



Ursa Operating Company, LLC

**Rockies Region
Valley Farms L
31B-14-6-92**

Wellbore #1

Plan: Design #1

Standard Planning Report

16 April, 2014



Database:	MasterDB	Local Co-ordinate Reference:	Well 31B-14-6-92
Company:	Ursa Operating Company, LLC	TVD Reference:	31B-14-6-92 @ 5564.4usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	31B-14-6-92 @ 5564.4usft (PAD Est KB)
Site:	Valley Farms L	North Reference:	True
Well:	31B-14-6-92	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	31B-14-6-92, SHL LAT: 39.537666229 LONG: -107.629253024					
Well Position	+N/-S	-55.0 usft	Northing:	1,627,760.59 usft	Latitude:	39° 32' 15.598 N
	+E/-W	-98.1 usft	Easting:	2,399,534.49 usft	Longitude:	107° 37' 45.311 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)
	IGRF2010	4/7/2014	9.83	65.76	52,039

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	205.40

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	
2,157.0	31.71	205.40	2,103.9	-257.5	-122.3	3.00	3.00	0.00	205.40	
4,680.1	31.71	205.40	4,250.3	-1,455.5	-691.3	0.00	0.00	0.00	0.00	
5,737.1	0.00	0.00	5,254.2	-1,713.0	-813.6	3.00	-3.00	0.00	180.00	
7,867.9	0.00	0.00	7,385.0	-1,713.0	-813.6	0.00	0.00	0.00	0.00	

Database:	MasterDB	Local Co-ordinate Reference:	Well 31B-14-6-92
Company:	Ursa Operating Company, LLC	TVD Reference:	31B-14-6-92 @ 5564.4usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	31B-14-6-92 @ 5564.4usft (PAD Est KB)
Site:	Valley Farms L	North Reference:	True
Well:	31B-14-6-92	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	205.40	1,200.0	-2.4	-1.1	2.6	3.00	3.00	0.00
1,300.0	6.00	205.40	1,299.6	-9.5	-4.5	10.5	3.00	3.00	0.00
1,400.0	9.00	205.40	1,398.8	-21.2	-10.1	23.5	3.00	3.00	0.00
1,500.0	12.00	205.40	1,497.1	-37.7	-17.9	41.7	3.00	3.00	0.00
1,600.0	15.00	205.40	1,594.3	-58.8	-27.9	65.1	3.00	3.00	0.00
1,700.0	18.00	205.40	1,690.2	-84.4	-40.1	93.5	3.00	3.00	0.00
1,800.0	21.00	205.40	1,784.4	-114.6	-54.4	126.9	3.00	3.00	0.00
1,900.0	24.00	205.40	1,876.8	-149.1	-70.8	165.1	3.00	3.00	0.00
2,000.0	27.00	205.40	1,967.1	-188.0	-89.3	208.2	3.00	3.00	0.00
2,100.0	30.00	205.40	2,054.9	-231.1	-109.8	255.9	3.00	3.00	0.00
2,157.0	31.71	205.40	2,103.9	-257.5	-122.3	285.1	3.00	3.00	0.00
Start 2523.1 hold at 2157.0 MD									
2,200.0	31.71	205.40	2,140.4	-278.0	-132.0	307.7	0.00	0.00	0.00
2,300.0	31.71	205.40	2,225.5	-325.4	-154.6	360.3	0.00	0.00	0.00
2,400.0	31.71	205.40	2,310.6	-372.9	-177.1	412.8	0.00	0.00	0.00
2,500.0	31.71	205.40	2,395.7	-420.4	-199.7	465.4	0.00	0.00	0.00
2,600.0	31.71	205.40	2,480.7	-467.9	-222.2	518.0	0.00	0.00	0.00
2,700.0	31.71	205.40	2,565.8	-515.3	-244.8	570.5	0.00	0.00	0.00
2,800.0	31.71	205.40	2,650.9	-562.8	-267.3	623.1	0.00	0.00	0.00
2,900.0	31.71	205.40	2,735.9	-610.3	-289.9	675.6	0.00	0.00	0.00
3,000.0	31.71	205.40	2,821.0	-657.8	-312.4	728.2	0.00	0.00	0.00
3,100.0	31.71	205.40	2,906.1	-705.3	-334.9	780.8	0.00	0.00	0.00
3,200.0	31.71	205.40	2,991.2	-752.7	-357.5	833.3	0.00	0.00	0.00
3,300.0	31.71	205.40	3,076.2	-800.2	-380.0	885.9	0.00	0.00	0.00
3,400.0	31.71	205.40	3,161.3	-847.7	-402.6	938.4	0.00	0.00	0.00
3,500.0	31.71	205.40	3,246.4	-895.2	-425.1	991.0	0.00	0.00	0.00
3,600.0	31.71	205.40	3,331.5	-942.7	-447.7	1,043.6	0.00	0.00	0.00
3,700.0	31.71	205.40	3,416.5	-990.1	-470.2	1,096.1	0.00	0.00	0.00
3,763.3	31.71	205.40	3,470.4	-1,020.2	-484.5	1,129.4	0.00	0.00	0.00
Williams Fork									
3,800.0	31.71	205.40	3,501.6	-1,037.6	-492.8	1,148.7	0.00	0.00	0.00
3,900.0	31.71	205.40	3,586.7	-1,085.1	-515.3	1,201.3	0.00	0.00	0.00
4,000.0	31.71	205.40	3,671.7	-1,132.6	-537.9	1,253.8	0.00	0.00	0.00
4,100.0	31.71	205.40	3,756.8	-1,180.1	-560.4	1,306.4	0.00	0.00	0.00
4,200.0	31.71	205.40	3,841.9	-1,227.5	-583.0	1,358.9	0.00	0.00	0.00
4,300.0	31.71	205.40	3,927.0	-1,275.0	-605.5	1,411.5	0.00	0.00	0.00
4,400.0	31.71	205.40	4,012.0	-1,322.5	-628.1	1,464.1	0.00	0.00	0.00
4,500.0	31.71	205.40	4,097.1	-1,370.0	-650.6	1,516.6	0.00	0.00	0.00
4,600.0	31.71	205.40	4,182.2	-1,417.4	-673.2	1,569.2	0.00	0.00	0.00
4,680.1	31.71	205.40	4,250.3	-1,455.5	-691.3	1,611.3	0.00	0.00	0.00
Start Drop -3.00									

