



Ursa Operating Company, LLC

Rockies Region

Valley Farms G

Valley Farms G 43C-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 43C-14-06-92
Company:	Ursa Operating Company, LLC	TVD Reference:	Valley Farms G 43C-14-06-92 @ 5640.0usft (PLAN KB)
Project:	Rockies Region	MD Reference:	Valley Farms G 43C-14-06-92 @ 5640.0usft (PLAN KB)
Site:	Valley Farms G	North Reference:	True
Well:	Valley Farms G 43C-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	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 43C-14-06-92, SHL: 39.527703109 -107.630502503					
Well Position	+N/-S	-24.9 usft	Northing:	1,624,140.85 usft	Latitude:	39° 31' 39.731 N
	+E/-W	-22.6 usft	Easting:	2,399,097.09 usft	Longitude:	107° 37' 49.809 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	139.50

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	1.50	140.00	1,175.0	-1.0	0.8	1.50	1.50	0.00	140.00	
1,375.0	1.50	140.00	1,374.9	-5.0	4.2	0.00	0.00	0.00	0.00	
1,475.0	3.66	155.05	1,474.8	-8.9	6.4	2.25	2.16	15.05	25.00	
1,575.0	6.20	125.76	1,574.4	-15.0	12.1	3.50	2.54	-29.29	-60.00	
1,975.0	6.20	125.76	1,972.1	-40.2	47.2	0.00	0.00	0.00	0.00	
2,670.3	30.29	140.34	2,627.7	-199.6	191.8	3.50	3.46	2.10	17.96	
4,397.6	30.29	140.34	4,119.3	-870.4	747.8	0.00	0.00	0.00	0.00	
5,263.1	0.00	0.00	4,945.0	-1,042.5	890.5	3.50	-3.50	0.00	180.00	Valley Farms G 43C-1
7,748.1	0.00	0.00	7,430.0	-1,042.5	890.5	0.00	0.00	0.00	0.00	

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Site:	Valley Farms G	North Reference:	True
Well:	Valley Farms G 43C-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 1.50									
1,100.0	0.38	140.00	1,100.0	-0.1	0.1	0.1	1.50	1.50	0.00
1,175.0	1.50	140.00	1,175.0	-1.0	0.8	1.3	1.50	1.50	0.00
Start 200.0 hold at 1175.0 MD									
1,200.0	1.50	140.00	1,200.0	-1.5	1.3	2.0	0.00	0.00	0.00
1,300.0	1.50	140.00	1,299.9	-3.5	2.9	4.6	0.00	0.00	0.00
1,375.0	1.50	140.00	1,374.9	-5.0	4.2	6.5	0.00	0.00	0.00
Start DLS 2.25 TFO 25.00									
1,400.0	2.02	146.75	1,399.9	-5.6	4.7	7.3	2.25	2.10	26.99
1,475.0	3.66	155.05	1,474.8	-8.9	6.4	10.9	2.25	2.19	11.06
Start DLS 3.50 TFO -60.00									
1,500.0	4.17	144.57	1,499.8	-10.4	7.3	12.6	3.50	2.03	-41.90
1,575.0	6.20	125.76	1,574.4	-15.0	12.1	19.3	3.50	2.71	-25.08
Start 400.0 hold at 1575.0 MD									
1,600.0	6.20	125.76	1,599.3	-16.5	14.3	21.9	0.00	0.00	0.00
1,700.0	6.20	125.76	1,698.7	-22.9	23.1	32.4	0.00	0.00	0.00
1,800.0	6.20	125.76	1,798.1	-29.2	31.9	42.9	0.00	0.00	0.00
1,900.0	6.20	125.76	1,897.5	-35.5	40.6	53.4	0.00	0.00	0.00
1,975.0	6.20	125.76	1,972.1	-40.2	47.2	61.3	0.00	0.00	0.00
Start DLS 3.50 TFO 17.96									
2,000.0	7.04	127.96	1,996.9	-42.0	49.5	64.1	3.50	3.35	8.80
2,100.0	10.45	133.21	2,095.8	-51.9	61.0	79.1	3.50	3.41	5.25
2,200.0	13.91	135.88	2,193.5	-66.8	76.0	100.1	3.50	3.46	2.67
2,300.0	17.38	137.50	2,289.8	-86.4	94.4	127.0	3.50	3.47	1.62
2,400.0	20.86	138.60	2,384.2	-110.8	116.3	159.8	3.50	3.48	1.10
2,500.0	24.35	139.39	2,476.5	-139.8	141.5	198.2	3.50	3.49	0.79
2,600.0	27.84	140.00	2,566.3	-173.4	169.9	242.2	3.50	3.49	0.61
2,670.3	30.29	140.34	2,627.7	-199.6	191.8	276.3	3.50	3.49	0.49
Start 1727.4 hold at 2670.3 MD									
2,700.0	30.29	140.34	2,653.4	-211.1	201.4	291.3	0.00	0.00	0.00
2,800.0	30.29	140.34	2,739.8	-250.0	233.6	341.8	0.00	0.00	0.00
2,900.0	30.29	140.34	2,826.1	-288.8	265.7	392.2	0.00	0.00	0.00
3,000.0	30.29	140.34	2,912.5	-327.6	297.9	442.6	0.00	0.00	0.00
3,100.0	30.29	140.34	2,998.8	-366.5	330.1	493.1	0.00	0.00	0.00
3,200.0	30.29	140.34	3,085.2	-405.3	362.3	543.5	0.00	0.00	0.00
3,300.0	30.29	140.34	3,171.5	-444.1	394.5	593.9	0.00	0.00	0.00
3,400.0	30.29	140.34	3,257.9	-483.0	426.7	644.4	0.00	0.00	0.00
3,500.0	30.29	140.34	3,344.2	-521.8	458.9	694.8	0.00	0.00	0.00

