



Ursa Operating Company, LLC

Rockies Region

Valley Farms O

Valley Farms O 14A-10-06-92

Wellbore #1

Plan: Design #1

Standard Planning Report

24 July, 2015



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Valley Farms O 14A-10-06-92
Company:	Ursa Operating Company, LLC	TVD Reference:	Valley Farms O 14A-10-06-92 @ 5449.0usft (PLAN KB)
Project:	Rockies Region	MD Reference:	Valley Farms O 14A-10-06-92 @ 5449.0usft (PLAN KB)
Site:	Valley Farms O	North Reference:	True
Well:	Valley Farms O 14A-10-06-92	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 O				
Site Position:		Northing:	1,627,349.92 usft	Latitude:	39° 32' 9.673 N
From:	Lat/Long	Easting:	2,391,526.29 usft	Longitude:	107° 39' 27.378 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.36 °

Well	Valley Farms O 14A-10-06-92, SHL: 39.536006677 -107.657604506					
Well Position	+N/-S	-5.0 usft	Northing:	1,627,344.92 usft	Latitude:	39° 32' 9.624 N
	+E/-W	0.1 usft	Easting:	2,391,526.29 usft	Longitude:	107° 39' 27.376 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	5,449.0 usft	Ground Level:	5,432.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/21/2015	9.67	65.72	51,905

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	302.58	

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	
1,150.0	0.00	0.00	1,150.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,350.0	5.00	340.00	1,349.7	8.2	-3.0	2.50	2.50	0.00	340.00	
1,634.7	13.41	301.74	1,630.7	37.3	-35.4	3.50	2.95	-13.44	-56.07	
5,099.9	13.41	301.74	5,001.5	459.9	-718.6	0.00	0.00	0.00	0.00	
5,482.9	0.00	0.00	5,381.0	483.4	-756.5	3.50	-3.50	0.00	180.00	14A-10-06-92 TGT
7,952.9	0.00	0.00	7,851.0	483.4	-756.5	0.00	0.00	0.00	0.00	