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Site:	Valley Farms L	North Reference:	True
Well:	31B-14-6-92	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)
4,700.0	31.11	205.40	4,267.3	-1,464.8	-695.7	1,621.7	3.00	-3.00	0.00
4,800.0	28.11	205.40	4,354.2	-1,509.5	-716.9	1,671.1	3.00	-3.00	0.00
4,900.0	25.11	205.40	4,443.6	-1,549.9	-736.1	1,715.9	3.00	-3.00	0.00
5,000.0	22.11	205.40	4,535.2	-1,586.1	-753.3	1,755.9	3.00	-3.00	0.00
5,070.9	19.99	205.40	4,601.4	-1,609.1	-764.2	1,781.4	3.00	-3.00	0.00
Top of Gas									
5,100.0	19.11	205.40	4,628.8	-1,617.9	-768.4	1,791.1	3.00	-3.00	0.00
5,105.3	18.95	205.40	4,633.9	-1,619.5	-769.1	1,792.9	3.00	-3.00	0.00
31B-14-6-92 TGT									
5,200.0	16.11	205.40	4,724.1	-1,645.3	-781.4	1,821.4	3.00	-3.00	0.00
5,300.0	13.11	205.40	4,820.9	-1,668.0	-792.2	1,846.6	3.00	-3.00	0.00
5,400.0	10.11	205.40	4,918.8	-1,686.2	-800.8	1,866.7	3.00	-3.00	0.00
5,500.0	7.11	205.40	5,017.7	-1,699.7	-807.3	1,881.7	3.00	-3.00	0.00
5,600.0	4.11	205.40	5,117.2	-1,708.6	-811.5	1,891.5	3.00	-3.00	0.00
5,700.0	1.11	205.40	5,217.1	-1,712.7	-813.4	1,896.0	3.00	-3.00	0.00
5,737.1	0.00	0.00	5,254.2	-1,713.0	-813.6	1,896.4	3.00	-3.00	0.00
Start 2130.8 hold at 5737.1 MD									
5,800.0	0.00	0.00	5,317.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
5,900.0	0.00	0.00	5,417.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,517.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,100.0	0.00	0.00	5,617.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,200.0	0.00	0.00	5,717.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,300.0	0.00	0.00	5,817.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,400.0	0.00	0.00	5,917.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,500.0	0.00	0.00	6,017.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,573.3	0.00	0.00	6,090.4	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
Cameo									
6,600.0	0.00	0.00	6,117.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,700.0	0.00	0.00	6,217.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,800.0	0.00	0.00	6,317.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
6,900.0	0.00	0.00	6,417.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,000.0	0.00	0.00	6,517.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,100.0	0.00	0.00	6,617.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,200.0	0.00	0.00	6,717.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,300.0	0.00	0.00	6,817.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,400.0	0.00	0.00	6,917.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,500.0	0.00	0.00	7,017.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,568.3	0.00	0.00	7,085.4	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
Rollins									
7,600.0	0.00	0.00	7,117.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,700.0	0.00	0.00	7,217.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,800.0	0.00	0.00	7,317.1	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
7,867.9	0.00	0.00	7,385.0	-1,713.0	-813.6	1,896.4	0.00	0.00	0.00
TD at 7867.9									

