



# **Ursa Operating Company, LLC**

**Rockies Region**

**CSF E**

**CSF 22C-09-07-91**

**Wellbore #1**

**Plan: Design #2**

## **Standard Planning Report**

**23 January, 2014**



<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 22C-09-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	WELL @ 6765.4usft (Original Well Elev)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	WELL @ 6765.4usft (Original Well Elev)
<b>Site:</b>	CSF E	<b>North Reference:</b>	True
<b>Well:</b>	CSF 22C-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

<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 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 22C-09-07-91, SHL LAT: 39.458485 LONG: -107.558944					
Well Position	+N/-S	-1,714.6 usft	Northing:	1,598,469.97 usft	Latitude:	39° 27' 30.546 N
	+E/-W	548.2 usft	Easting:	2,418,705.11 usft	Longitude:	107° 33' 32.198 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	6,765.4 usft	Ground Level:	6,750.0 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	1/17/2014	9.78	65.73	52,059

<b>Design</b>	Design #2			
<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	342.27

<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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,165.2	33.78	342.27	2,110.2	263.3	-84.2	3.50	3.50	0.00	342.27	
4,408.5	33.78	342.27	3,974.8	1,451.3	-464.0	0.00	0.00	0.00	0.00	
5,373.7	0.00	0.00	4,885.0	1,714.6	-548.2	3.50	-3.50	0.00	180.00	CSF 22C-09-07-91 T
7,930.7	0.00	0.00	7,442.0	1,714.6	-548.2	0.00	0.00	0.00	0.00	

<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 22C-09-07-91
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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	WELL @ 6765.4usft (Original Well Elev)
<b>Site:</b>	CSF E	<b>North Reference:</b>	True
<b>Well:</b>	CSF 22C-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