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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)
3,600.0	30.29	140.34	3,430.5	-560.7	491.1	745.3	0.00	0.00	0.00
3,700.0	30.29	140.34	3,516.9	-599.5	523.3	795.7	0.00	0.00	0.00
3,800.0	30.29	140.34	3,603.2	-638.3	555.5	846.1	0.00	0.00	0.00
3,850.7	30.29	140.34	3,647.0	-658.0	571.8	871.7	0.00	0.00	0.00
Williams Fork									
3,900.0	30.29	140.34	3,689.6	-677.2	587.7	896.6	0.00	0.00	0.00
4,000.0	30.29	140.34	3,775.9	-716.0	619.8	947.0	0.00	0.00	0.00
4,100.0	30.29	140.34	3,862.3	-754.8	652.0	997.4	0.00	0.00	0.00
4,200.0	30.29	140.34	3,948.6	-793.7	684.2	1,047.9	0.00	0.00	0.00
4,300.0	30.29	140.34	4,035.0	-832.5	716.4	1,098.3	0.00	0.00	0.00
4,397.6	30.29	140.34	4,119.3	-870.4	747.8	1,147.5	0.00	0.00	0.00
Start Drop -3.50									
4,400.0	30.21	140.34	4,121.3	-871.3	748.6	1,148.7	3.50	-3.50	0.00
4,500.0	26.71	140.34	4,209.2	-908.0	779.0	1,196.4	3.50	-3.50	0.00
4,600.0	23.21	140.34	4,299.9	-940.5	805.9	1,238.6	3.50	-3.50	0.00
4,700.0	19.71	140.34	4,392.9	-968.7	829.3	1,275.1	3.50	-3.50	0.00
4,800.0	16.21	140.34	4,488.0	-992.4	849.0	1,306.0	3.50	-3.50	0.00
4,900.0	12.71	140.34	4,584.8	-1,011.6	864.9	1,330.9	3.50	-3.50	0.00
5,000.0	9.21	140.34	4,683.0	-1,026.2	877.0	1,349.9	3.50	-3.50	0.00
5,100.0	5.71	140.34	4,782.1	-1,036.2	885.3	1,362.9	3.50	-3.50	0.00
5,200.0	2.21	140.34	4,881.9	-1,041.6	889.7	1,369.8	3.50	-3.50	0.00
5,263.1	0.00	0.00	4,945.0	-1,042.5	890.5	1,371.0	3.50	-3.50	0.00
Start 2485.0 hold at 5263.1 MD - Back to Vertical - Top of Gas									
5,300.0	0.00	0.00	4,981.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,081.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,181.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,281.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,381.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,481.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,581.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,000.0	0.00	0.00	5,681.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,100.0	0.00	0.00	5,781.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,200.0	0.00	0.00	5,881.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,300.0	0.00	0.00	5,981.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,081.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,452.1	0.00	0.00	6,134.0	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
Cameo									
6,500.0	0.00	0.00	6,181.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,281.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,381.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,481.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,581.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,681.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,100.0	0.00	0.00	6,781.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,881.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,300.0	0.00	0.00	6,981.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,081.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,448.1	0.00	0.00	7,130.0	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
Rollins									
7,500.0	0.00	0.00	7,181.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,281.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00

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Well:	Valley Farms G 43C-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)
7,700.0	0.00	0.00	7,381.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
7,748.0	0.00	0.00	7,429.9	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
BHL: 39.524841, -107.6273457									
7,748.1	0.00	0.00	7,430.0	-1,042.5	890.5	1,371.0	0.00	0.00	0.00
TD at 7748.1									

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 43C-14-	0.00	0.00	4,945.0	-1,042.5	890.5	1,623,077.77	2,399,962.89	39° 31' 29.428 N	107° 37' 38.445 W
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,485.0)									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,850.7	3,647.0	Williams Fork		0.00	
5,263.1	4,945.0	Top of Gas		0.00	
6,452.1	6,134.0	Cameo		0.00	
7,448.1	7,130.0	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 1.50
1,175.0	1,175.0	-1.0	0.8	Start 200.0 hold at 1175.0 MD
1,375.0	1,374.9	-5.0	4.2	Start DLS 2.25 TFO 25.00
1,475.0	1,474.8	-8.9	6.4	Start DLS 3.50 TFO -60.00
1,575.0	1,574.4	-15.0	12.1	Start 400.0 hold at 1575.0 MD
1,975.0	1,972.1	-40.2	47.2	Start DLS 3.50 TFO 17.96
2,670.3	2,627.7	-199.6	191.8	Start 1727.4 hold at 2670.3 MD
4,397.6	4,119.3	-870.4	747.8	Start Drop -3.50
5,263.1	4,945.0	-1,042.5	890.5	Start 2485.0 hold at 5263.1 MD
5,263.1	4,945.0	-1,042.5	890.5	Back to Vertical
7,748.0	7,429.9	-1,042.5	890.5	BHL: 39.524841, -107.6273457
7,748.1	7,430.0	-1,042.5	890.5	TD at 7748.1

