



# **Ursa Operating Company, LLC**

**Rockies Region**

**Valley Farms G**

**Valley Farms G 21B-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 21B-14-06-92
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Valley Farms G 21B-14-06-92 @ 5640.0usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 21B-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 21B-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 21B-14-06-92, SHL: 39.527689139 -107.630422829					
Well Position	+N/-S	-30.0 usft	Northing:	1,624,135.24 usft	Latitude:	39° 31' 39.681 N
	+E/-W	-0.1 usft	Easting:	2,399,119.44 usft	Longitude:	107° 37' 49.522 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	319.62	

<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	308.00	1,174.9	1.9	-2.4	3.50	3.50	0.00	308.00	
2,081.2	35.14	319.77	2,019.4	223.7	-197.6	3.50	3.49	1.30	12.91	
5,325.9	35.14	319.77	4,672.9	1,649.4	-1,403.6	0.00	0.00	0.00	0.00	
6,329.7	0.00	0.00	5,615.0	1,877.1	-1,596.2	3.50	-3.50	0.00	180.00	
8,239.7	0.00	0.00	7,525.0	1,877.1	-1,596.2	0.00	0.00	0.00	0.00	

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 21B-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 21B-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									
1,075.0	0.00	0.00	1,075.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.50									
1,100.0	0.88	308.00	1,100.0	0.1	-0.2	0.2	3.50	3.50	0.00
1,175.0	3.50	308.00	1,174.9	1.9	-2.4	3.0	3.50	3.50	0.00
Start DLS 3.50 TFO 12.91									
1,200.0	4.36	310.57	1,199.9	3.0	-3.7	4.7	3.50	3.43	10.29
1,300.0	7.83	315.19	1,299.3	10.3	-11.4	15.2	3.50	3.47	4.62
1,400.0	11.31	316.97	1,397.9	22.3	-22.9	31.8	3.50	3.49	1.79
1,500.0	14.81	317.93	1,495.3	38.9	-38.2	54.4	3.50	3.49	0.95
1,600.0	18.30	318.52	1,591.1	60.2	-57.1	82.9	3.50	3.50	0.59
1,700.0	21.80	318.93	1,685.1	86.0	-79.7	117.1	3.50	3.50	0.41
1,800.0	25.30	319.23	1,776.7	116.2	-105.9	157.1	3.50	3.50	0.30
1,900.0	28.80	319.46	1,865.8	150.6	-135.5	202.6	3.50	3.50	0.23
2,000.0	32.30	319.65	1,951.9	189.3	-168.5	253.4	3.50	3.50	0.19
2,081.2	35.14	319.77	2,019.4	223.7	-197.6	298.4	3.50	3.50	0.16
Start 3244.7 hold at 2081.2 MD									
2,100.0	35.14	319.77	2,034.8	232.0	-204.6	309.3	0.00	0.00	0.00
2,200.0	35.14	319.77	2,116.6	275.9	-241.8	366.8	0.00	0.00	0.00
2,300.0	35.14	319.77	2,198.3	319.8	-278.9	424.4	0.00	0.00	0.00
2,400.0	35.14	319.77	2,280.1	363.8	-316.1	481.9	0.00	0.00	0.00
2,500.0	35.14	319.77	2,361.9	407.7	-353.3	539.5	0.00	0.00	0.00
2,600.0	35.14	319.77	2,443.7	451.7	-390.4	597.0	0.00	0.00	0.00
2,700.0	35.14	319.77	2,525.5	495.6	-427.6	654.6	0.00	0.00	0.00
2,800.0	35.14	319.77	2,607.2	539.5	-464.8	712.1	0.00	0.00	0.00
2,900.0	35.14	319.77	2,689.0	583.5	-502.0	769.7	0.00	0.00	0.00
3,000.0	35.14	319.77	2,770.8	627.4	-539.1	827.2	0.00	0.00	0.00
3,100.0	35.14	319.77	2,852.6	671.4	-576.3	884.8	0.00	0.00	0.00
3,200.0	35.14	319.77	2,934.4	715.3	-613.5	942.3	0.00	0.00	0.00
3,300.0	35.14	319.77	3,016.1	759.2	-650.6	999.9	0.00	0.00	0.00
3,400.0	35.14	319.77	3,097.9	803.2	-687.8	1,057.4	0.00	0.00	0.00
3,500.0	35.14	319.77	3,179.7	847.1	-725.0	1,115.0	0.00	0.00	0.00
3,600.0	35.14	319.77	3,261.5	891.1	-762.1	1,172.5	0.00	0.00	0.00
3,700.0	35.14	319.77	3,343.3	935.0	-799.3	1,230.1	0.00	0.00	0.00
3,800.0	35.14	319.77	3,425.0	978.9	-836.5	1,287.6	0.00	0.00	0.00
3,900.0	35.14	319.77	3,506.8	1,022.9	-873.6	1,345.2	0.00	0.00	0.00
4,000.0	35.14	319.77	3,588.6	1,066.8	-910.8	1,402.7	0.00	0.00	0.00
4,100.0	35.14	319.77	3,670.4	1,110.8	-948.0	1,460.3	0.00	0.00	0.00
4,187.6	35.14	319.77	3,742.0	1,149.2	-980.5	1,510.7	0.00	0.00	0.00
Williams Fork									