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	342.27	1,299.9	2.9	-0.9	3.1	3.50	3.50	0.00
1,400.0	7.00	342.27	1,399.5	11.6	-3.7	12.2	3.50	3.50	0.00
1,500.0	10.50	342.27	1,498.3	26.1	-8.3	27.4	3.50	3.50	0.00
1,600.0	14.00	342.27	1,596.0	46.3	-14.8	48.6	3.50	3.50	0.00
1,700.0	17.50	342.27	1,692.3	72.2	-23.1	75.8	3.50	3.50	0.00
1,800.0	21.00	342.27	1,786.7	103.6	-33.1	108.7	3.50	3.50	0.00
1,900.0	24.50	342.27	1,878.9	140.4	-44.9	147.4	3.50	3.50	0.00
2,000.0	28.00	342.27	1,968.5	182.5	-58.4	191.6	3.50	3.50	0.00
2,100.0	31.50	342.27	2,055.3	229.8	-73.5	241.2	3.50	3.50	0.00
2,165.2	33.78	342.27	2,110.2	263.3	-84.2	276.4	3.50	3.50	0.00
Start 2243.3 hold at 2165.2 MD									
2,200.0	33.78	342.27	2,139.2	281.7	-90.1	295.7	0.00	0.00	0.00
2,300.0	33.78	342.27	2,222.3	334.7	-107.0	351.3	0.00	0.00	0.00
2,400.0	33.78	342.27	2,305.4	387.6	-123.9	407.0	0.00	0.00	0.00
2,500.0	33.78	342.27	2,388.5	440.6	-140.9	462.6	0.00	0.00	0.00
2,600.0	33.78	342.27	2,471.6	493.5	-157.8	518.2	0.00	0.00	0.00
2,700.0	33.78	342.27	2,554.7	546.5	-174.7	573.8	0.00	0.00	0.00
2,800.0	33.78	342.27	2,637.9	599.5	-191.7	629.4	0.00	0.00	0.00
2,900.0	33.78	342.27	2,721.0	652.4	-208.6	685.0	0.00	0.00	0.00
3,000.0	33.78	342.27	2,804.1	705.4	-225.5	740.6	0.00	0.00	0.00
3,100.0	33.78	342.27	2,887.2	758.3	-242.5	796.2	0.00	0.00	0.00
3,200.0	33.78	342.27	2,970.3	811.3	-259.4	851.8	0.00	0.00	0.00
3,300.0	33.78	342.27	3,053.4	864.3	-276.3	907.4	0.00	0.00	0.00
3,397.4	33.78	342.27	3,134.4	915.9	-292.8	961.5	0.00	0.00	0.00
Williams Fork									
3,400.0	33.78	342.27	3,136.6	917.2	-293.3	963.0	0.00	0.00	0.00
3,500.0	33.78	342.27	3,219.7	970.2	-310.2	1,018.6	0.00	0.00	0.00
3,600.0	33.78	342.27	3,302.8	1,023.2	-327.1	1,074.2	0.00	0.00	0.00
3,700.0	33.78	342.27	3,385.9	1,076.1	-344.1	1,129.8	0.00	0.00	0.00
3,800.0	33.78	342.27	3,469.0	1,129.1	-361.0	1,185.4	0.00	0.00	0.00
3,900.0	33.78	342.27	3,552.1	1,182.0	-377.9	1,241.0	0.00	0.00	0.00
4,000.0	33.78	342.27	3,635.3	1,235.0	-394.9	1,296.6	0.00	0.00	0.00
4,100.0	33.78	342.27	3,718.4	1,288.0	-411.8	1,352.2	0.00	0.00	0.00
4,200.0	33.78	342.27	3,801.5	1,340.9	-428.7	1,407.8	0.00	0.00	0.00
4,300.0	33.78	342.27	3,884.6	1,393.9	-445.7	1,463.4	0.00	0.00	0.00
4,408.5	33.78	342.27	3,974.8	1,451.3	-464.0	1,523.7	0.00	0.00	0.00
Start Drop -3.50									
4,500.0	30.58	342.27	4,052.2	1,497.8	-478.9	1,572.4	3.50	-3.50	0.00
4,600.0	27.08	342.27	4,139.8	1,543.7	-493.6	1,620.7	3.50	-3.50	0.00
4,700.0	23.58	342.27	4,230.2	1,584.4	-506.6	1,663.4	3.50	-3.50	0.00

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	WELL @ 6765.4usft (Original Well Elev)
<b>Site:</b>	CSF E	<b>North Reference:</b>	True
<b>Well:</b>	CSF 22C-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

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)
4,800.0	20.08	342.27	4,323.0	1,619.8	-517.9	1,700.6	3.50	-3.50	0.00
4,900.0	16.58	342.27	4,417.9	1,649.8	-527.5	1,732.0	3.50	-3.50	0.00
5,000.0	13.08	342.27	4,514.6	1,674.1	-535.3	1,757.6	3.50	-3.50	0.00
5,100.0	9.58	342.27	4,612.6	1,692.9	-541.3	1,777.3	3.50	-3.50	0.00
5,200.0	6.08	342.27	4,711.7	1,705.8	-545.4	1,790.9	3.50	-3.50	0.00
5,300.0	2.58	342.27	4,811.4	1,713.0	-547.7	1,798.4	3.50	-3.50	0.00
5,373.7	0.00	0.00	4,885.0	1,714.6	-548.2	1,800.1	3.50	-3.50	0.00
Start 2557.0 hold at 5373.7 MD - CSF 22C-09-07-91 TGT									
5,374.1	0.00	0.00	4,885.4	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
Top of Gas									
5,400.0	0.00	0.00	4,911.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
5,500.0	0.00	0.00	5,011.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
5,600.0	0.00	0.00	5,111.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
5,700.0	0.00	0.00	5,211.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
5,800.0	0.00	0.00	5,311.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
5,900.0	0.00	0.00	5,411.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,000.0	0.00	0.00	5,511.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,100.0	0.00	0.00	5,611.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,200.0	0.00	0.00	5,711.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,300.0	0.00	0.00	5,811.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,374.1	0.00	0.00	5,885.4	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
Cameo									
6,400.0	0.00	0.00	5,911.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,500.0	0.00	0.00	6,011.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,600.0	0.00	0.00	6,111.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,700.0	0.00	0.00	6,211.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,800.0	0.00	0.00	6,311.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
6,900.0	0.00	0.00	6,411.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,000.0	0.00	0.00	6,511.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,100.0	0.00	0.00	6,611.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,200.0	0.00	0.00	6,711.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,300.0	0.00	0.00	6,811.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,400.0	0.00	0.00	6,911.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,500.0	0.00	0.00	7,011.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,600.0	0.00	0.00	7,111.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,631.1	0.00	0.00	7,142.4	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
Rollins									
7,700.0	0.00	0.00	7,211.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,800.0	0.00	0.00	7,311.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,900.0	0.00	0.00	7,411.3	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
7,930.7	0.00	0.00	7,442.0	1,714.6	-548.2	1,800.1	0.00	0.00	0.00
TD at 7930.7									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
CSF 22C-09-07-91 TGT	0.00	0.00	4,885.0	1,714.6	-548.2	1,600,196.54	2,418,195.91	39° 27' 47.492 N	107° 33' 39.189 W
- hit/miss target									
- Shape									
- plan hits target center									
- Rectangle (sides W100.0 H40.0 D2,557.0)									

