



# **Ursa Operating Company, LLC**

**Rockies Region**

**CSF I**

**CSF I 14B-09-07-91**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**16 December, 2014**



<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF I 14B-09-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	CSF I 14B-09-07-91 @ 7860.0usft (PAD Est KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF I 14B-09-07-91 @ 7860.0usft (PAD Est KB)
<b>Site:</b>	CSF I	<b>North Reference:</b>	True
<b>Well:</b>	CSF I 14B-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Rockies Region		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Central Zone		

Site	CSF I				
Site Position:		Northing:	1,597,123.56 usft	Latitude:	39° 27' 17.600 N
From:	Lat/Long	Easting:	2,420,307.03 usft	Longitude:	107° 33' 11.391 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.29 °

Well	CSF I 14B-09-07-91, SHL LAT: 39.454860261 LONG: -107.553300935					
Well Position	+N/-S	-10.5 usft	Northing:	1,597,113.99 usft	Latitude:	39° 27' 17.497 N
	+E/-W	-38.6 usft	Easting:	2,420,268.19 usft	Longitude:	107° 33' 11.883 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	7,860.0 usft	Ground Level:	7,845.0 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/12/2014	9.69	65.69	51,916

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.0	0.0	0.0	284.31

<b>Plan Sections</b>										
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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,420.4	35.72	284.31	1,355.6	76.1	-298.3	3.50	3.50	0.00	284.31	
6,457.5	35.72	284.31	5,445.4	802.9	-3,147.5	0.00	0.00	0.00	0.00	
7,478.0	0.00	0.00	6,401.0	878.9	-3,445.9	3.50	-3.50	0.00	180.00	
9,150.0	0.00	0.00	8,073.0	878.9	-3,445.9	0.00	0.00	0.00	0.00	

