



# **Ursa Operating Company, LLC**

**Rockies Region**

**Valley Farms G**

**Valley Farms G 22C-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 22C-14-06-92
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Valley Farms G 22C-14-06-92 @ 5640.0usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 22C-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 22C-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 22C-14-06-92, SHL: 39.527648216 -107.630502786					
Well Position	+N/-S	-44.9 usft	Northing:	1,624,120.86 usft	Latitude:	39° 31' 39.534 N
	+E/-W	-22.7 usft	Easting:	2,399,096.54 usft	Longitude:	107° 37' 49.810 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	51,924

<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	279.10	

<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	
1,075.0	0.00	0.00	1,075.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,175.0	3.50	270.00	1,174.9	0.0	-3.1	3.50	3.50	0.00	270.00	
1,821.8	26.09	279.24	1,796.3	23.1	-165.3	3.50	3.49	1.43	10.57	
4,500.6	26.09	279.24	4,202.2	212.3	-1,327.9	0.00	0.00	0.00	0.00	
5,370.1	0.00	0.00	5,042.0	243.5	-1,520.0	3.00	-3.00	0.00	180.00	Valley Farms G 22C-1
7,855.1	0.00	0.00	7,527.0	243.5	-1,520.0	0.00	0.00	0.00	0.00	

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<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 22C-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
<b>Surface Casing</b>									
1,075.0	0.00	0.00	1,075.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>Start Build 3.50</b>									
1,100.0	0.88	270.00	1,100.0	0.0	-0.2	0.2	3.50	3.50	0.00
1,175.0	3.50	270.00	1,174.9	0.0	-3.1	3.0	3.50	3.50	0.00
<b>Start DLS 3.50 TFO 10.57</b>									
1,200.0	4.36	272.11	1,199.9	0.0	-4.8	4.7	3.50	3.45	8.44
1,300.0	7.84	275.89	1,299.3	0.9	-15.4	15.3	3.50	3.48	3.78
1,400.0	11.33	277.35	1,397.9	2.8	-31.9	31.9	3.50	3.49	1.46
1,500.0	14.83	278.13	1,495.3	5.9	-54.3	54.6	3.50	3.50	0.78
1,600.0	18.33	278.61	1,591.1	10.1	-82.5	83.1	3.50	3.50	0.49
1,700.0	21.82	278.95	1,685.0	15.3	-116.5	117.4	3.50	3.50	0.34
1,800.0	25.32	279.20	1,776.7	21.6	-155.9	157.4	3.50	3.50	0.25
1,821.8	26.09	279.24	1,796.3	23.1	-165.3	166.9	3.50	3.50	0.21
<b>Start 2678.7 hold at 1821.8 MD</b>									
1,900.0	26.09	279.24	1,866.5	28.7	-199.2	201.2	0.00	0.00	0.00
2,000.0	26.09	279.24	1,956.3	35.7	-242.6	245.2	0.00	0.00	0.00
2,100.0	26.09	279.24	2,046.2	42.8	-286.0	289.2	0.00	0.00	0.00
2,200.0	26.09	279.24	2,136.0	49.8	-329.4	333.2	0.00	0.00	0.00
2,300.0	26.09	279.24	2,225.8	56.9	-372.8	377.1	0.00	0.00	0.00
2,400.0	26.09	279.24	2,315.6	64.0	-416.2	421.1	0.00	0.00	0.00
2,500.0	26.09	279.24	2,405.4	71.0	-459.6	465.1	0.00	0.00	0.00
2,600.0	26.09	279.24	2,495.2	78.1	-503.0	509.1	0.00	0.00	0.00
2,700.0	26.09	279.24	2,585.0	85.1	-546.4	553.0	0.00	0.00	0.00
2,800.0	26.09	279.24	2,674.8	92.2	-589.8	597.0	0.00	0.00	0.00
2,900.0	26.09	279.24	2,764.7	99.3	-633.2	641.0	0.00	0.00	0.00
3,000.0	26.09	279.24	2,854.5	106.3	-676.6	684.9	0.00	0.00	0.00
3,100.0	26.09	279.24	2,944.3	113.4	-720.0	728.9	0.00	0.00	0.00
3,200.0	26.09	279.24	3,034.1	120.5	-763.5	772.9	0.00	0.00	0.00
3,300.0	26.09	279.24	3,123.9	127.5	-806.9	816.9	0.00	0.00	0.00
3,400.0	26.09	279.24	3,213.7	134.6	-850.3	860.8	0.00	0.00	0.00
3,500.0	26.09	279.24	3,303.5	141.6	-893.7	904.8	0.00	0.00	0.00
3,600.0	26.09	279.24	3,393.3	148.7	-937.1	948.8	0.00	0.00	0.00
3,700.0	26.09	279.24	3,483.2	155.8	-980.5	992.8	0.00	0.00	0.00
3,800.0	26.09	279.24	3,573.0	162.8	-1,023.9	1,036.7	0.00	0.00	0.00
3,900.0	26.09	279.24	3,662.8	169.9	-1,067.3	1,080.7	0.00	0.00	0.00
3,990.4	26.09	279.24	3,744.0	176.3	-1,106.5	1,120.5	0.00	0.00	0.00
<b>Williams Fork</b>									
4,000.0	26.09	279.24	3,752.6	176.9	-1,110.7	1,124.7	0.00	0.00	0.00
4,100.0	26.09	279.24	3,842.4	184.0	-1,154.1	1,168.7	0.00	0.00	0.00

