



# **Ursa Operating Company, LLC**

**Rockies Region**

**CSF Q**

**CSF 42A-15-07-91**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**30 January, 2014**



<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 42A-15-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Mean Sea Level
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 42A-15-07-91 @ 7300.4usft (OrigPAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 42A-15-07-91	<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 Q			
Site Position:		Northing:	1,597,555.05 usft	Latitude:	39° 27' 22.939 N
From:	Lat/Long	Easting:	2,425,142.43 usft	Longitude:	107° 32' 9.881 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-1.28

Well	CSF 42A-15-07-91, SHL LAT: 39.45635867 LONG: -107.5360373					
Well Position	+N/-S	-4.9 usft	Northing:	1,597,549.92 usft	Latitude:	39° 27' 22.891 N
	+E/-W	11.5 usft	Easting:	2,425,153.84 usft	Longitude:	107° 32' 9.734 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	7,300.4 usft	Ground Level:	7,285.0 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>
	IGRF200510	1/30/2014	9.76	65.73	52,052

<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>
	-7,300.4	0.0	0.0	153.51

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD Below System (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	
1,500.0	3.00	180.00	1,499.9	-7.9	0.0	1.00	1.00	0.00	180.00	
2,298.4	30.59	153.17	2,257.3	-214.2	93.6	3.50	3.46	-3.36	-29.35	
5,691.3	30.59	153.17	5,177.9	-1,755.0	873.0	0.00	0.00	0.00	0.00	
6,565.4	0.00	0.00	6,011.0	-1,958.3	975.9	3.50	-3.50	0.00	180.00	42A-15-07-91 TGT
8,430.4	0.00	0.00	7,876.0	-1,958.3	975.9	0.00	0.00	0.00	0.00	

<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 42A-15-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	Mean Sea Level
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 42A-15-07-91 @ 7300.4usft (OrigPAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 42A-15-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

## Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD Below System (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
<b>Start Build 1.00</b>									
1,300.0	1.00	180.00	1,300.0	-0.9	0.0	0.8	1.00	1.00	0.00
1,400.0	2.00	180.00	1,400.0	-3.5	0.0	3.1	1.00	1.00	0.00
1,500.0	3.00	180.00	1,499.9	-7.9	0.0	7.0	1.00	1.00	0.00
<b>Start DLS 3.50 TFO -29.35</b>									
1,600.0	6.29	164.15	1,599.5	-15.7	1.5	14.8	3.50	3.29	-15.85
1,700.0	9.73	159.29	1,698.5	-28.9	6.0	28.5	3.50	3.44	-4.86
1,800.0	13.20	156.96	1,796.5	-47.3	13.4	48.4	3.50	3.47	-2.33
1,900.0	16.68	155.59	1,893.1	-70.9	23.8	74.1	3.50	3.48	-1.37
2,000.0	20.17	154.69	1,988.0	-99.6	37.1	105.7	3.50	3.49	-0.91
2,100.0	23.66	154.04	2,080.8	-133.2	53.3	143.0	3.50	3.49	-0.65
2,200.0	27.15	153.55	2,171.1	-171.7	72.3	185.9	3.50	3.49	-0.49
2,298.4	30.59	153.17	2,257.3	-214.2	93.6	233.4	3.50	3.50	-0.39
<b>Start 3392.9 hold at 2298.4 MD</b>									
2,300.0	30.59	153.17	2,258.6	-214.9	93.9	234.2	0.00	0.00	0.00
2,400.0	30.59	153.17	2,344.7	-260.3	116.9	285.1	0.00	0.00	0.00
2,500.0	30.59	153.17	2,430.8	-305.7	139.9	336.0	0.00	0.00	0.00
2,600.0	30.59	153.17	2,516.8	-351.1	162.9	386.9	0.00	0.00	0.00
2,700.0	30.59	153.17	2,602.9	-396.5	185.8	437.8	0.00	0.00	0.00
2,800.0	30.59	153.17	2,689.0	-441.9	208.8	488.7	0.00	0.00	0.00
2,900.0	30.59	153.17	2,775.1	-487.3	231.8	539.6	0.00	0.00	0.00
3,000.0	30.59	153.17	2,861.2	-532.8	254.7	590.4	0.00	0.00	0.00
3,100.0	30.59	153.17	2,947.2	-578.2	277.7	641.3	0.00	0.00	0.00
3,200.0	30.59	153.17	3,033.3	-623.6	300.7	692.2	0.00	0.00	0.00
3,300.0	30.59	153.17	3,119.4	-669.0	323.7	743.1	0.00	0.00	0.00
3,400.0	30.59	153.17	3,205.5	-714.4	346.6	794.0	0.00	0.00	0.00
3,500.0	30.59	153.17	3,291.6	-759.8	369.6	844.9	0.00	0.00	0.00
3,600.0	30.59	153.17	3,377.7	-805.2	392.6	895.8	0.00	0.00	0.00
3,700.0	30.59	153.17	3,463.7	-850.6	415.6	946.7	0.00	0.00	0.00
3,800.0	30.59	153.17	3,549.8	-896.1	438.5	997.6	0.00	0.00	0.00
3,900.0	30.59	153.17	3,635.9	-941.5	461.5	1,048.5	0.00	0.00	0.00
3,957.0	30.59	153.17	3,685.0	-967.4	474.6	1,077.5	0.00	0.00	0.00
<b>Williams Fork</b>									
4,000.0	30.59	153.17	3,722.0	-986.9	484.5	1,099.4	0.00	0.00	0.00
4,100.0	30.59	153.17	3,808.1	-1,032.3	507.4	1,150.3	0.00	0.00	0.00
4,200.0	30.59	153.17	3,894.1	-1,077.7	530.4	1,201.2	0.00	0.00	0.00
4,300.0	30.59	153.17	3,980.2	-1,123.1	553.4	1,252.1	0.00	0.00	0.00
4,400.0	30.59	153.17	4,066.3	-1,168.5	576.4	1,302.9	0.00	0.00	0.00
4,500.0	30.59	153.17	4,152.4	-1,214.0	599.3	1,353.8	0.00	0.00	0.00
4,600.0	30.59	153.17	4,238.5	-1,259.4	622.3	1,404.7	0.00	0.00	0.00

