



Ursa Operating Company, LLC

Rockies Region

Valley Farms G

Valley Farms G 24A-14-06-92

Wellbore #1

Plan: Design #1

Standard Planning Report

10 May, 2015



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Valley Farms G 24A-14-06-92
Company:	Ursa Operating Company, LLC	TVD Reference:	Valley Farms G 24A-14-06-92 @ 5640.0usft (PLAN KB)
Project:	Rockies Region	MD Reference:	Valley Farms G 24A-14-06-92 @ 5640.0usft (PLAN KB)
Site:	Valley Farms G	North Reference:	True
Well:	Valley Farms G 24A-14-06-92	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 G		
Site Position:		Northing:	1,624,165.22 usft
From:	Lat/Long	Easting:	2,399,120.26 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	39° 31' 39.977 N
		Longitude:	107° 37' 49.521 W
		Grid Convergence:	-1.34 °

Well	Valley Farms G 24A-14-06-92, SHL: 39.527291409 -107.630504629		
Well Position	+N/-S	-174.9 usft	Latitude: 39° 31' 38.249 N
	+E/-W	-23.2 usft	Longitude: 107° 37' 49.817 W
Position Uncertainty	0.0 usft	Wellhead Elevation:	5,640.0 usft
		Ground Level:	5,623.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/3/2015	9.69	65.72	51,924

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	222.33	

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	
1,075.0	0.00	0.00	1,075.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,175.0	3.50	230.00	1,174.9	-2.0	-2.3	3.50	3.50	0.00	230.00	
2,142.6	37.33	222.21	2,068.7	-245.4	-228.7	3.50	3.50	-0.81	-8.49	
4,615.8	37.33	222.21	4,035.2	-1,356.4	-1,236.3	0.00	0.00	0.00	0.00	
5,682.5	0.00	0.00	5,028.0	-1,604.8	-1,461.6	3.50	-3.50	0.00	180.00	Valley Farms G 24A-1
8,167.5	0.00	0.00	7,513.0	-1,604.8	-1,461.6	0.00	0.00	0.00	0.00	

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Project:	Rockies Region	MD Reference:	Valley Farms G 24A-14-06-92 @ 5640.0usft (PLAN KB)
Site:	Valley Farms G	North Reference:	True
Well:	Valley Farms G 24A-14-06-92	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
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	230.00	1,100.0	-0.1	-0.1	0.2	3.50	3.50	0.00
1,175.0	3.50	230.00	1,174.9	-2.0	-2.3	3.0	3.50	3.50	0.00
Start DLS 3.50 TFO -8.49									
1,200.0	4.37	228.30	1,199.9	-3.1	-3.6	4.7	3.50	3.47	-6.78
1,300.0	7.85	225.27	1,299.3	-10.4	-11.3	15.3	3.50	3.49	-3.03
1,400.0	11.35	224.10	1,397.9	-22.3	-23.0	32.0	3.50	3.49	-1.17
1,500.0	14.85	223.48	1,495.3	-38.7	-38.7	54.7	3.50	3.50	-0.63
1,600.0	18.34	223.09	1,591.1	-59.5	-58.3	83.2	3.50	3.50	-0.39
1,700.0	21.84	222.82	1,685.0	-84.6	-81.7	117.6	3.50	3.50	-0.27
1,800.0	25.34	222.62	1,776.6	-114.0	-108.8	157.6	3.50	3.50	-0.20
1,900.0	28.84	222.47	1,865.6	-147.6	-139.6	203.1	3.50	3.50	-0.15
2,000.0	32.34	222.34	1,951.7	-185.1	-173.9	254.0	3.50	3.50	-0.12
2,100.0	35.84	222.24	2,034.5	-226.6	-211.6	310.0	3.50	3.50	-0.10
2,142.6	37.33	222.21	2,068.7	-245.4	-228.7	335.4	3.50	3.50	-0.09
Start 2473.2 hold at 2142.6 MD									
2,200.0	37.33	222.21	2,114.3	-271.2	-252.1	370.2	0.00	0.00	0.00
2,300.0	37.33	222.21	2,193.9	-316.1	-292.8	430.9	0.00	0.00	0.00
2,400.0	37.33	222.21	2,273.4	-361.0	-333.6	491.5	0.00	0.00	0.00
2,500.0	37.33	222.21	2,352.9	-405.9	-374.3	552.2	0.00	0.00	0.00
2,600.0	37.33	222.21	2,432.4	-450.9	-415.0	612.8	0.00	0.00	0.00
2,700.0	37.33	222.21	2,511.9	-495.8	-455.8	673.4	0.00	0.00	0.00
2,800.0	37.33	222.21	2,591.4	-540.7	-496.5	734.1	0.00	0.00	0.00
2,900.0	37.33	222.21	2,670.9	-585.6	-537.3	794.7	0.00	0.00	0.00
3,000.0	37.33	222.21	2,750.4	-630.5	-578.0	855.4	0.00	0.00	0.00
3,100.0	37.33	222.21	2,830.0	-675.5	-618.7	916.0	0.00	0.00	0.00
3,200.0	37.33	222.21	2,909.5	-720.4	-659.5	976.7	0.00	0.00	0.00
3,300.0	37.33	222.21	2,989.0	-765.3	-700.2	1,037.3	0.00	0.00	0.00
3,400.0	37.33	222.21	3,068.5	-810.2	-741.0	1,097.9	0.00	0.00	0.00
3,500.0	37.33	222.21	3,148.0	-855.2	-781.7	1,158.6	0.00	0.00	0.00
3,600.0	37.33	222.21	3,227.5	-900.1	-822.4	1,219.2	0.00	0.00	0.00
3,700.0	37.33	222.21	3,307.0	-945.0	-863.2	1,279.9	0.00	0.00	0.00
3,800.0	37.33	222.21	3,386.6	-989.9	-903.9	1,340.5	0.00	0.00	0.00
3,900.0	37.33	222.21	3,466.1	-1,034.8	-944.7	1,401.2	0.00	0.00	0.00
4,000.0	37.33	222.21	3,545.6	-1,079.8	-985.4	1,461.8	0.00	0.00	0.00
4,100.0	37.33	222.21	3,625.1	-1,124.7	-1,026.1	1,522.5	0.00	0.00	0.00
4,200.0	37.33	222.21	3,704.6	-1,169.6	-1,066.9	1,583.1	0.00	0.00	0.00
4,231.9	37.33	222.21	3,730.0	-1,183.9	-1,079.9	1,602.5	0.00	0.00	0.00

