



Ursa Operating Company, LLC

Rockies Region

CSF E

CSF 44C-09-07-91

Wellbore #1

Plan: Design #1

Standard Planning Report

20 January, 2014



Database:	MasterDB	Local Co-ordinate Reference:	Well CSF 44C-09-07-91
Company:	Ursa Operating Company, LLC	TVD Reference:	CSF 44C-09-07-91 @ 6765.4usft (Original Well Elev)
Project:	Rockies Region	MD Reference:	CSF 44C-09-07-91 @ 6765.4usft (Original Well Elev)
Site:	CSF E	North Reference:	True
Well:	CSF 44C-09-07-91	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		CSF E			
Site Position:		Northing:	1,600,196.54 usft	Latitude:	39° 27' 47.492 N
From:	Lat/Long	Easting:	2,418,195.91 usft	Longitude:	107° 33' 39.189 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.30 °

Well	CSF 44C-09-07-91, SHL LAT: 39.458536 LONG: -107.558872					
Well Position	+N/-S	-1,696.0 usft	Northing:	1,598,488.08 usft	Latitude:	39° 27' 30.729 N
	+E/-W	568.6 usft	Easting:	2,418,725.86 usft	Longitude:	107° 33' 31.939 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	6,765.4 usft	Ground Level:	6,750.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	1/17/2014	9.78	65.73	52,059

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	113.73

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,279.8	37.79	113.73	2,203.2	-138.2	314.3	3.50	3.50	0.00	113.73	
4,891.2	37.79	113.73	4,266.8	-782.2	1,779.3	0.00	0.00	0.00	0.00	
5,971.0	0.00	0.00	5,270.0	-920.4	2,093.6	3.50	-3.50	0.00	180.00	CSF 44C-09-07-91 T
7,968.0	0.00	0.00	7,267.0	-920.4	2,093.6	0.00	0.00	0.00	0.00	

Database:	MasterDB	Local Co-ordinate Reference:	Well CSF 44C-09-07-91
Company:	Ursa Operating Company, LLC	TVD Reference:	CSF 44C-09-07-91 @ 6765.4usft (Original Well Elev)
Project:	Rockies Region	MD Reference:	CSF 44C-09-07-91 @ 6765.4usft (Original Well Elev)
Site:	CSF E	North Reference:	True
Well:	CSF 44C-09-07-91	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
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 3.50									
1,300.0	3.50	113.73	1,299.9	-1.2	2.8	3.1	3.50	3.50	0.00
1,400.0	7.00	113.73	1,399.5	-4.9	11.2	12.2	3.50	3.50	0.00
1,500.0	10.50	113.73	1,498.3	-11.0	25.1	27.4	3.50	3.50	0.00
1,600.0	14.00	113.73	1,596.0	-19.6	44.5	48.6	3.50	3.50	0.00
1,700.0	17.50	113.73	1,692.3	-30.5	69.4	75.8	3.50	3.50	0.00
1,800.0	21.00	113.73	1,786.7	-43.8	99.5	108.7	3.50	3.50	0.00
1,900.0	24.50	113.73	1,878.9	-59.3	134.9	147.4	3.50	3.50	0.00
2,000.0	28.00	113.73	1,968.5	-77.1	175.4	191.6	3.50	3.50	0.00
2,100.0	31.50	113.73	2,055.3	-97.1	220.8	241.2	3.50	3.50	0.00
2,200.0	35.00	113.73	2,139.0	-119.1	271.0	296.1	3.50	3.50	0.00
2,279.8	37.79	113.73	2,203.2	-138.2	314.3	343.4	3.50	3.50	0.00
Start 2611.5 hold at 2279.8 MD									
2,300.0	37.79	113.73	2,219.1	-143.2	325.7	355.8	0.00	0.00	0.00
2,400.0	37.79	113.73	2,298.2	-167.8	381.8	417.1	0.00	0.00	0.00
2,500.0	37.79	113.73	2,377.2	-192.5	437.9	478.3	0.00	0.00	0.00
2,600.0	37.79	113.73	2,456.2	-217.2	494.0	539.6	0.00	0.00	0.00
2,700.0	37.79	113.73	2,535.2	-241.8	550.1	600.9	0.00	0.00	0.00
2,800.0	37.79	113.73	2,614.3	-266.5	606.2	662.2	0.00	0.00	0.00
2,900.0	37.79	113.73	2,693.3	-291.1	662.3	723.5	0.00	0.00	0.00
3,000.0	37.79	113.73	2,772.3	-315.8	718.4	784.7	0.00	0.00	0.00
3,100.0	37.79	113.73	2,851.3	-340.5	774.5	846.0	0.00	0.00	0.00
3,200.0	37.79	113.73	2,930.4	-365.1	830.6	907.3	0.00	0.00	0.00
3,236.7	37.79	113.73	2,959.4	-374.2	851.2	929.8	0.00	0.00	0.00
Williams Fork									
3,300.0	37.79	113.73	3,009.4	-389.8	886.7	968.6	0.00	0.00	0.00
3,400.0	37.79	113.73	3,088.4	-414.5	942.8	1,029.8	0.00	0.00	0.00
3,500.0	37.79	113.73	3,167.4	-439.1	998.9	1,091.1	0.00	0.00	0.00
3,600.0	37.79	113.73	3,246.5	-463.8	1,055.0	1,152.4	0.00	0.00	0.00
3,700.0	37.79	113.73	3,325.5	-488.4	1,111.1	1,213.7	0.00	0.00	0.00
3,800.0	37.79	113.73	3,404.5	-513.1	1,167.2	1,275.0	0.00	0.00	0.00
3,900.0	37.79	113.73	3,483.5	-537.8	1,223.3	1,336.2	0.00	0.00	0.00
4,000.0	37.79	113.73	3,562.6	-562.4	1,279.4	1,397.5	0.00	0.00	0.00
4,100.0	37.79	113.73	3,641.6	-587.1	1,335.5	1,458.8	0.00	0.00	0.00
4,200.0	37.79	113.73	3,720.6	-611.7	1,391.5	1,520.1	0.00	0.00	0.00
4,300.0	37.79	113.73	3,799.6	-636.4	1,447.6	1,581.4	0.00	0.00	0.00
4,400.0	37.79	113.73	3,878.7	-661.1	1,503.7	1,642.6	0.00	0.00	0.00
4,500.0	37.79	113.73	3,957.7	-685.7	1,559.8	1,703.9	0.00	0.00	0.00
4,600.0	37.79	113.73	4,036.7	-710.4	1,615.9	1,765.2	0.00	0.00	0.00

