



# **Ursa Operating Company, LLC**

**Rockies Region**

**Valley Farms G**

**Valley Farms G 22D-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 22D-14-06-92
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Valley Farms G 22D-14-06-92 @ 5640.0usft (PLAN KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 22D-14-06-92 @ 5640.0usft (PLAN KB)
<b>Site:</b>	Valley Farms G	<b>North Reference:</b>	True
<b>Well:</b>	Valley Farms G 22D-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 22D-14-06-92, SHL: 39.527565876 -107.630503212					
Well Position	+N/-S	-74.9 usft	Northing:	1,624,090.88 usft	Latitude:	39° 31' 39.237 N
	+E/-W	-22.8 usft	Easting:	2,399,095.72 usft	Longitude:	107° 37' 49.812 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	267.87	

<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	
1,185.0	2.48	210.00	1,185.0	-2.1	-1.2	2.25	2.25	0.00	210.00	
1,892.2	25.96	268.45	1,866.8	-19.7	-166.1	3.50	3.32	8.27	63.01	
4,488.3	25.96	268.45	4,200.9	-50.5	-1,302.2	0.00	0.00	0.00	0.00	
5,353.7	0.00	0.00	5,037.0	-55.7	-1,494.9	3.00	-3.00	0.00	180.00	Valley Farms G 22D-1
7,838.7	0.00	0.00	7,522.0	-55.7	-1,494.9	0.00	0.00	0.00	0.00	

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	Valley Farms G 22D-14-06-92 @ 5640.0usft (PLAN KB)
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<b>Well:</b>	Valley Farms G 22D-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 2.25									
1,100.0	0.56	210.00	1,100.0	-0.1	-0.1	0.1	2.25	2.25	0.00
1,185.0	2.48	210.00	1,185.0	-2.1	-1.2	1.3	2.25	2.25	0.00
Start DLS 3.50 TFO 63.01									
1,200.0	2.75	219.79	1,200.0	-2.6	-1.6	1.7	3.50	1.86	65.24
1,300.0	5.60	249.86	1,299.7	-6.1	-7.7	7.9	3.50	2.85	30.08
1,400.0	8.92	258.79	1,398.9	-9.3	-19.9	20.2	3.50	3.32	8.93
1,500.0	12.34	262.85	1,497.1	-12.2	-38.1	38.5	3.50	3.42	4.06
1,600.0	15.80	265.16	1,594.1	-14.6	-62.3	62.8	3.50	3.46	2.31
1,700.0	19.27	266.66	1,689.5	-16.8	-92.3	92.9	3.50	3.47	1.50
1,800.0	22.75	267.72	1,782.8	-18.5	-128.1	128.7	3.50	3.48	1.05
1,892.2	25.96	268.45	1,866.8	-19.7	-166.1	166.7	3.50	3.48	0.80
Start 2596.1 hold at 1892.2 MD									
1,900.0	25.96	268.45	1,873.8	-19.8	-169.6	170.2	0.00	0.00	0.00
2,000.0	25.96	268.45	1,963.7	-21.0	-213.3	214.0	0.00	0.00	0.00
2,100.0	25.96	268.45	2,053.6	-22.2	-257.1	257.7	0.00	0.00	0.00
2,200.0	25.96	268.45	2,143.5	-23.4	-300.8	301.5	0.00	0.00	0.00
2,300.0	25.96	268.45	2,233.4	-24.6	-344.6	345.3	0.00	0.00	0.00
2,400.0	25.96	268.45	2,323.3	-25.8	-388.4	389.1	0.00	0.00	0.00
2,500.0	25.96	268.45	2,413.2	-26.9	-432.1	432.8	0.00	0.00	0.00
2,600.0	25.96	268.45	2,503.2	-28.1	-475.9	476.6	0.00	0.00	0.00
2,700.0	25.96	268.45	2,593.1	-29.3	-519.6	520.4	0.00	0.00	0.00
2,800.0	25.96	268.45	2,683.0	-30.5	-563.4	564.2	0.00	0.00	0.00
2,900.0	25.96	268.45	2,772.9	-31.7	-607.2	607.9	0.00	0.00	0.00
3,000.0	25.96	268.45	2,862.8	-32.9	-650.9	651.7	0.00	0.00	0.00
3,100.0	25.96	268.45	2,952.7	-34.1	-694.7	695.5	0.00	0.00	0.00
3,200.0	25.96	268.45	3,042.6	-35.2	-738.5	739.3	0.00	0.00	0.00
3,300.0	25.96	268.45	3,132.5	-36.4	-782.2	783.0	0.00	0.00	0.00
3,400.0	25.96	268.45	3,222.4	-37.6	-826.0	826.8	0.00	0.00	0.00
3,500.0	25.96	268.45	3,312.3	-38.8	-869.7	870.6	0.00	0.00	0.00
3,600.0	25.96	268.45	3,402.2	-40.0	-913.5	914.4	0.00	0.00	0.00
3,700.0	25.96	268.45	3,492.2	-41.2	-957.3	958.1	0.00	0.00	0.00
3,800.0	25.96	268.45	3,582.1	-42.3	-1,001.0	1,001.9	0.00	0.00	0.00
3,900.0	25.96	268.45	3,672.0	-43.5	-1,044.8	1,045.7	0.00	0.00	0.00
3,974.6	25.96	268.45	3,739.0	-44.4	-1,077.4	1,078.3	0.00	0.00	0.00
Williams Fork									
4,000.0	25.96	268.45	3,761.9	-44.7	-1,088.5	1,089.5	0.00	0.00	0.00
4,100.0	25.96	268.45	3,851.8	-45.9	-1,132.3	1,133.2	0.00	0.00	0.00