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Well:	Valley Farms G 24A-14-06-92	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)
Williams Fork									
4,300.0	37.33	222.21	3,784.1	-1,214.5	-1,107.6	1,643.7	0.00	0.00	0.00
4,400.0	37.33	222.21	3,863.6	-1,259.4	-1,148.4	1,704.4	0.00	0.00	0.00
4,500.0	37.33	222.21	3,943.1	-1,304.4	-1,189.1	1,765.0	0.00	0.00	0.00
4,600.0	37.33	222.21	4,022.7	-1,349.3	-1,229.8	1,825.7	0.00	0.00	0.00
4,615.8	37.33	222.21	4,035.2	-1,356.4	-1,236.3	1,835.3	0.00	0.00	0.00
Start Drop -3.50									
4,700.0	34.39	222.21	4,103.5	-1,392.9	-1,269.4	1,884.6	3.50	-3.50	0.00
4,800.0	30.89	222.21	4,187.7	-1,432.9	-1,305.6	1,938.5	3.50	-3.50	0.00
4,900.0	27.39	222.21	4,275.0	-1,468.9	-1,338.3	1,987.2	3.50	-3.50	0.00
5,000.0	23.89	222.21	4,365.1	-1,501.0	-1,367.4	2,030.4	3.50	-3.50	0.00
5,100.0	20.39	222.21	4,457.7	-1,528.9	-1,392.7	2,068.1	3.50	-3.50	0.00
5,200.0	16.89	222.21	4,552.5	-1,552.5	-1,414.2	2,100.1	3.50	-3.50	0.00
5,300.0	13.39	222.21	4,649.0	-1,571.9	-1,431.7	2,126.2	3.50	-3.50	0.00
5,400.0	9.89	222.21	4,746.9	-1,586.8	-1,445.3	2,146.3	3.50	-3.50	0.00
5,500.0	6.39	222.21	4,845.9	-1,597.3	-1,454.8	2,160.5	3.50	-3.50	0.00
5,600.0	2.89	222.21	4,945.6	-1,603.3	-1,460.2	2,168.6	3.50	-3.50	0.00
5,682.5	0.00	0.00	5,028.0	-1,604.8	-1,461.6	2,170.6	3.50	-3.50	0.00
Start 2485.0 hold at 5682.5 MD - Back to Vertical - Top of Gas									
5,700.0	0.00	0.00	5,045.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
5,800.0	0.00	0.00	5,145.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
5,900.0	0.00	0.00	5,245.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,000.0	0.00	0.00	5,345.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,100.0	0.00	0.00	5,445.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,200.0	0.00	0.00	5,545.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,300.0	0.00	0.00	5,645.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,400.0	0.00	0.00	5,745.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,500.0	0.00	0.00	5,845.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,600.0	0.00	0.00	5,945.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,700.0	0.00	0.00	6,045.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,800.0	0.00	0.00	6,145.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
6,871.5	0.00	0.00	6,217.0	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
Cameo									
6,900.0	0.00	0.00	6,245.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,000.0	0.00	0.00	6,345.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,100.0	0.00	0.00	6,445.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,200.0	0.00	0.00	6,545.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,300.0	0.00	0.00	6,645.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,400.0	0.00	0.00	6,745.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,500.0	0.00	0.00	6,845.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,600.0	0.00	0.00	6,945.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,700.0	0.00	0.00	7,045.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,800.0	0.00	0.00	7,145.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
7,867.5	0.00	0.00	7,213.0	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
Rollins									
7,900.0	0.00	0.00	7,245.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
8,000.0	0.00	0.00	7,345.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
8,100.0	0.00	0.00	7,445.5	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
8,167.4	0.00	0.00	7,512.9	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00
BHL: 39.5228854, -107.6356859									
8,167.5	0.00	0.00	7,513.0	-1,604.8	-1,461.6	2,170.6	0.00	0.00	0.00

