



Ursa Operating Company, LLC

Rockies Region

Valley Farms I

Valley Farms I4

Wellbore #1

Plan: Design #1

Standard Planning Report

27 August, 2013



Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well Valley Farms I4
Company:	Ursa Operating Company, LLC	TVD Reference:	Valley Farms I4 @ 5669.4ft (PAD Est KB)
Project:	Rockies Region	MD Reference:	Valley Farms I4 @ 5669.4ft (PAD Est KB)
Site:	Valley Farms I	North Reference:	True
Well:	Valley Farms I4	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 I			
Site Position:		Northing:	1,623,685.23 ft	Latitude:	39° 31' 35.987 N
From:	Lat/Long	Easting:	2,402,374.23 ft	Longitude:	107° 37' 7.860 W
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	-1.34 °

Well	Valley Farms I4, SHL LAT: 39.526633941 LONG: -107.619068253					
Well Position	+N/-S	-10.6 ft	Northing:	1,623,676.08 ft	Latitude:	39° 31' 35.882 N
	+E/-W	-61.6 ft	Easting:	2,402,312.42 ft	Longitude:	107° 37' 8.646 W
Position Uncertainty		0.0 ft	Wellhead Elevation:	5,669.4 ft	Ground Level:	5,654.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	8/21/2013	9.87	65.79	52,137

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	276.74

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,668.9	17.07	276.74	1,660.5	9.9	-83.5	3.00	3.00	0.00	276.74	
4,237.0	17.07	276.74	4,115.5	98.3	-832.0	0.00	0.00	0.00	0.00	
4,805.8	0.00	0.00	4,676.0	108.2	-915.5	3.00	-3.00	0.00	180.00	VF I4 TGT
7,520.8	0.00	0.00	7,391.0	108.2	-915.5	0.00	0.00	0.00	0.00	

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Site:	Valley Farms I	North Reference:	True
Well:	Valley Farms I4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.00									
1,200.0	3.00	276.74	1,200.0	0.3	-2.6	2.6	3.00	3.00	0.00
1,300.0	6.00	276.74	1,299.6	1.2	-10.4	10.5	3.00	3.00	0.00
1,400.0	9.00	276.74	1,398.8	2.8	-23.4	23.5	3.00	3.00	0.00
1,500.0	12.00	276.74	1,497.1	4.9	-41.4	41.7	3.00	3.00	0.00
1,600.0	15.00	276.74	1,594.3	7.6	-64.6	65.1	3.00	3.00	0.00
1,668.9	17.07	276.74	1,660.5	9.9	-83.5	84.1	3.00	3.00	0.00
Start 2568.1 hold at 1668.9 MD									
1,700.0	17.07	276.74	1,690.3	10.9	-92.6	93.2	0.00	0.00	0.00
1,800.0	17.07	276.74	1,785.9	14.4	-121.7	122.6	0.00	0.00	0.00
1,900.0	17.07	276.74	1,881.4	17.8	-150.9	151.9	0.00	0.00	0.00
2,000.0	17.07	276.74	1,977.0	21.3	-180.0	181.3	0.00	0.00	0.00
2,100.0	17.07	276.74	2,072.6	24.7	-209.2	210.6	0.00	0.00	0.00
2,200.0	17.07	276.74	2,168.2	28.2	-238.3	240.0	0.00	0.00	0.00
2,300.0	17.07	276.74	2,263.8	31.6	-267.5	269.3	0.00	0.00	0.00
2,400.0	17.07	276.74	2,359.4	35.0	-296.6	298.7	0.00	0.00	0.00
2,500.0	17.07	276.74	2,455.0	38.5	-325.8	328.0	0.00	0.00	0.00
2,600.0	17.07	276.74	2,550.6	41.9	-354.9	357.4	0.00	0.00	0.00
2,700.0	17.07	276.74	2,646.2	45.4	-384.0	386.7	0.00	0.00	0.00
2,800.0	17.07	276.74	2,741.8	48.8	-413.2	416.1	0.00	0.00	0.00
2,900.0	17.07	276.74	2,837.4	52.3	-442.3	445.4	0.00	0.00	0.00
3,000.0	17.07	276.74	2,933.0	55.7	-471.5	474.8	0.00	0.00	0.00
3,100.0	17.07	276.74	3,028.6	59.2	-500.6	504.1	0.00	0.00	0.00
3,200.0	17.07	276.74	3,124.2	62.6	-529.8	533.5	0.00	0.00	0.00
3,300.0	17.07	276.74	3,219.8	66.0	-558.9	562.8	0.00	0.00	0.00
3,400.0	17.07	276.74	3,315.4	69.5	-588.1	592.2	0.00	0.00	0.00
3,500.0	17.07	276.74	3,411.0	72.9	-617.2	621.5	0.00	0.00	0.00
3,597.7	17.07	276.74	3,504.4	76.3	-645.7	650.2	0.00	0.00	0.00
Williams Fork									
3,600.0	17.07	276.74	3,506.6	76.4	-646.4	650.8	0.00	0.00	0.00
3,700.0	17.07	276.74	3,602.2	79.8	-675.5	680.2	0.00	0.00	0.00
3,800.0	17.07	276.74	3,697.8	83.3	-704.6	709.5	0.00	0.00	0.00
3,900.0	17.07	276.74	3,793.4	86.7	-733.8	738.9	0.00	0.00	0.00
4,000.0	17.07	276.74	3,889.0	90.1	-762.9	768.2	0.00	0.00	0.00
4,100.0	17.07	276.74	3,984.6	93.6	-792.1	797.6	0.00	0.00	0.00
4,200.0	17.07	276.74	4,080.2	97.0	-821.2	826.9	0.00	0.00	0.00
4,237.0	17.07	276.74	4,115.5	98.3	-832.0	837.8	0.00	0.00	0.00
Start Drop -3.00									
4,300.0	15.18	276.74	4,176.1	100.4	-849.4	855.3	3.00	-3.00	0.00
4,400.0	12.18	276.74	4,273.2	103.1	-872.9	878.9	3.00	-3.00	0.00
4,500.0	9.18	276.74	4,371.5	105.3	-891.2	897.4	3.00	-3.00	0.00
4,600.0	6.18	276.74	4,470.6	106.9	-904.5	910.8	3.00	-3.00	0.00

