	0.00	0.00
3,663.1	32.08	158.77	3,380.0	-1,011.3	392.9	1,085.0	0.00	0.00	0.00
Williams Fork									
3,700.0	32.08	158.77	3,411.3	-1,029.6	400.0	1,104.6	0.00	0.00	0.00
3,800.8	32.08	158.77	3,496.6	-1,079.5	419.4	1,158.1	0.00	0.00	0.00
Start Drop -3.00									
3,900.0	29.10	158.77	3,582.1	-1,126.6	437.7	1,208.6	3.00	-3.00	0.00
4,000.0	26.10	158.77	3,670.7	-1,169.7	454.5	1,254.9	3.00	-3.00	0.00
4,100.0	23.10	158.77	3,761.6	-1,208.5	469.6	1,296.6	3.00	-3.00	0.00
4,200.0	20.10	158.77	3,854.5	-1,242.9	482.9	1,333.4	3.00	-3.00	0.00
4,300.0	17.10	158.77	3,949.3	-1,272.6	494.5	1,365.3	3.00	-3.00	0.00
4,400.0	14.10	158.77	4,045.6	-1,297.7	504.2	1,392.2	3.00	-3.00	0.00
4,500.0	11.10	158.77	4,143.2	-1,318.0	512.1	1,414.0	3.00	-3.00	0.00
4,600.0	8.10	158.77	4,241.8	-1,333.5	518.1	1,430.7	3.00	-3.00	0.00
4,700.0	5.10	158.77	4,341.1	-1,344.3	522.3	1,442.2	3.00	-3.00	0.00

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Well:	41A-14-06-92	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,800.0	2.10	158.77	4,440.9	-1,350.1	524.6	1,448.5	3.00	-3.00	0.00
4,870.1	0.00	0.00	4,511.0	-1,351.3	525.0	1,449.7	3.00	-3.00	0.00
Start 2784.0 hold at 4870.1 MD - Top of Gas - 41A-14-06-92 TGT									
4,900.0	0.00	0.00	4,540.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,000.0	0.00	0.00	4,640.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,100.0	0.00	0.00	4,740.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,200.0	0.00	0.00	4,840.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,300.0	0.00	0.00	4,940.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,400.0	0.00	0.00	5,040.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,500.0	0.00	0.00	5,140.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,240.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,700.0	0.00	0.00	5,340.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,440.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
5,900.0	0.00	0.00	5,540.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,640.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,100.0	0.00	0.00	5,740.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,200.0	0.00	0.00	5,840.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,300.0	0.00	0.00	5,940.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,359.1	0.00	0.00	6,000.0	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
Cameo									
6,400.0	0.00	0.00	6,040.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,500.0	0.00	0.00	6,140.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,240.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,700.0	0.00	0.00	6,340.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,440.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
6,900.0	0.00	0.00	6,540.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,640.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,100.0	0.00	0.00	6,740.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,200.0	0.00	0.00	6,840.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,300.0	0.00	0.00	6,940.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,354.1	0.00	0.00	6,995.0	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
Rollins									
7,400.0	0.00	0.00	7,040.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,500.0	0.00	0.00	7,140.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,600.0	0.00	0.00	7,240.9	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
7,654.1	0.00	0.00	7,295.0	-1,351.3	525.0	1,449.7	0.00	0.00	0.00
TD at 7654.1									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
41A-14-06-92 TGT	0.00	0.00	4,511.0	-1,351.3	525.0	1,626,385.63	2,400,005.64	39° 32' 2.122 N	107° 37' 38.888 W
- hit/miss target									
- Shape									
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,784.0)									

Database:	MasterDB	Local Co-ordinate Reference:	Well 41A-14-06-92
Company:	Ursa Operating Company, LLC	TVD Reference:	41A-14-06-92 @ 5564.4usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	41A-14-06-92 @ 5564.4usft (PAD Est KB)
Site:	Valley Farms L	North Reference:	True
Well:	41A-14-06-92	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,663.1	3,380.0	Williams Fork		0.00	
4,870.1	4,511.0	Top of Gas		0.00	
6,359.1	6,000.0	Cameo		0.00	
7,354.1	6,995.0	Rollins		0.00	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,100.0	1,100.0	0.0	0.0	Start Build 3.00
2,169.4	2,114.4	-271.8	105.6	Start 1631.4 hold at 2169.4 MD
3,800.8	3,496.6	-1,079.5	419.4	Start Drop -3.00
4,870.1	4,511.0	-1,351.3	525.0	Start 2784.0 hold at 4870.1 MD
7,654.1	7,295.0	-1,351.3	525.0	TD at 7654.1



Well Name: 41A-14-06-92
Surface Location: Valley Farms L
North American Datum 1983, US State Plane 1983, Colorado Central Zone
Ground Elevation: 5549.0
+N/-S +E/-W Northing Easting Latitude Longitude
0.0 0.0 1627748.89 2399512.40 39° 32' 15.478 N 107° 37' 45.589 W
PAD Est KB 41A-14-06-92 @ 5564.4usft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.84°
Magnetic Field
Strength: 52116.6snT
Dip Angle: 65.79°
Date: 11/25/2013
Model: IGRF200510

Valley Farms L
41A-14-06-92
Design #1
20:39, November 25 2013

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
41A-14-06-92 TGT	4511.0	-1351.3	525.0	1626385.63	2400005.63	39° 32' 2.122 N	107° 37' 38.888 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	2169.4	32.08	158.77	2114.4	-271.8	105.6	3.00	158.77	291.6	
4	3800.8	32.08	158.77	3496.6	-1079.5	419.4	0.00	0.00	1158.1	
5	4870.1	0.00	0.00	4511.0	-1351.3	525.0	3.00	180.00	1449.7	41A-14-06-92 TGT
6	7654.1	0.00	0.00	7295.0	-1351.3	525.0	0.00	0.00	1449.7	

ANNOTATIONS

TVD	MD	Annotation
1100.0	1100.0	Start Build 3.00
2114.4	2169.4	Start 1631.4 hold at 2169.4 MD
3496.6	3800.8	Start Drop -3.00
4511.0	4870.1	Start 2784.0 hold at 4870.1 MD
7295.0	7654.1	TD at 7654.1

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3380.0	3663.1	Williams Fork	0.00	
4511.0	4870.1	Top of Gas	0.00	
6000.0	6359.1	Cameo	0.00	
6995.0	7354.1	Rollins	0.00	