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<b>Well:</b>	Valley Farms G 22D-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	25.96	268.45	3,941.7	-47.1	-1,176.1	1,177.0	0.00	0.00	0.00	
4,300.0	25.96	268.45	4,031.6	-48.3	-1,219.8	1,220.8	0.00	0.00	0.00	
4,400.0	25.96	268.45	4,121.5	-49.5	-1,263.6	1,264.6	0.00	0.00	0.00	
4,488.3	25.96	268.45	4,200.9	-50.5	-1,302.2	1,303.2	0.00	0.00	0.00	
Start Drop -3.00										
4,500.0	25.61	268.45	4,211.4	-50.6	-1,307.3	1,308.3	3.00	-3.00	0.00	
4,600.0	22.61	268.45	4,302.7	-51.7	-1,348.2	1,349.1	3.00	-3.00	0.00	
4,700.0	19.61	268.45	4,396.0	-52.7	-1,384.2	1,385.2	3.00	-3.00	0.00	
4,800.0	16.61	268.45	4,491.0	-53.6	-1,415.2	1,416.2	3.00	-3.00	0.00	
4,900.0	13.61	268.45	4,587.5	-54.3	-1,441.3	1,442.3	3.00	-3.00	0.00	
5,000.0	10.61	268.45	4,685.3	-54.8	-1,462.3	1,463.3	3.00	-3.00	0.00	
5,100.0	7.61	268.45	4,784.0	-55.3	-1,478.1	1,479.1	3.00	-3.00	0.00	
5,200.0	4.61	268.45	4,883.5	-55.5	-1,488.7	1,489.8	3.00	-3.00	0.00	
5,300.0	1.61	268.45	4,983.3	-55.7	-1,494.2	1,495.2	3.00	-3.00	0.00	
5,353.7	0.00	0.00	5,037.0	-55.7	-1,494.9	1,495.9	3.00	-3.00	0.00	
Start 2485.0 hold at 5353.7 MD - Back to Vertical - Top of Gas										
5,400.0	0.00	0.00	5,083.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,183.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
5,600.0	0.00	0.00	5,283.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,383.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,483.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,583.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,000.0	0.00	0.00	5,683.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,100.0	0.00	0.00	5,783.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,200.0	0.00	0.00	5,883.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,300.0	0.00	0.00	5,983.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,083.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,183.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,542.7	0.00	0.00	6,226.0	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
Cameo										
6,600.0	0.00	0.00	6,283.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,383.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,483.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,583.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,000.0	0.00	0.00	6,683.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,100.0	0.00	0.00	6,783.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,200.0	0.00	0.00	6,883.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,300.0	0.00	0.00	6,983.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,083.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,183.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,538.7	0.00	0.00	7,222.0	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
Rollins										
7,600.0	0.00	0.00	7,283.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,383.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,483.3	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
7,838.6	0.00	0.00	7,521.9	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
BHL: 39.5274128, -107.6358029										
7,838.7	0.00	0.00	7,522.0	-55.7	-1,494.9	1,495.9	0.00	0.00	0.00	
TD at 7838.7 - TD										

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## 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 22D-14- - plan hits target center - Rectangle (sides W100.0 H40.0 D2,485.0)	0.00	0.00	5,037.0	-55.7	-1,494.9	1,624,070.24	2,397,599.92	39° 31' 38.686 N	107° 38' 8.890 W

## Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,974.6	3,739.0	Williams Fork		0.00	
5,353.7	5,037.0	Top of Gas		0.00	
6,542.7	6,226.0	Cameo		0.00	
7,538.7	7,222.0	Rollins		0.00	
7,838.7	7,522.0	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 2.25
1,185.0	1,185.0	-2.1	-1.2	Start DLS 3.50 TFO 63.01
1,892.2	1,866.8	-19.7	-166.1	Start 2596.1 hold at 1892.2 MD
4,488.3	4,200.9	-50.5	-1,302.2	Start Drop -3.00
5,353.7	5,037.0	-55.7	-1,494.9	Start 2485.0 hold at 5353.7 MD
5,353.7	5,037.0	-55.7	-1,494.9	Back to Vertical
7,838.6	7,521.9	-55.7	-1,494.9	BHL: 39.5274128, -107.6358029
7,838.7	7,522.0	-55.7	-1,494.9	TD at 7838.7