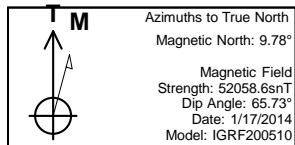
<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 22C-09-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	WELL @ 6765.4usft (Original Well Elev)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	WELL @ 6765.4usft (Original Well Elev)
<b>Site:</b>	CSF E	<b>North Reference:</b>	True
<b>Well:</b>	CSF 22C-09-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,397.4	3,134.4	Williams Fork		0.00	
5,374.1	4,885.4	Top of Gas		0.00	
6,374.1	5,885.4	Cameo		0.00	
7,631.1	7,142.4	Rollins		0.00	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,200.0	1,200.0	0.0	0.0	Start Build 3.50
2,165.2	2,110.2	263.3	-84.2	Start 2243.3 hold at 2165.2 MD
4,408.5	3,974.8	1,451.3	-464.0	Start Drop -3.50
5,373.7	4,885.0	1,714.6	-548.2	Start 2557.0 hold at 5373.7 MD
7,930.7	7,442.0	1,714.6	-548.2	TD at 7930.7



Well Name: CSF 22C-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 1598469.98 2418705.11 39° 27' 30.546 N 107° 33' 32.198 W  
Original Well Elev WELL @ 6765.4usft (Original Well Elev)



CSF E  
CSF 22C-09-07-91  
Design #2  
12:40, January 23 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
CSF 22C-09-07-91	4885.0	1714.6	-548.2	1600196.55	2418195.90	39° 27' 47.492 N	107° 33' 39.189 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	2165.2	33.78	342.27	2110.2	263.3	-84.2	3.50	342.27	276.4	
4	4408.5	33.78	342.27	3974.8	1451.3	-464.0	0.00	0.00	1523.7	
5	5373.7	0.00	0.00	4885.0	1714.6	-548.2	3.50	180.00	1800.1	CSF 22C-09-07-91 TGT
6	7930.7	0.00	0.00	7442.0	1714.6	-548.2	0.00	0.00	1800.1	

#### ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	Start Build 3.50
2110.2	2165.2	Start 2243.3 hold at 2165.2 MD
3974.8	4408.5	Start Drop -3.50
4885.0	5373.7	Start 2557.0 hold at 5373.7 MD
7442.0	7930.7	TD at 7930.7

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3134.4	3397.4	Williams Fork	0.00	
4885.4	5374.1	Top of Gas	0.00	
5885.4	6374.1	Cameo	0.00	
7142.4	7631.1	Rollins	0.00	