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 22C-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 22C-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)
4,200.0	26.09	279.24	3,932.2	191.1	-1,197.5	1,212.6	0.00	0.00	0.00
4,300.0	26.09	279.24	4,022.0	198.1	-1,240.9	1,256.6	0.00	0.00	0.00
4,400.0	26.09	279.24	4,111.8	205.2	-1,284.3	1,300.6	0.00	0.00	0.00
4,500.6	26.09	279.24	4,202.2	212.3	-1,327.9	1,344.8	0.00	0.00	0.00
Start Drop -3.00									
4,600.0	23.10	279.24	4,292.6	218.9	-1,368.8	1,386.2	3.00	-3.00	0.00
4,700.0	20.10	279.24	4,385.5	224.8	-1,405.1	1,423.0	3.00	-3.00	0.00
4,800.0	17.10	279.24	4,480.3	230.0	-1,436.6	1,454.9	3.00	-3.00	0.00
4,900.0	14.10	279.24	4,576.6	234.3	-1,463.1	1,481.8	3.00	-3.00	0.00
5,000.0	11.10	279.24	4,674.2	237.8	-1,484.7	1,503.6	3.00	-3.00	0.00
5,100.0	8.10	279.24	4,772.8	240.5	-1,501.1	1,520.3	3.00	-3.00	0.00
5,200.0	5.10	279.24	4,872.1	242.3	-1,512.5	1,531.8	3.00	-3.00	0.00
5,300.0	2.10	279.24	4,971.9	243.3	-1,518.7	1,538.1	3.00	-3.00	0.00
5,370.1	0.00	0.00	5,042.0	243.5	-1,520.0	1,539.4	3.00	-3.00	0.00
Start 2485.0 hold at 5370.1 MD - Back to Vertical - Top of Gas									
5,400.0	0.00	0.00	5,071.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
5,500.0	0.00	0.00	5,171.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
5,600.0	0.00	0.00	5,271.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
5,700.0	0.00	0.00	5,371.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
5,800.0	0.00	0.00	5,471.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
5,900.0	0.00	0.00	5,571.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,000.0	0.00	0.00	5,671.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,100.0	0.00	0.00	5,771.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,200.0	0.00	0.00	5,871.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,300.0	0.00	0.00	5,971.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,400.0	0.00	0.00	6,071.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,500.0	0.00	0.00	6,171.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,559.1	0.00	0.00	6,231.0	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
Cameo									
6,600.0	0.00	0.00	6,271.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,700.0	0.00	0.00	6,371.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,800.0	0.00	0.00	6,471.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
6,900.0	0.00	0.00	6,571.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,000.0	0.00	0.00	6,671.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,100.0	0.00	0.00	6,771.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,200.0	0.00	0.00	6,871.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,300.0	0.00	0.00	6,971.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,400.0	0.00	0.00	7,071.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,500.0	0.00	0.00	7,171.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,555.1	0.00	0.00	7,227.0	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
Rollins									
7,600.0	0.00	0.00	7,271.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,700.0	0.00	0.00	7,371.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,800.0	0.00	0.00	7,471.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
7,855.0	0.00	0.00	7,526.9	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
BHL: 39.5283167, -107.6358914									
7,855.1	0.00	0.00	7,527.0	243.5	-1,520.0	1,539.4	0.00	0.00	0.00
TD at 7855.1 - TD									