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Site:	Valley Farms I	North Reference:	True
Well:	Valley Farms I4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.0	3.18	276.74	4,570.2	107.8	-912.6	919.0	3.00	-3.00	0.00
4,805.8	0.00	0.00	4,676.0	108.2	-915.5	921.9	3.00	-3.00	0.00
Start 2715.0 hold at 4805.8 MD									
4,806.2	0.00	0.00	4,676.4	108.2	-915.5	921.9	0.00	0.00	0.00
Top of Gas									
4,900.0	0.00	0.00	4,770.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,000.0	0.00	0.00	4,870.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,100.0	0.00	0.00	4,970.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,200.0	0.00	0.00	5,070.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,300.0	0.00	0.00	5,170.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,400.0	0.00	0.00	5,270.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,500.0	0.00	0.00	5,370.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,600.0	0.00	0.00	5,470.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,700.0	0.00	0.00	5,570.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,800.0	0.00	0.00	5,670.2	108.2	-915.5	921.9	0.00	0.00	0.00
5,900.0	0.00	0.00	5,770.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,000.0	0.00	0.00	5,870.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,047.2	0.00	0.00	5,917.4	108.2	-915.5	921.9	0.00	0.00	0.00
Cameo									
6,100.0	0.00	0.00	5,970.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,200.0	0.00	0.00	6,070.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,300.0	0.00	0.00	6,170.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,400.0	0.00	0.00	6,270.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,500.0	0.00	0.00	6,370.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,600.0	0.00	0.00	6,470.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,700.0	0.00	0.00	6,570.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,800.0	0.00	0.00	6,670.2	108.2	-915.5	921.9	0.00	0.00	0.00
6,900.0	0.00	0.00	6,770.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,000.0	0.00	0.00	6,870.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,100.0	0.00	0.00	6,970.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,200.0	0.00	0.00	7,070.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,221.2	0.00	0.00	7,091.4	108.2	-915.5	921.9	0.00	0.00	0.00
Rollins									
7,300.0	0.00	0.00	7,170.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,270.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,500.0	0.00	0.00	7,370.2	108.2	-915.5	921.9	0.00	0.00	0.00
7,520.8	0.00	0.00	7,391.0	108.2	-915.5	921.9	0.00	0.00	0.00
TD at 7520.8									

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,597.7	3,504.4	Williams Fork		0.00		
4,806.2	4,676.4	Top of Gas		0.00		
6,047.2	5,917.4	Cameo		0.00		
7,221.2	7,091.4	Rollins		0.00		

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Project:	Rockies Region	MD Reference:	Valley Farms I4 @ 5669.4ft (PAD Est KB)
Site:	Valley Farms I	North Reference:	True
Well:	Valley Farms I4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,100.0	1,100.0	0.0	0.0	Start Build 3.00
1,668.9	1,660.5	9.9	-83.5	Start 2568.1 hold at 1668.9 MD
4,237.0	4,115.5	98.3	-832.0	Start Drop -3.00
4,805.8	4,676.0	108.2	-915.5	Start 2715.0 hold at 4805.8 MD
7,520.8	7,391.0	108.2	-915.5	TD at 7520.8



Well Name: Valley Farms I4
Surface Location: Valley Farms I
North American Datum 1983 , US State Plane 1983, Colorado Central Zone
Ground Elevation: 5654.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1623676.08 2402312.42 39° 31' 35.882 N 107° 37' 8.646 W
PAD Est KB Valley Farms I4 @ 5669.4ft (PAD Est KB)



Azimuths to True North
Magnetic North: 9.87°
Magnetic Field
Strength: 52136.8nT
Dip Angle: 65.79°
Date: 8/21/2013
Model: IGRF200510

Valley Farms I
Valley Farms I4
Design #1
17:06, August 27 2013

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
VF I4 TGT	4676.0	108.2	-915.5	1623805.58	2401399.68	39° 31' 36.951 N	107° 37' 20.330 W	Rectangle (Sides: L40.0 W100.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1100.0	0.00	0.00	1100.0	0.0	0.0	0.00	0.00	0.0	
3	1668.9	17.07	276.74	1660.5	9.9	-83.5	3.00	276.74	84.1	
4	4237.0	17.07	276.74	4115.5	98.3	-832.0	0.00	0.00	837.8	
5	4805.8	0.00	0.00	4676.0	108.2	-915.5	3.00	180.00	921.9	VF I4 TGT
6	7520.8	0.00	0.00	7391.0	108.2	-915.5	0.00	0.00	921.9	

ANNOTATIONS

TVD	MD	Annotation
1100.0	1100.0	Start Build 3.00
1660.5	1668.9	Start 2568.1 hold at 1668.9 MD
4115.5	4237.0	Start Drop -3.00
4676.0	4805.8	Start 2715.0 hold at 4805.8 MD
7391.0	7520.8	TD at 7520.8

FORMATION TOP DETAILS

TVDP	MD	Formation
3504.4	3597.7	Williams Fork
4676.4	4806.2	Top of Gas
5917.4	6047.2	Cameo
7091.4	7221.2	Rollins