<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF I 14B-09-07-91
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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF I 14B-09-07-91 @ 7860.0usft (PAD Est KB)
<b>Site:</b>	CSF I	<b>North Reference:</b>	True
<b>Well:</b>	CSF I 14B-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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
Start Build 3.50									
500.0	3.50	284.31	499.9	0.8	-3.0	3.1	3.50	3.50	0.00
600.0	7.00	284.31	599.5	3.0	-11.8	12.2	3.50	3.50	0.00
700.0	10.50	284.31	698.3	6.8	-26.6	27.4	3.50	3.50	0.00
800.0	14.00	284.31	796.0	12.0	-47.1	48.6	3.50	3.50	0.00
900.0	17.50	284.31	892.3	18.7	-73.4	75.8	3.50	3.50	0.00
1,000.0	21.00	284.31	986.7	26.9	-105.4	108.7	3.50	3.50	0.00
1,100.0	24.50	284.31	1,078.9	36.4	-142.8	147.4	3.50	3.50	0.00
1,123.3	25.32	284.31	1,100.0	38.9	-152.3	157.2	3.50	3.50	0.00
Surface Casing									
1,200.0	28.00	284.31	1,168.5	47.4	-185.7	191.6	3.50	3.50	0.00
1,300.0	31.50	284.31	1,255.3	59.6	-233.7	241.2	3.50	3.50	0.00
1,400.0	35.00	284.31	1,339.0	73.2	-286.9	296.1	3.50	3.50	0.00
1,420.4	35.72	284.31	1,355.6	76.1	-298.3	307.9	3.50	3.50	0.00
Start 5037.1 hold at 1420.4 MD									
1,500.0	35.72	284.31	1,420.2	87.6	-343.3	354.3	0.00	0.00	0.00
1,600.0	35.72	284.31	1,501.4	102.0	-399.9	412.7	0.00	0.00	0.00
1,700.0	35.72	284.31	1,582.6	116.4	-456.5	471.1	0.00	0.00	0.00
1,800.0	35.72	284.31	1,663.8	130.9	-513.0	529.5	0.00	0.00	0.00
1,900.0	35.72	284.31	1,745.0	145.3	-569.6	587.8	0.00	0.00	0.00
2,000.0	35.72	284.31	1,826.2	159.7	-626.2	646.2	0.00	0.00	0.00
2,100.0	35.72	284.31	1,907.4	174.1	-682.7	704.6	0.00	0.00	0.00
2,200.0	35.72	284.31	1,988.6	188.6	-739.3	763.0	0.00	0.00	0.00
2,300.0	35.72	284.31	2,069.8	203.0	-795.8	821.3	0.00	0.00	0.00
2,400.0	35.72	284.31	2,151.0	217.4	-852.4	879.7	0.00	0.00	0.00
2,500.0	35.72	284.31	2,232.2	231.9	-909.0	938.1	0.00	0.00	0.00
2,600.0	35.72	284.31	2,313.3	246.3	-965.5	996.5	0.00	0.00	0.00
2,700.0	35.72	284.31	2,394.5	260.7	-1,022.1	1,054.8	0.00	0.00	0.00
2,800.0	35.72	284.31	2,475.7	275.1	-1,078.7	1,113.2	0.00	0.00	0.00
2,900.0	35.72	284.31	2,556.9	289.6	-1,135.2	1,171.6	0.00	0.00	0.00
3,000.0	35.72	284.31	2,638.1	304.0	-1,191.8	1,230.0	0.00	0.00	0.00
3,100.0	35.72	284.31	2,719.3	318.4	-1,248.4	1,288.3	0.00	0.00	0.00
3,200.0	35.72	284.31	2,800.5	332.9	-1,304.9	1,346.7	0.00	0.00	0.00
3,300.0	35.72	284.31	2,881.7	347.3	-1,361.5	1,405.1	0.00	0.00	0.00
3,400.0	35.72	284.31	2,962.9	361.7	-1,418.1	1,463.5	0.00	0.00	0.00
3,500.0	35.72	284.31	3,044.1	376.1	-1,474.6	1,521.8	0.00	0.00	0.00
3,600.0	35.72	284.31	3,125.3	390.6	-1,531.2	1,580.2	0.00	0.00	0.00
3,700.0	35.72	284.31	3,206.5	405.0	-1,587.8	1,638.6	0.00	0.00	0.00
3,800.0	35.72	284.31	3,287.7	419.4	-1,644.3	1,697.0	0.00	0.00	0.00
3,900.0	35.72	284.31	3,368.9	433.8	-1,700.9	1,755.3	0.00	0.00	0.00
4,000.0	35.72	284.31	3,450.0	448.3	-1,757.4	1,813.7	0.00	0.00	0.00
4,100.0	35.72	284.31	3,531.2	462.7	-1,814.0	1,872.1	0.00	0.00	0.00
4,200.0	35.72	284.31	3,612.4	477.1	-1,870.6	1,930.5	0.00	0.00	0.00
4,300.0	35.72	284.31	3,693.6	491.6	-1,927.1	1,988.8	0.00	0.00	0.00
4,400.0	35.72	284.31	3,774.8	506.0	-1,983.7	2,047.2	0.00	0.00	0.00
4,500.0	35.72	284.31	3,856.0	520.4	-2,040.3	2,105.6	0.00	0.00	0.00
Williams Fork									