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 42A-15-07-91 @ 7300.4usft (OrigPAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 42A-15-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

## Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	TVD Below System (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,700.0	30.59	153.17	4,324.5	-1,304.8	645.3	1,455.6	0.00	0.00	0.00
4,800.0	30.59	153.17	4,410.6	-1,350.2	668.3	1,506.5	0.00	0.00	0.00
4,900.0	30.59	153.17	4,496.7	-1,395.6	691.2	1,557.4	0.00	0.00	0.00
5,000.0	30.59	153.17	4,582.8	-1,441.0	714.2	1,608.3	0.00	0.00	0.00
5,100.0	30.59	153.17	4,668.9	-1,486.4	737.2	1,659.2	0.00	0.00	0.00
5,200.0	30.59	153.17	4,754.9	-1,531.9	760.2	1,710.1	0.00	0.00	0.00
5,300.0	30.59	153.17	4,841.0	-1,577.3	783.1	1,761.0	0.00	0.00	0.00
5,400.0	30.59	153.17	4,927.1	-1,622.7	806.1	1,811.9	0.00	0.00	0.00
5,500.0	30.59	153.17	5,013.2	-1,668.1	829.1	1,862.8	0.00	0.00	0.00
5,600.0	30.59	153.17	5,099.3	-1,713.5	852.0	1,913.7	0.00	0.00	0.00
5,691.3	30.59	153.17	5,177.9	-1,755.0	873.0	1,960.1	0.00	0.00	0.00
<b>Start Drop -3.50</b>									
5,700.0	30.29	153.17	5,185.4	-1,758.9	875.0	1,964.5	3.50	-3.50	0.00
5,800.0	26.79	153.17	5,273.2	-1,801.5	896.6	2,012.3	3.50	-3.50	0.00
5,900.0	23.29	153.17	5,363.8	-1,839.3	915.7	2,054.6	3.50	-3.50	0.00
6,000.0	19.79	153.17	5,456.8	-1,872.0	932.2	2,091.3	3.50	-3.50	0.00
6,100.0	16.29	153.17	5,551.8	-1,899.7	946.2	2,122.3	3.50	-3.50	0.00
6,200.0	12.79	153.17	5,648.6	-1,922.1	957.5	2,147.4	3.50	-3.50	0.00
6,300.0	9.29	153.17	5,746.8	-1,939.1	966.2	2,166.5	3.50	-3.50	0.00
6,400.0	5.79	153.17	5,845.9	-1,950.9	972.1	2,179.6	3.50	-3.50	0.00
6,500.0	2.29	153.17	5,945.6	-1,957.1	975.3	2,186.7	3.50	-3.50	0.00
6,565.4	0.00	0.00	6,011.0	-1,958.3	975.9	2,188.0	3.50	-3.50	0.00
<b>Start 1865.0 hold at 6565.4 MD - Top of Gas - 42A-15-07-91 TGT</b>									
6,600.0	0.00	0.00	6,045.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,145.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
6,714.4	0.00	0.00	6,160.0	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
<b>Cameo</b>									
6,800.0	0.00	0.00	6,245.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,345.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,000.0	0.00	0.00	6,445.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,100.0	0.00	0.00	6,545.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,200.0	0.00	0.00	6,645.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,300.0	0.00	0.00	6,745.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,400.0	0.00	0.00	6,845.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,500.0	0.00	0.00	6,945.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,045.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,145.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,245.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,345.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
8,000.0	0.00	0.00	7,445.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
8,100.0	0.00	0.00	7,545.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
8,130.4	0.00	0.00	7,576.0	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
<b>Rollins</b>									
8,200.0	0.00	0.00	7,645.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
8,300.0	0.00	0.00	7,745.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
8,400.0	0.00	0.00	7,845.6	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
8,430.4	0.00	0.00	7,876.0	-1,958.3	975.9	2,188.0	0.00	0.00	0.00
<b>TD at 8430.4</b>									

