



# **Ursa Operating Company, LLC**

**Rockies Region**

**Valley Farms G**

**Valley Farms G 21A-14-06-92**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**10 May, 2015**



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Valley Farms G 21A-14-06-92
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Valley Farms G 21A-14-06-92 @ 5640.0usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 21A-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 21A-14-06-92	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Rockies Region		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site		Valley Farms G			
Site Position:		Northing:	1,624,165.22 usft	Latitude:	39° 31' 39.977 N
From:	Lat/Long	Easting:	2,399,120.26 usft	Longitude:	107° 37' 49.521 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.34 °

Well	Valley Farms G 21A-14-06-92, SHL: 39.527771479 -107.630422404					
Well Position	+N/-S	0.0 usft	Northing:	1,624,165.21 usft	Latitude:	39° 31' 39.977 N
	+E/-W	0.0 usft	Easting:	2,399,120.26 usft	Longitude:	107° 37' 49.521 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,640.0 usft	Ground Level:	5,623.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	5/3/2015	9.69	65.72	51,925

<b>Design</b>	Design #1				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE		<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	323.96	

<b>Plan Sections</b>										
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	
2,205.8	38.70	323.96	2,123.6	290.7	-211.5	3.50	3.50	0.00	323.96	
5,362.9	38.70	323.96	4,587.4	1,886.9	-1,372.9	0.00	0.00	0.00	0.00	
6,468.6	0.00	0.00	5,611.0	2,177.5	-1,584.4	3.50	-3.50	0.00	180.00	
8,378.6	0.00	0.00	7,521.0	2,177.5	-1,584.4	0.00	0.00	0.00	0.00	

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 21A-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 21A-14-06-92	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
Surface Casing									
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.50									
1,200.0	3.50	323.96	1,199.9	2.5	-1.8	3.1	3.50	3.50	0.00
1,300.0	7.00	323.96	1,299.5	9.9	-7.2	12.2	3.50	3.50	0.00
1,400.0	10.50	323.96	1,398.3	22.2	-16.1	27.4	3.50	3.50	0.00
1,500.0	14.00	323.96	1,496.0	39.3	-28.6	48.6	3.50	3.50	0.00
1,600.0	17.50	323.96	1,592.3	61.3	-44.6	75.8	3.50	3.50	0.00
1,700.0	21.00	323.96	1,686.7	87.9	-64.0	108.7	3.50	3.50	0.00
1,800.0	24.50	323.96	1,778.9	119.2	-86.7	147.4	3.50	3.50	0.00
1,900.0	28.00	323.96	1,868.5	154.9	-112.7	191.6	3.50	3.50	0.00
2,000.0	31.50	323.96	1,955.3	195.1	-141.9	241.2	3.50	3.50	0.00
2,100.0	35.00	323.96	2,039.0	239.4	-174.2	296.1	3.50	3.50	0.00
2,205.8	38.70	323.96	2,123.6	290.7	-211.5	359.5	3.50	3.50	0.00
Start 3157.1 hold at 2205.8 MD									
2,300.0	38.70	323.96	2,197.1	338.3	-246.2	418.4	0.00	0.00	0.00
2,400.0	38.70	323.96	2,275.2	388.9	-283.0	480.9	0.00	0.00	0.00
2,500.0	38.70	323.96	2,353.2	439.4	-319.7	543.4	0.00	0.00	0.00
2,600.0	38.70	323.96	2,431.2	490.0	-356.5	606.0	0.00	0.00	0.00
2,700.0	38.70	323.96	2,509.3	540.6	-393.3	668.5	0.00	0.00	0.00
2,800.0	38.70	323.96	2,587.3	591.1	-430.1	731.0	0.00	0.00	0.00
2,900.0	38.70	323.96	2,665.4	641.7	-466.9	793.6	0.00	0.00	0.00
3,000.0	38.70	323.96	2,743.4	692.2	-503.7	856.1	0.00	0.00	0.00
3,100.0	38.70	323.96	2,821.4	742.8	-540.5	918.6	0.00	0.00	0.00
3,200.0	38.70	323.96	2,899.5	793.3	-577.2	981.1	0.00	0.00	0.00
3,300.0	38.70	323.96	2,977.5	843.9	-614.0	1,043.7	0.00	0.00	0.00
3,400.0	38.70	323.96	3,055.6	894.5	-650.8	1,106.2	0.00	0.00	0.00
3,500.0	38.70	323.96	3,133.6	945.0	-687.6	1,168.7	0.00	0.00	0.00
3,600.0	38.70	323.96	3,211.7	995.6	-724.4	1,231.2	0.00	0.00	0.00
3,700.0	38.70	323.96	3,289.7	1,046.1	-761.2	1,293.8	0.00	0.00	0.00
3,800.0	38.70	323.96	3,367.7	1,096.7	-798.0	1,356.3	0.00	0.00	0.00
3,900.0	38.70	323.96	3,445.8	1,147.3	-834.8	1,418.8	0.00	0.00	0.00
4,000.0	38.70	323.96	3,523.8	1,197.8	-871.5	1,481.3	0.00	0.00	0.00
4,100.0	38.70	323.96	3,601.9	1,248.4	-908.3	1,543.9	0.00	0.00	0.00
4,200.0	38.70	323.96	3,679.9	1,298.9	-945.1	1,606.4	0.00	0.00	0.00
4,274.4	38.70	323.96	3,738.0	1,336.6	-972.5	1,652.9	0.00	0.00	0.00
Williams Fork									
4,300.0	38.70	323.96	3,757.9	1,349.5	-981.9	1,668.9	0.00	0.00	0.00
4,400.0	38.70	323.96	3,836.0	1,400.1	-1,018.7	1,731.4	0.00	0.00	0.00
4,500.0	38.70	323.96	3,914.0	1,450.6	-1,055.5	1,794.0	0.00	0.00	0.00
4,600.0	38.70	323.96	3,992.1	1,501.2	-1,092.3	1,856.5	0.00	0.00	0.00