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<b>Site:</b>	CSF I	<b>North Reference:</b>	True
<b>Well:</b>	CSF I 14B-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
4,600.0	35.72	284.31	3,937.2	534.8	-2,096.8	2,164.0	0.00	0.00	0.00
4,700.0	35.72	284.31	4,018.4	549.3	-2,153.4	2,222.3	0.00	0.00	0.00
4,800.0	35.72	284.31	4,099.6	563.7	-2,210.0	2,280.7	0.00	0.00	0.00
4,900.0	35.72	284.31	4,180.8	578.1	-2,266.5	2,339.1	0.00	0.00	0.00
5,000.0	35.72	284.31	4,262.0	592.6	-2,323.1	2,397.5	0.00	0.00	0.00
5,100.0	35.72	284.31	4,343.2	607.0	-2,379.7	2,455.8	0.00	0.00	0.00
5,200.0	35.72	284.31	4,424.4	621.4	-2,436.2	2,514.2	0.00	0.00	0.00
5,300.0	35.72	284.31	4,505.6	635.8	-2,492.8	2,572.6	0.00	0.00	0.00
5,400.0	35.72	284.31	4,586.7	650.3	-2,549.4	2,631.0	0.00	0.00	0.00
5,500.0	35.72	284.31	4,667.9	664.7	-2,605.9	2,689.4	0.00	0.00	0.00
5,600.0	35.72	284.31	4,749.1	679.1	-2,662.5	2,747.7	0.00	0.00	0.00
5,700.0	35.72	284.31	4,830.3	693.6	-2,719.0	2,806.1	0.00	0.00	0.00
5,800.0	35.72	284.31	4,911.5	708.0	-2,775.6	2,864.5	0.00	0.00	0.00
5,900.0	35.72	284.31	4,992.7	722.4	-2,832.2	2,922.9	0.00	0.00	0.00
6,000.0	35.72	284.31	5,073.9	736.8	-2,888.7	2,981.2	0.00	0.00	0.00
6,100.0	35.72	284.31	5,155.1	751.3	-2,945.3	3,039.6	0.00	0.00	0.00
6,200.0	35.72	284.31	5,236.3	765.7	-3,001.9	3,098.0	0.00	0.00	0.00
6,300.0	35.72	284.31	5,317.5	780.1	-3,058.4	3,156.4	0.00	0.00	0.00
6,400.0	35.72	284.31	5,398.7	794.6	-3,115.0	3,214.7	0.00	0.00	0.00
6,457.5	35.72	284.31	5,445.4	802.9	-3,147.5	3,248.3	0.00	0.00	0.00
<b>Start Drop -3.50</b>									
6,500.0	34.23	284.31	5,480.2	808.9	-3,171.1	3,272.7	3.50	-3.50	0.00
6,600.0	30.73	284.31	5,564.5	822.1	-3,223.1	3,326.3	3.50	-3.50	0.00
6,700.0	27.23	284.31	5,652.0	834.1	-3,270.1	3,374.8	3.50	-3.50	0.00
6,800.0	23.73	284.31	5,742.3	844.7	-3,311.8	3,417.8	3.50	-3.50	0.00
6,900.0	20.23	284.31	5,835.0	854.0	-3,348.0	3,455.2	3.50	-3.50	0.00
6,906.4	20.00	284.31	5,841.0	854.5	-3,350.2	3,457.4	3.50	-3.50	0.00
<b>Top of Gas</b>									
7,000.0	16.73	284.31	5,929.8	861.8	-3,378.7	3,486.9	3.50	-3.50	0.00
7,100.0	13.23	284.31	6,026.4	868.2	-3,403.8	3,512.8	3.50	-3.50	0.00
7,200.0	9.73	284.31	6,124.4	873.1	-3,423.0	3,532.6	3.50	-3.50	0.00
7,300.0	6.23	284.31	6,223.4	876.6	-3,436.5	3,546.5	3.50	-3.50	0.00
7,400.0	2.73	284.31	6,323.1	878.5	-3,444.1	3,554.3	3.50	-3.50	0.00
7,478.0	0.00	0.00	6,401.0	878.9	-3,445.9	3,556.2	3.50	-3.50	0.00
<b>Start 1672.0 hold at 7478.0 MD - Back to Vertical</b>									
7,500.0	0.00	0.00	6,423.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
7,600.0	0.00	0.00	6,523.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
7,700.0	0.00	0.00	6,623.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
7,770.0	0.00	0.00	6,693.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
<b>Cameo</b>									
7,800.0	0.00	0.00	6,723.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
7,900.0	0.00	0.00	6,823.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,000.0	0.00	0.00	6,923.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,100.0	0.00	0.00	7,023.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,200.0	0.00	0.00	7,123.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,300.0	0.00	0.00	7,223.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,400.0	0.00	0.00	7,323.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,500.0	0.00	0.00	7,423.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,600.0	0.00	0.00	7,523.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,700.0	0.00	0.00	7,623.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
8,800.0	0.00	0.00	7,723.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00