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Project:	Rockies Region	MD Reference:	Valley Farms O 14A-10-06-92 @ 5449.0usft (PLAN KB)
Site:	Valley Farms O	North Reference:	True
Well:	Valley Farms O 14A-10-06-92	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
0.1	0.00	0.00	0.1	0.0	0.0	0.0	0.00	0.00	0.00
SHL: 39.536006677 -107.657604506									
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									
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,150.0	0.00	0.00	1,150.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 2.50									
1,200.0	1.25	340.00	1,200.0	0.5	-0.2	0.4	2.50	2.50	0.00
1,300.0	3.75	340.00	1,299.9	4.6	-1.7	3.9	2.50	2.50	0.00
1,350.0	5.00	340.00	1,349.7	8.2	-3.0	6.9	2.50	2.50	0.00
Start DLS 3.50 TFO -56.07									
1,400.0	6.15	326.32	1,399.5	12.5	-5.2	11.1	3.50	2.30	-27.36
1,500.0	9.05	311.12	1,498.6	22.1	-14.1	23.8	3.50	2.90	-15.20
1,600.0	12.26	303.52	1,596.9	33.1	-28.9	42.2	3.50	3.21	-7.60
1,634.7	13.41	301.74	1,630.7	37.3	-35.4	49.9	3.50	3.31	-5.14
Start 3465.2 hold at 1634.7 MD									
1,700.0	13.41	301.74	1,694.3	45.3	-48.3	65.0	0.00	0.00	0.00
1,800.0	13.41	301.74	1,791.5	57.4	-68.0	88.2	0.00	0.00	0.00
1,900.0	13.41	301.74	1,888.8	69.6	-87.7	111.4	0.00	0.00	0.00
2,000.0	13.41	301.74	1,986.1	81.8	-107.4	134.6	0.00	0.00	0.00
2,100.0	13.41	301.74	2,083.4	94.0	-127.1	157.8	0.00	0.00	0.00
2,200.0	13.41	301.74	2,180.6	106.2	-146.8	180.9	0.00	0.00	0.00
2,300.0	13.41	301.74	2,277.9	118.4	-166.5	204.1	0.00	0.00	0.00
2,400.0	13.41	301.74	2,375.2	130.6	-186.3	227.3	0.00	0.00	0.00
2,500.0	13.41	301.74	2,472.5	142.8	-206.0	250.5	0.00	0.00	0.00
2,600.0	13.41	301.74	2,569.7	155.0	-225.7	273.7	0.00	0.00	0.00
2,700.0	13.41	301.74	2,667.0	167.2	-245.4	296.8	0.00	0.00	0.00
2,800.0	13.41	301.74	2,764.3	179.4	-265.1	320.0	0.00	0.00	0.00
2,900.0	13.41	301.74	2,861.6	191.6	-284.8	343.2	0.00	0.00	0.00
3,000.0	13.41	301.74	2,958.8	203.8	-304.6	366.4	0.00	0.00	0.00
3,100.0	13.41	301.74	3,056.1	216.0	-324.3	389.6	0.00	0.00	0.00
3,200.0	13.41	301.74	3,153.4	228.2	-344.0	412.7	0.00	0.00	0.00
3,300.0	13.41	301.74	3,250.7	240.4	-363.7	435.9	0.00	0.00	0.00
3,400.0	13.41	301.74	3,347.9	252.6	-383.4	459.1	0.00	0.00	0.00
3,500.0	13.41	301.74	3,445.2	264.8	-403.1	482.3	0.00	0.00	0.00
3,600.0	13.41	301.74	3,542.5	277.0	-422.9	505.5	0.00	0.00	0.00
3,700.0	13.41	301.74	3,639.8	289.2	-442.6	528.6	0.00	0.00	0.00
3,800.0	13.41	301.74	3,737.0	301.4	-462.3	551.8	0.00	0.00	0.00
3,850.3	13.41	301.74	3,786.0	307.5	-472.2	563.5	0.00	0.00	0.00
Williams Fork									
3,900.0	13.41	301.74	3,834.3	313.6	-482.0	575.0	0.00	0.00	0.00