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<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 21B-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	35.14	319.77	3,752.1	1,154.7	-985.1	1,517.8	0.00	0.00	0.00	
4,300.0	35.14	319.77	3,833.9	1,198.6	-1,022.3	1,575.4	0.00	0.00	0.00	
4,400.0	35.14	319.77	3,915.7	1,242.6	-1,059.5	1,632.9	0.00	0.00	0.00	
4,500.0	35.14	319.77	3,997.5	1,286.5	-1,096.6	1,690.5	0.00	0.00	0.00	
4,600.0	35.14	319.77	4,079.3	1,330.5	-1,133.8	1,748.0	0.00	0.00	0.00	
4,700.0	35.14	319.77	4,161.0	1,374.4	-1,171.0	1,805.6	0.00	0.00	0.00	
4,800.0	35.14	319.77	4,242.8	1,418.3	-1,208.1	1,863.1	0.00	0.00	0.00	
4,900.0	35.14	319.77	4,324.6	1,462.3	-1,245.3	1,920.7	0.00	0.00	0.00	
5,000.0	35.14	319.77	4,406.4	1,506.2	-1,282.5	1,978.2	0.00	0.00	0.00	
5,100.0	35.14	319.77	4,488.2	1,550.2	-1,319.6	2,035.8	0.00	0.00	0.00	
5,200.0	35.14	319.77	4,569.9	1,594.1	-1,356.8	2,093.3	0.00	0.00	0.00	
5,300.0	35.14	319.77	4,651.7	1,638.0	-1,394.0	2,150.9	0.00	0.00	0.00	
5,325.9	35.14	319.77	4,672.9	1,649.4	-1,403.6	2,165.8	0.00	0.00	0.00	
<b>Start Drop -3.50</b>										
5,400.0	32.54	319.77	4,734.4	1,680.9	-1,430.2	2,207.0	3.50	-3.50	0.00	
5,500.0	29.04	319.77	4,820.3	1,720.0	-1,463.3	2,258.2	3.50	-3.50	0.00	
5,600.0	25.54	319.77	4,909.2	1,755.0	-1,492.9	2,304.1	3.50	-3.50	0.00	
5,700.0	22.04	319.77	5,000.7	1,785.8	-1,518.9	2,344.4	3.50	-3.50	0.00	
5,742.2	20.56	319.77	5,040.0	1,797.5	-1,528.8	2,359.7	3.50	-3.50	0.00	
<b>Top of Gas</b>										
5,800.0	18.54	319.77	5,094.5	1,812.3	-1,541.3	2,379.1	3.50	-3.50	0.00	
5,900.0	15.04	319.77	5,190.2	1,834.3	-1,560.0	2,408.0	3.50	-3.50	0.00	
6,000.0	11.54	319.77	5,287.5	1,851.9	-1,574.8	2,430.9	3.50	-3.50	0.00	
6,100.0	8.04	319.77	5,386.0	1,864.8	-1,585.8	2,447.9	3.50	-3.50	0.00	
6,200.0	4.54	319.77	5,485.4	1,873.2	-1,592.9	2,458.9	3.50	-3.50	0.00	
6,300.0	1.04	319.77	5,585.3	1,876.9	-1,596.0	2,463.8	3.50	-3.50	0.00	
6,329.7	0.00	0.00	5,615.0	1,877.1	-1,596.2	2,464.0	3.50	-3.50	0.00	
<b>Start 1910.0 hold at 6329.7 MD - Back to Vertical</b>										
6,400.0	0.00	0.00	5,685.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
6,500.0	0.00	0.00	5,785.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
6,600.0	0.00	0.00	5,885.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
6,700.0	0.00	0.00	5,985.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,085.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,185.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
6,943.7	0.00	0.00	6,229.0	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
<b>Cameo</b>										
7,000.0	0.00	0.00	6,285.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,100.0	0.00	0.00	6,385.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,200.0	0.00	0.00	6,485.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,300.0	0.00	0.00	6,585.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,400.0	0.00	0.00	6,685.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,500.0	0.00	0.00	6,785.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,600.0	0.00	0.00	6,885.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,700.0	0.00	0.00	6,985.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,085.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,185.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
7,939.7	0.00	0.00	7,225.0	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
<b>Rollins</b>										
8,000.0	0.00	0.00	7,285.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
8,100.0	0.00	0.00	7,385.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,485.3	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00	