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<b>Well:</b>	CSF I 14B-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	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)
8,850.0	0.00	0.00	7,773.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
<b>Rollins</b>									
8,900.0	0.00	0.00	7,823.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
9,000.0	0.00	0.00	7,923.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
9,100.0	0.00	0.00	8,023.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
9,150.0	0.00	0.00	8,073.0	878.9	-3,445.9	3,556.2	0.00	0.00	0.00
<b>TD at 9150.0</b>									

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									
14B-09-07-91 TGT	0.00	0.00	5,841.0	878.9	-3,445.9	1,598,070.58	2,416,843.08	39° 27' 26.182 N	107° 33' 55.818 W
- plan misses target center by 93.1usft at 6937.5usft MD (5870.3 TVD, 857.1 N, -3360.2 E)									
- Rectangle (sides W100.0 H40.0 D2,232.0)									

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,500.0	3,856.0	Williams Fork		0.00	
6,906.4	5,841.0	Top of Gas		0.00	
7,770.0	6,693.0	Cameo		0.00	
8,850.0	7,773.0	Rollins		0.00	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
400.0	400.0	0.0	0.0	Start Build 3.50
1,123.3	1,100.0	38.9	-152.3	Surface Casing
1,420.4	1,355.6	76.1	-298.3	Start 5037.1 hold at 1420.4 MD
6,457.5	5,445.4	802.9	-3,147.5	Start Drop -3.50
7,478.0	6,401.0	878.9	-3,445.9	Start 1672.0 hold at 7478.0 MD
7,478.0	6,401.0	878.9	-3,445.9	Back to Vertical
9,150.0	8,073.0	878.9	-3,445.9	TD at 9150.0



Well Name: CSF I 14B-09-07-91  
Surface Location: CSF I  
North American Datum 1983 , US State Plane 1983 , Colorado Central Zone  
Ground Elevation: 7845.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1597113.99 2420268.19 39° 27' 17.497 N 107° 33' 11.883 W  
PAD Est KB CSF I 14B-09-07-91 @ 7860.0usft (PAD Est KB)



Azimuths to True North  
Magnetic North: 9.69°  
Magnetic Field  
Strength: 51916.3snT  
Dip Angle: 65.69°  
Date: 12/12/2014  
Model: IGRF2010

CSF I  
CSF I 14B-09-07-91  
Design #1  
17:34, December 16 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
14B-09-07-91 TGT	5841.0	878.9	-3445.9	1598070.59	2416843.07	39° 27' 26.182 N	107° 33' 55.818 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	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1420.4	35.72	284.31	1355.6	76.1	-298.3	3.50	284.31	307.9	
4	6457.5	35.72	284.31	5445.4	802.9	-3147.5	0.00	0.00	3248.3	
5	7478.0	0.00	0.00	6401.0	878.9	-3445.9	3.50	180.00	3556.2	
6	9150.0	0.00	0.00	8073.0	878.9	-3445.9	0.00	0.00	3556.2	

#### ANNOTATIONS

TVD	MD	Annotation
400.0	400.0	Start Build 3.50
1100.0	1123.3	Surface Casing
1355.6	1420.4	Start 5037.1 hold at 1420.4 MD
5445.4	6457.5	Start Drop -3.50
6401.0	7478.0	Start 1672.0 hold at 7478.0 MD
6401.0	7478.0	Back to Vertical
8073.0	9150.0	TD at 9150.0

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3856.0	4500.0	Williams Fork	0.00	
5841.0	6906.4	Top of Gas	0.00	
6693.0	7770.0	Cameo	0.00	
7773.0	8850.0	Rollins	0.00	