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Well:	Valley Farms O 14A-10-06-92	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)
4,000.0	13.41	301.74	3,931.6	325.8	-501.7	598.2	0.00	0.00	0.00
4,100.0	13.41	301.74	4,028.9	338.0	-521.4	621.4	0.00	0.00	0.00
4,200.0	13.41	301.74	4,126.1	350.2	-541.2	644.6	0.00	0.00	0.00
4,300.0	13.41	301.74	4,223.4	362.4	-560.9	667.7	0.00	0.00	0.00
4,400.0	13.41	301.74	4,320.7	374.6	-580.6	690.9	0.00	0.00	0.00
4,500.0	13.41	301.74	4,418.0	386.8	-600.3	714.1	0.00	0.00	0.00
4,600.0	13.41	301.74	4,515.2	398.9	-620.0	737.3	0.00	0.00	0.00
4,700.0	13.41	301.74	4,612.5	411.1	-639.7	760.5	0.00	0.00	0.00
4,800.0	13.41	301.74	4,709.8	423.3	-659.5	783.6	0.00	0.00	0.00
4,900.0	13.41	301.74	4,807.1	435.5	-679.2	806.8	0.00	0.00	0.00
5,000.0	13.41	301.74	4,904.3	447.7	-698.9	830.0	0.00	0.00	0.00
5,099.9	13.41	301.74	5,001.5	459.9	-718.6	853.1	0.00	0.00	0.00
Start Drop -3.50									
5,200.0	9.90	301.74	5,099.5	470.6	-735.8	873.4	3.50	-3.50	0.00
5,300.0	6.40	301.74	5,198.5	478.0	-747.8	887.5	3.50	-3.50	0.00
5,400.0	2.90	301.74	5,298.2	482.3	-754.7	895.6	3.50	-3.50	0.00
5,482.9	0.00	0.00	5,381.0	483.4	-756.5	897.7	3.50	-3.50	0.00
Start 2470.0 hold at 5482.9 MD - Back to Vertical - Top of Gas									
5,500.0	0.00	0.00	5,398.1	483.4	-756.5	897.7	0.00	0.00	0.00
5,600.0	0.00	0.00	5,498.1	483.4	-756.5	897.7	0.00	0.00	0.00
5,700.0	0.00	0.00	5,598.1	483.4	-756.5	897.7	0.00	0.00	0.00
5,800.0	0.00	0.00	5,698.1	483.4	-756.5	897.7	0.00	0.00	0.00
5,900.0	0.00	0.00	5,798.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,000.0	0.00	0.00	5,898.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,100.0	0.00	0.00	5,998.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,200.0	0.00	0.00	6,098.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,300.0	0.00	0.00	6,198.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,400.0	0.00	0.00	6,298.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,454.9	0.00	0.00	6,353.0	483.4	-756.5	897.7	0.00	0.00	0.00
Cameo									
6,500.0	0.00	0.00	6,398.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,600.0	0.00	0.00	6,498.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,700.0	0.00	0.00	6,598.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,800.0	0.00	0.00	6,698.1	483.4	-756.5	897.7	0.00	0.00	0.00
6,900.0	0.00	0.00	6,798.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,000.0	0.00	0.00	6,898.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,100.0	0.00	0.00	6,998.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,200.0	0.00	0.00	7,098.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,300.0	0.00	0.00	7,198.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,400.0	0.00	0.00	7,298.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,452.9	0.00	0.00	7,351.0	483.4	-756.5	897.7	0.00	0.00	0.00
Rollins									
7,500.0	0.00	0.00	7,398.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,600.0	0.00	0.00	7,498.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,700.0	0.00	0.00	7,598.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,800.0	0.00	0.00	7,698.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,900.0	0.00	0.00	7,798.1	483.4	-756.5	897.7	0.00	0.00	0.00
7,952.8	0.00	0.00	7,850.9	483.4	-756.5	897.7	0.00	0.00	0.00
BHL: 39.5373337 -107.6602868									
7,952.9	0.00	0.00	7,851.0	483.4	-756.5	897.7	0.00	0.00	0.00
TD at 7952.9 - TD									

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Project:	Rockies Region	MD Reference:	Valley Farms O 14A-10-06-92 @ 5449.0usft (PLAN KB)
Site:	Valley Farms O	North Reference:	True
Well:	Valley Farms O 14A-10-06-92	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
14A-10-06-92 TGT	0.00	0.00	5,381.0	483.4	-756.5	1,627,846.13	2,390,781.48	39° 32' 14.401 N	107° 39' 37.032 W
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,470.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
3,850.3	3,786.0	Williams Fork		0.00		
5,482.9	5,381.0	Top of Gas		0.00		
6,454.9	6,353.0	Cameo		0.00		
7,452.9	7,351.0	Rollins		0.00		
7,952.9	7,851.0	TD		0.00		

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
0.1	0.1	0.0	0.0	SHL: 39.536006677 -107.657604506	
1,000.0	1,000.0	0.0	0.0	Surface Casing	
1,150.0	1,150.0	0.0	0.0	Start Build 2.50	
1,350.0	1,349.7	8.2	-3.0	Start DLS 3.50 TFO -56.07	
1,634.7	1,630.7	37.3	-35.4	Start 3465.2 hold at 1634.7 MD	
5,099.9	5,001.5	459.9	-718.6	Start Drop -3.50	
5,482.9	5,381.0	483.4	-756.5	Start 2470.0 hold at 5482.9 MD	
5,482.9	5,381.0	483.4	-756.5	Back to Vertical	
7,952.8	7,850.9	483.4	-756.5	BHL: 39.5373337 -107.6602868	
7,952.9	7,851.0	483.4	-756.5	TD at 7952.9	