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 21A-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 21A-14-06-92	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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	38.70	323.96	4,070.1	1,551.7	-1,129.1	1,919.0	0.00	0.00	0.00
4,800.0	38.70	323.96	4,148.2	1,602.3	-1,165.8	1,981.6	0.00	0.00	0.00
4,900.0	38.70	323.96	4,226.2	1,652.9	-1,202.6	2,044.1	0.00	0.00	0.00
5,000.0	38.70	323.96	4,304.2	1,703.4	-1,239.4	2,106.6	0.00	0.00	0.00
5,100.0	38.70	323.96	4,382.3	1,754.0	-1,276.2	2,169.1	0.00	0.00	0.00
5,200.0	38.70	323.96	4,460.3	1,804.5	-1,313.0	2,231.7	0.00	0.00	0.00
5,300.0	38.70	323.96	4,538.4	1,855.1	-1,349.8	2,294.2	0.00	0.00	0.00
5,362.9	38.70	323.96	4,587.4	1,886.9	-1,372.9	2,333.5	0.00	0.00	0.00
<b>Start Drop -3.50</b>									
5,400.0	37.40	323.96	4,616.7	1,905.4	-1,386.4	2,356.4	3.50	-3.50	0.00
5,500.0	33.90	323.96	4,697.9	1,952.5	-1,420.7	2,414.7	3.50	-3.50	0.00
5,600.0	30.40	323.96	4,782.6	1,995.5	-1,452.0	2,467.9	3.50	-3.50	0.00
5,700.0	26.90	323.96	4,870.3	2,034.3	-1,480.2	2,515.8	3.50	-3.50	0.00
5,800.0	23.40	323.96	4,960.8	2,068.7	-1,505.2	2,558.3	3.50	-3.50	0.00
5,881.1	20.56	323.96	5,036.0	2,093.2	-1,523.0	2,588.7	3.50	-3.50	0.00
<b>Top of Gas</b>									
5,900.0	19.90	323.96	5,053.7	2,098.5	-1,526.9	2,595.2	3.50	-3.50	0.00
6,000.0	16.40	323.96	5,148.7	2,123.7	-1,545.2	2,626.3	3.50	-3.50	0.00
6,100.0	12.90	323.96	5,245.5	2,144.1	-1,560.1	2,651.6	3.50	-3.50	0.00
6,200.0	9.40	323.96	5,343.6	2,159.8	-1,571.5	2,671.0	3.50	-3.50	0.00
6,300.0	5.90	323.96	5,442.7	2,170.5	-1,579.3	2,684.3	3.50	-3.50	0.00
6,400.0	2.40	323.96	5,542.4	2,176.4	-1,583.6	2,691.5	3.50	-3.50	0.00
6,468.6	0.00	0.00	5,611.0	2,177.5	-1,584.4	2,693.0	3.50	-3.50	0.00
<b>Back to Vertical - Start 1910.0 hold at 6468.6 MD</b>									
6,500.0	0.00	0.00	5,642.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
6,600.0	0.00	0.00	5,742.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
6,700.0	0.00	0.00	5,842.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
6,800.0	0.00	0.00	5,942.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,042.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,142.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,082.6	0.00	0.00	6,225.0	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
<b>Cameo</b>									
7,100.0	0.00	0.00	6,242.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,342.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,300.0	0.00	0.00	6,442.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,400.0	0.00	0.00	6,542.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,500.0	0.00	0.00	6,642.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,600.0	0.00	0.00	6,742.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,700.0	0.00	0.00	6,842.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,800.0	0.00	0.00	6,942.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,042.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
8,000.0	0.00	0.00	7,142.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
8,078.6	0.00	0.00	7,221.0	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
<b>Rollins</b>									
8,100.0	0.00	0.00	7,242.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
8,200.0	0.00	0.00	7,342.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
8,300.0	0.00	0.00	7,442.4	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
8,378.5	0.00	0.00	7,520.9	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
<b>BHL: 39.5337496, -107.6360399</b>									
8,378.6	0.00	0.00	7,521.0	2,177.5	-1,584.4	2,693.0	0.00	0.00	0.00
<b>TD at 8378.6</b>									