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Site:	CSF E	North Reference:	True
Well:	CSF 44C-09-07-91	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)
4,700.0	37.79	113.73	4,115.7	-735.1	1,672.0	1,826.5	0.00	0.00	0.00
4,800.0	37.79	113.73	4,194.8	-759.7	1,728.1	1,887.8	0.00	0.00	0.00
4,891.2	37.79	113.73	4,266.8	-782.2	1,779.3	1,943.7	0.00	0.00	0.00
Start Drop -3.50									
4,900.0	37.48	113.73	4,273.8	-784.4	1,784.2	1,949.0	3.50	-3.50	0.00
5,000.0	33.98	113.73	4,355.0	-807.9	1,837.7	2,007.4	3.50	-3.50	0.00
5,100.0	30.48	113.73	4,439.5	-829.3	1,886.5	2,060.7	3.50	-3.50	0.00
5,200.0	26.98	113.73	4,527.2	-848.7	1,930.5	2,108.8	3.50	-3.50	0.00
5,300.0	23.48	113.73	4,617.6	-865.8	1,969.5	2,151.4	3.50	-3.50	0.00
5,399.9	19.99	113.73	4,710.4	-880.7	2,003.4	2,188.4	3.50	-3.50	0.00
Top of Gas									
5,400.0	19.98	113.73	4,710.5	-880.7	2,003.4	2,188.5	3.50	-3.50	0.00
5,500.0	16.48	113.73	4,805.5	-893.3	2,032.1	2,219.7	3.50	-3.50	0.00
5,600.0	12.98	113.73	4,902.2	-903.6	2,055.3	2,245.2	3.50	-3.50	0.00
5,700.0	9.48	113.73	5,000.3	-911.4	2,073.2	2,264.7	3.50	-3.50	0.00
5,800.0	5.98	113.73	5,099.3	-916.8	2,085.5	2,278.1	3.50	-3.50	0.00
5,900.0	2.48	113.73	5,199.0	-919.8	2,092.2	2,285.5	3.50	-3.50	0.00
5,971.0	0.00	0.00	5,270.0	-920.4	2,093.6	2,287.0	3.50	-3.50	-160.23
Start 1997.0 hold at 5971.0 MD - CSF 44C-09-07-91 TGT									
6,000.0	0.00	0.00	5,299.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,100.0	0.00	0.00	5,399.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,200.0	0.00	0.00	5,499.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,300.0	0.00	0.00	5,599.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,400.0	0.00	0.00	5,699.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,411.4	0.00	0.00	5,710.4	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
Cameo									
6,500.0	0.00	0.00	5,799.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,600.0	0.00	0.00	5,899.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,700.0	0.00	0.00	5,999.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,099.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,199.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,299.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,100.0	0.00	0.00	6,399.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,499.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,300.0	0.00	0.00	6,599.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,400.0	0.00	0.00	6,699.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,500.0	0.00	0.00	6,799.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,600.0	0.00	0.00	6,899.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,668.4	0.00	0.00	6,967.4	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
Rollins									
7,700.0	0.00	0.00	6,999.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,099.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,199.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
7,968.0	0.00	0.00	7,267.0	-920.4	2,093.6	2,287.0	0.00	0.00	0.00
TD at 7968.0									