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Company:	Ursa Operating Company, LLC	TVD Reference:	31B-14-6-92 @ 5564.4usft (PAD Est KB)
Project:	Rockies Region	MD Reference:	31B-14-6-92 @ 5564.4usft (PAD Est KB)
Site:	Valley Farms L	North Reference:	True
Well:	31B-14-6-92	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
31B-14-6-92 TGT	0.00	0.00	4,601.0	-1,713.0	-813.6	1,626,067.09	2,398,681.00	39° 31' 58.667 N	107° 37' 55.695 W
- plan misses target center by 108.6usft at 5105.3usft MD (4633.9 TVD, -1619.5 N, -769.1 E)									
- Rectangle (sides W100.0 H40.0 D2,784.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
3,763.3	3,470.4	Williams Fork		0.00		
5,070.9	4,601.4	Top of Gas		0.00		
6,573.3	6,090.4	Cameo		0.00		
7,568.3	7,085.4	Rollins		0.00		

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,100.0	1,100.0	0.0	0.0	Start Build 3.00
2,157.0	2,103.9	-257.5	-122.3	Start 2523.1 hold at 2157.0 MD
4,680.1	4,250.3	-1,455.5	-691.3	Start Drop -3.00
5,737.1	5,254.2	-1,713.0	-813.6	Start 2130.8 hold at 5737.1 MD
7,867.9	7,385.0	-1,713.0	-813.6	TD at 7867.9



Well Name: 31B-14-6-92
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 Slot
0.0 0.0 1627760.59 2399534.48 39° 32' 15.598 N 107° 37' 45.311 W
PAD Est KB 31B-14-6-92 @ 5564.4usft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.83°
Magnetic Field
Strength: 52039.1nT
Dip Angle: 65.76°
Date: 4/7/2014
Model: IGRF2010

Valley Farms L
31B-14-6-92
Design #1
7:16, April 16 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
31B-14-6-92 TGT	4601.0	-1713.0	-813.6	1626067.10	2398681.00	39° 31' 58.667 N 107° 37' 55.695 W	Rectangle (Sides: L40.0 W100.0)	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	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	2157.0	31.71	205.40	2103.9	-257.5	-122.3	3.00	205.40	285.1	
4	4680.1	31.71	205.40	4250.3	-1455.5	-691.3	0.00	0.00	1611.3	
5	5737.1	0.00	0.00	5254.2	-1713.0	-813.6	3.00	180.00	1896.4	
6	7867.9	0.00	0.00	7385.0	-1713.0	-813.6	0.00	0.00	1896.4	

ANNOTATIONS

TVD	MD	Annotation
1100.0	1100.0	Start Build 3.00
2103.9	2157.0	Start 2523.1 hold at 2157.0 MD
4250.3	4680.1	Start Drop -3.00
5254.2	5737.1	Start 2130.8 hold at 5737.1 MD
7385.0	7867.9	TD at 7867.9

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3470.4	3763.3	Williams Fork	0.00	
4601.4	5070.9	Top of Gas	0.00	
6090.4	6573.3	Cameo	0.00	
7085.4	7568.3	Rollins	0.00	