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<b>Well:</b>	Valley Farms G 21A-14-06-92	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

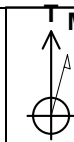
Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
Valley Farms G 21A-14-1	0.00	0.00	5,036.0	2,177.5	-1,584.4	1,626,379.31	2,397,587.35	39° 32' 1.499 N	107° 38' 9.744 W
- plan misses target center by 98.1usft at 5913.6usft MD (5066.6 TVD, 2102.2 N, -1529.6 E)									
- Rectangle (sides W100.0 H40.0 D2,485.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
4,274.4	3,738.0	Williams Fork		0.00		
5,881.1	5,036.0	Top of Gas		0.00		
7,082.6	6,225.0	Cameo		0.00		
8,078.6	7,221.0	Rollins		0.00		

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,000.0	1,000.0	0.0	0.0	Surface Casing
1,100.0	1,100.0	0.0	0.0	Start Build 3.50
2,205.8	2,123.6	290.7	-211.5	Start 3157.1 hold at 2205.8 MD
5,362.9	4,587.4	1,886.9	-1,372.9	Start Drop -3.50
6,468.6	5,611.0	2,177.5	-1,584.4	Back to Vertical
6,468.6	5,611.0	2,177.5	-1,584.4	Start 1910.0 hold at 6468.6 MD
8,378.5	7,520.9	2,177.5	-1,584.4	BHL: 39.5337496, -107.6360399
8,378.6	7,521.0	2,177.5	-1,584.4	TD at 8378.6



Well Name: Valley Farms G 21A-14-06-92  
Surface Location: Valley Farms G  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 5623.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1624165.22 2399120.26 39° 31' 39.977 N 107° 37' 49.521 W  
PLAN KB Valley Farms G 21A-14-06-92 @ 5640.0usft (PLAN KB)



Azimuths to True North  
Magnetic North: 9.69°  
Magnetic Field  
Strength: 51924.5snT  
Dip Angle: 65.72°  
Date: 5/3/2015  
Model: IGRF2010

Valley Farms G  
Valley Farms G 21A-14-06-92  
Design #1  
16:42, May 10 2015

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Valley Farms G 21A-14-06-92 TGT	5036.0	2177.5	-1584.4	1626379.31	2397587.34	39° 32' 1.499 N	107° 38' 9.744 W	Rectangle (Sides: L40.0 W100.0)

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	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	2205.8	38.70	323.96	2123.6	290.7	-211.5	3.50	323.96	359.5	
4	5362.9	38.70	323.96	4587.4	1886.9	-1372.9	0.00	0.00	2333.5	
5	6468.6	0.00	0.00	5611.0	2177.5	-1584.4	3.50	180.00	2693.0	
6	8378.6	0.00	0.00	7521.0	2177.5	-1584.4	0.00	0.00	2693.0	

#### ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	Surface Casing
1100.0	1100.0	Start Build 3.50
2123.6	2205.8	Start 3157.1 hold at 2205.8 MD
4587.4	5362.9	Start Drop -3.50
5611.0	6468.6	Back to Vertical
5611.0	6468.6	Start 1910.0 hold at 6468.6 MD
7520.9	8378.5	BHL: 39.5337496, -107.6360399
7521.0	8378.6	TD at 8378.6

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3738.0	4274.4	Williams Fork	0.00	
5036.0	5881.1	Top of Gas	0.00	
6225.0	7082.6	Cameo	0.00	
7221.0	8078.6	Rollins	0.00	