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Wellbore:	Wellbore #1		
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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)
TD at 8167.5									

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 24A-14-06-92	0.00	0.00	5,028.0	-1,604.8	-1,461.6	1,622,420.85	2,397,594.14	39° 31' 22.387 N	107° 38' 8.469 W
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,485.0)									

Formations							Dip (°)	Dip Direction (°)
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology					
4,231.9	3,730.0	Williams Fork					0.00	
5,682.5	5,028.0	Top of Gas					0.00	
6,871.5	6,217.0	Cameo					0.00	
7,867.5	7,213.0	Rollins					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	-2.0	-2.3		Start DLS 3.50 TFO -8.49
2,142.6	2,068.7	-245.4	-228.7		Start 2473.2 hold at 2142.6 MD
4,615.8	4,035.2	-1,356.4	-1,236.3		Start Drop -3.50
5,682.5	5,028.0	-1,604.8	-1,461.6		Start 2485.0 hold at 5682.5 MD
5,682.5	5,028.0	-1,604.8	-1,461.6		Back to Vertical
8,167.4	7,512.9	-1,604.8	-1,461.6		BHL: 39.5228854, -107.6356859
8,167.5	7,513.0	-1,604.8	-1,461.6		TD at 8167.5

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Valley Farms G 24A-14-06-92 TGT	5028.0	-1604.8	-1461.6	1622420.85	2397594.149°	31° 22' 23.87 N	07° 38' 8.46 W	Rectangle (Sides: L40.0 W100.0)

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSept	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.0	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	230.00	1174.9	-2.0	-2.3	3.50	230.00	3.0	
4	2142.6	37.33	222.21	2068.7	-245.4	-228.7	3.50	-8.49	335.4	
5	4618.8	37.33	222.21	4035.2	-1356.4	-1236.3	0.00	0.00	1835.3	
6	5682.5	0.00	0.00	5028.0	-1604.8	-1461.6	3.50	180.00	2170.6	Valley Farms G 24A-14-06-92 TGT
7	8167.5	0.00	0.00	7513.0	-1604.8	-1461.6	0.00	0.00	2170.6	

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 -8.49
2068.7	2142.6	Start 2473.2 hold at 2142.6 MD
4035.2	4615.8	Start Drop -3.50
5028.0	5682.5	Start 2485.0 hold at 5682.5 MD
5028.0	5682.5	Back to Vertical
7512.9	8167.4	BHL: 39.5228854, -107.6356859
7513.0	8167.5	TD at 8167.5

FORMATION TOP DETAILS

TVDPath	MDPPath	Formation	DipAngle	DipDir
3730.0	4231.9	Williams Fork	0.00	
5028.0	5682.5	Top of Gas	0.00	
6217.0	6871.5	Cameo	0.00	
7213.0	7867.5	Rollins	0.00	