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 22C-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 22C-14-06-92	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

#### Design Targets

##### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
Valley Farms G 22C-14- - plan hits target center - Rectangle (sides W100.0 H40.0 D2,485.0)	0.00	0.00	5,042.0	243.5	-1,520.0	1,624,399.97	2,397,582.70	39° 31' 41.940 N	107° 38' 9.209 W

#### Formations

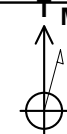
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,990.4	3,744.0	Williams Fork		0.00	
5,370.1	5,042.0	Top of Gas		0.00	
6,559.1	6,231.0	Cameo		0.00	
7,555.1	7,227.0	Rollins		0.00	
7,855.1	7,527.0	TD		0.00	

#### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,000.0	1,000.0	0.0	0.0	Surface Casing
1,075.0	1,075.0	0.0	0.0	Start Build 3.50
1,175.0	1,174.9	0.0	-3.1	Start DLS 3.50 TFO 10.57
1,821.8	1,796.3	23.1	-165.3	Start 2678.7 hold at 1821.8 MD
4,500.6	4,202.2	212.3	-1,327.9	Start Drop -3.00
5,370.1	5,042.0	243.5	-1,520.0	Start 2485.0 hold at 5370.1 MD
5,370.1	5,042.0	243.5	-1,520.0	Back to Vertical
7,855.0	7,526.9	243.5	-1,520.0	BHL: 39.5283167, -107.6358914
7,855.1	7,527.0	243.5	-1,520.0	TD at 7855.1



Well Name: Valley Farms G 22C-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 1624120.87 2399096.54 39° 31' 39.534 N 107° 37' 49.810 W  
PLAN KB Valley Farms G 22C-14-06-92 @ 5640.0usft (PLAN KB)



Azimuths to True North  
Magnetic North: 9.69°  
Magnetic Field  
Strength: 51924.4snT  
Dip Angle: 65.72°  
Date: 5/3/2015  
Model: IGRF2010

Valley Farms G  
Valley Farms G 22C-14-06-92  
Design #1  
17:10, 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 22C-14-06-92	5042.0	243.5	-1520.0	1624399.98	2397582.639	39° 31' 41.940 N	107° 38' 9.209 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	1075.0	0.00	0.00	1075.0	0.0	0.0	0.00	0.00	0.0	
3	1175.0	3.50	270.00	1174.9	0.0	-3.1	3.50	270.00	3.0	
4	1821.8	26.09	279.24	1796.3	23.1	-165.3	3.50	10.57	166.9	
5	4500.6	26.09	279.24	4202.2	212.3	-1327.9	0.00	0.00	1344.8	
6	5370.1	0.00	0.00	5042.0	243.5	-1520.0	3.00	180.00	1539.4	Valley Farms G 22C-14-06-92 TGT
7	7855.1	0.00	0.00	7527.0	243.5	-1520.0	0.00	0.00	1539.4	

#### ANNOTATIONS

TVD	MD	Annotation
1000.0	1000.0	Surface Casing
1075.0	1075.0	Start Build 3.50
1174.9	1175.0	Start DLS 3.50 TFO 10.57
1796.3	1821.8	Start 2678.7 hold at 1821.8 MD
4202.2	4500.6	Start Drop -3.00
5042.0	5370.1	Start 2485.0 hold at 5370.1 MD
5042.0	5370.1	Back to Vertical
7526.9	7855.0	BHL: 39.5283167, -107.6358914
7527.0	7855.1	TD at 7855.1

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3744.0	3990.4	Williams Fork	0.00	
5042.0	5370.1	Top of Gas	0.00	
6231.0	6559.1	Cameo	0.00	
7227.0	7555.1	Rollins	0.00	