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Project:	Rockies Region	MD Reference:	CSF 44C-09-07-91 @ 6765.4usft (Original Well Elev)
Site:	CSF E	North Reference:	True
Well:	CSF 44C-09-07-91	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

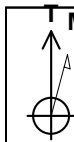
Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
CSF 44C-09-07-91 TGT	0.00	0.00	5,270.0	-920.4	2,093.6	1,597,520.48	2,420,798.11	39° 27' 21.632 N	107° 33' 5.246 W
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D1,997.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
3,236.7	2,959.4	Williams Fork		0.00		
5,399.9	4,710.4	Top of Gas		0.00		
6,411.4	5,710.4	Cameo		0.00		
7,668.4	6,967.4	Rollins		0.00		

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
1,200.0	1,200.0	0.0	0.0	Start Build 3.50	
2,279.8	2,203.2	-138.2	314.3	Start 2611.5 hold at 2279.8 MD	
4,891.2	4,266.8	-782.2	1,779.3	Start Drop -3.50	
5,971.0	5,270.0	-920.4	2,093.6	Start 1997.0 hold at 5971.0 MD	
7,968.0	7,267.0	-920.4	2,093.6	TD at 7968.0	



Well Name: CSF 44C-09-07-91
Surface Location: CSF E
North American Datum 1983, US State Plane 1983, Colorado Central Zone
Ground Elevation: 6750.0
+N/-S +E/-W Northing Easting Latitude Longitude Slot
0.0 0.0 1598488.09 2418725.86 39° 27' 30.729 N 107° 33' 31.939 W
Original Well Elev CSF 44C-09-07-91
@ 6765.4usft (Original Well Elev)



Azimuths to True North
Magnetic North: 9.78°
Magnetic Field
Strength: 52058.6snT
Dip Angle: 65.73°
Date: 1/17/2014
Model: IGRF200510

CSF E
CSF 44C-09-07-91
Design #1
18:04, January 20 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
CSF 44C-09-07-91 TGT	5270.0	-920.4	2093.6	1597520.48	2420798.11	39° 27' 21.632 N	107° 33' 5.246 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	1200.0	0.00	0.00	1200.0	0.0	0.0	0.00	0.00	0.0	
3	2279.8	37.79	113.73	2203.2	-138.2	314.3	3.50	113.73	343.4	
4	4891.2	37.79	113.73	4266.8	-782.2	1779.3	0.00	0.00	1943.7	
5	5971.0	0.00	0.00	5270.0	-920.4	2093.6	3.50	180.00	2287.0	CSF 44C-09-07-91 TGT
6	7968.0	0.00	0.00	7267.0	-920.4	2093.6	0.00	0.00	2287.0	

ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	Start Build 3.50
2203.2	2279.8	Start 2611.5 hold at 2279.8 MD
4266.8	4891.2	Start Drop -3.50
5270.0	5971.0	Start 1997.0 hold at 5971.0 MD
7267.0	7968.0	TD at 7968.0

FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
2959.4	3236.7	Williams Fork	0.00	
4710.4	5399.9	Top of Gas	0.00	
5710.4	6411.4	Cameo	0.00	
6967.4	7668.4	Rollins	0.00	