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 42A-15-07-91 @ 7300.4usft (OrigPAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 42A-15-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
42A-15-07-91 TGT	0.00	0.00	6,011.0	-1,958.3	975.9	1,595,570.24	2,426,085.59	39° 27' 3.536 N	107° 31' 57.293 W
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D1,865.0)									

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
3,957.0	3,685.0	Williams Fork		0.00		
6,565.4	6,011.0	Top of Gas		0.00		
6,714.4	6,160.0	Cameo		0.00		
8,130.4	7,576.0	Rollins		0.00		

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	Comment	
1,200.0	1,200.0	0.0	0.0	Start Build 1.00	
1,500.0	1,499.9	-7.9	0.0	Start DLS 3.50 TFO -29.35	
2,298.4	2,257.3	-214.2	93.6	Start 3392.9 hold at 2298.4 MD	
5,691.3	5,177.9	-1,755.0	873.0	Start Drop -3.50	
6,565.4	6,011.0	-1,958.3	975.9	Start 1865.0 hold at 6565.4 MD	
8,430.4	7,876.0	-1,958.3	975.9	TD at 8430.4	



Well Name: CSF 42A-15-07-91  
Surface Location: CSF Q  
North American Datum 1983, US State Plane 1983, Colorado Central Zone  
Ground Elevation: 7285.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1597549.93 2425153.84 39° 27' 22.891 N 107° 32' 9.734 W  
OrigPAD Est KB CSF 42A-15-07-91 @ 7300.4usft (OrigPAD Est KB)



Azimuths to True North  
Magnetic North: 9.76°  
Magnetic Field  
Strength: 52052.5snT  
Dip Angle: 65.73°  
Date: 1/30/2014  
Model: IGRF200510

CSF Q  
CSF 42A-15-07-91  
Design #1  
11:05, January 30 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
42A-15-07-91 TGT	6011.0	-1958.3	975.9	1595570.25	2426085.59	39° 27' 22.891 N	107° 32' 9.734 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	1500.0	3.00	180.00	1499.9	-7.9	0.0	1.00	180.00	7.0	
4	2298.4	30.59	153.17	2257.3	-214.2	93.6	3.50	-29.35	233.4	
5	5691.3	30.59	153.17	5177.9	-1755.0	873.0	0.00	0.00	1960.1	
6	6565.4	0.00	0.00	6011.0	-1958.3	975.9	3.50	180.00	2188.0	42A-15-07-91 TGT
7	8430.4	0.00	0.00	7876.0	-1958.3	975.9	0.00	0.00	2188.0	

#### ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	Start Build 1.00
1499.9	1500.0	Start DLS 3.50 TFO -29.35
2257.3	2298.4	Start 3392.9 hold at 2298.4 MD
5177.9	5691.3	Start Drop -3.50
6011.0	6565.4	Start 1865.0 hold at 6565.4 MD
7876.0	8430.4	TD at 8430.4

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3685.0	3957.0	Williams Fork	0.00	
6011.0	6565.4	Top of Gas	0.00	
6160.0	6714.4	Cameo	0.00	
7576.0	8130.4	Rollins	0.00	