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<b>Well:</b>	Valley Farms G 21B-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)
8,239.6	0.00	0.00	7,524.9	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00
<b>BHL: 39.5328425, -107.6360821</b>									
8,239.7	0.00	0.00	7,525.0	1,877.1	-1,596.2	2,464.0	0.00	0.00	0.00
<b>TD at 8239.7 - TD</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Valley Farms G 21B-14-06-92	0.00	0.00	5,040.0	1,877.1	-1,596.2	1,626,049.28	2,397,567.68	39° 31' 58.233 N	107° 38' 9.896 W
- plan misses target center by 98.0usft at 5777.1usft MD (5072.8 TVD, 1806.6 N, -1536.5 E)									
- Rectangle (sides W100.0 H40.0 D2,485.0)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,187.6	3,742.0	Williams Fork		0.00		
5,742.2	5,040.0	Top of Gas		0.00		
6,943.7	6,229.0	Cameo		0.00		
7,939.7	7,225.0	Rollins		0.00		
8,239.7	7,525.0	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	1.9	-2.4	Start DLS 3.50 TFO 12.91
2,081.2	2,019.4	223.7	-197.6	Start 3244.7 hold at 2081.2 MD
5,325.9	4,672.9	1,649.4	-1,403.6	Start Drop -3.50
6,329.7	5,615.0	1,877.1	-1,596.2	Start 1910.0 hold at 6329.7 MD
6,329.7	5,615.0	1,877.1	-1,596.2	Back to Vertical
8,239.6	7,524.9	1,877.1	-1,596.2	BHL: 39.5328425, -107.6360821
8,239.7	7,525.0	1,877.1	-1,596.2	TD at 8239.7



Well Name: Valley Farms G 21B-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 0.0 +E/-W 0.0 Northing 1624135.24 Easting 2399119.43 Latitude 39° 31' 39.681 N Longitude 107° 37' 49.522 W  
PLAN KB Valley Farms G 21B-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 21B-14-06-92  
Design #1  
16:50, 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 21B-14-06-92	5040.0	1877.1	-1596.2	1626049.28	2397567.639	39° 31' 58.233 N	107° 38' 9.896 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	1075.0	0.00	0.00	1075.0	0.0	0.0	0.00	0.00	0.0	
3	1175.0	3.50	308.00	1174.9	1.9	-2.4	3.50	308.00	3.0	
4	2081.2	35.14	319.77	2019.4	223.7	-197.6	3.50	12.91	298.4	
5	5325.9	35.14	319.77	4672.9	1649.4	-1403.6	0.00	0.00	2165.8	
6	6329.7	0.00	0.00	5615.0	1877.1	-1596.2	3.50	180.00	2464.0	
7	8239.7	0.00	0.00	7525.0	1877.1	-1596.2	0.00	0.00	2464.0	

#### 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 12.91
2019.4	2081.2	Start 3244.7 hold at 2081.2 MD
4672.9	5325.9	Start Drop -3.50
5615.0	6329.7	Start 1910.0 hold at 6329.7 MD
5615.0	6329.7	Back to Vertical
7524.9	8239.6	BHL: 39.5328425, -107.6360821
7525.0	8239.7	TD at 8239.7

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3742.0	4187.6	Williams Fork	0.00	
5040.0	5742.2	Top of Gas	0.00	
6229.0	6943.7	Cameo	0.00	
7225.0	7939.7	Rollins	0.00	
7525.0	8239.7	TD	0.00	

