



# **Ursa Operating Company, LLC**

**Rockies Region**

**CSF Q**

**CSF 24A-10-07-91**

**Wellbore #1**

**Plan: Design #2**

## **Standard Planning Report**

**18 February, 2014**



<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 24A-10-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	CSF 24A-10-07-91 @ 7300.4usft (PAD Est KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 24A-10-07-91 @ 7300.4usft (PAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 24A-10-07-91	<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 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 24A-10-07-91, SHL LAT: 39.45637199 LONG: -107.5360781					
Well Position	+N/-S	0.0 usft	Northing:	1,597,555.04 usft	Latitude:	39° 27' 22.939 N
	+E/-W	0.0 usft	Easting:	2,425,142.43 usft	Longitude:	107° 32' 9.881 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 #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	287.68	

<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	
1,500.0	3.00	235.00	1,499.9	-4.5	-6.4	1.00	1.00	0.00	235.00	
2,117.2	23.27	288.32	2,098.6	24.9	-136.9	3.50	3.28	8.64	59.37	
5,824.4	23.27	288.32	5,504.4	485.2	-1,527.0	0.00	0.00	0.00	0.00	
6,489.1	0.00	0.00	6,151.0	527.0	-1,653.4	3.50	-3.50	0.00	180.00	24A-10-07-91 TGT
8,354.1	0.00	0.00	8,016.0	527.0	-1,653.4	0.00	0.00	0.00	0.00	

<b>Database:</b>	MasterDB	<b>Local Co-ordinate Reference:</b>	Well CSF 24A-10-07-91
<b>Company:</b>	Ursa Operating Company, LLC	<b>TVD Reference:</b>	CSF 24A-10-07-91 @ 7300.4usft (PAD Est KB)
<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 24A-10-07-91 @ 7300.4usft (PAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 24A-10-07-91	<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 1.00									
1,300.0	1.00	235.00	1,300.0	-0.5	-0.7	0.5	1.00	1.00	0.00
1,400.0	2.00	235.00	1,400.0	-2.0	-2.9	2.1	1.00	1.00	0.00
1,500.0	3.00	235.00	1,499.9	-4.5	-6.4	4.8	1.00	1.00	0.00
Start DLS 3.50 TFO 59.37									
1,600.0	5.65	267.24	1,599.6	-6.2	-13.5	11.0	3.50	2.65	32.24
1,700.0	8.91	277.62	1,698.8	-5.5	-26.1	23.2	3.50	3.26	10.39
1,800.0	12.30	282.41	1,797.0	-2.1	-44.2	41.4	3.50	3.39	4.78
1,900.0	15.74	285.13	1,894.1	3.7	-67.7	65.6	3.50	3.44	2.73
2,000.0	19.20	286.90	1,989.4	12.0	-96.5	95.6	3.50	3.46	1.77
2,100.0	22.67	288.14	2,082.8	22.8	-130.6	131.3	3.50	3.47	1.24
2,117.2	23.27	288.32	2,098.6	24.9	-136.9	138.0	3.50	3.48	1.04
Start 3707.2 hold at 2117.2 MD									
2,200.0	23.27	288.32	2,174.7	35.2	-168.0	170.7	0.00	0.00	0.00
2,300.0	23.27	288.32	2,266.6	47.6	-205.5	210.2	0.00	0.00	0.00
2,400.0	23.27	288.32	2,358.5	60.0	-243.0	249.7	0.00	0.00	0.00
2,500.0	23.27	288.32	2,450.3	72.4	-280.5	289.2	0.00	0.00	0.00
2,600.0	23.27	288.32	2,542.2	84.8	-318.0	328.7	0.00	0.00	0.00
2,700.0	23.27	288.32	2,634.1	97.3	-355.5	368.2	0.00	0.00	0.00
2,800.0	23.27	288.32	2,725.9	109.7	-393.0	407.7	0.00	0.00	0.00
2,900.0	23.27	288.32	2,817.8	122.1	-430.5	447.2	0.00	0.00	0.00
3,000.0	23.27	288.32	2,909.7	134.5	-468.0	486.7	0.00	0.00	0.00
3,100.0	23.27	288.32	3,001.5	146.9	-505.5	526.2	0.00	0.00	0.00
3,200.0	23.27	288.32	3,093.4	159.3	-543.0	565.7	0.00	0.00	0.00
3,300.0	23.27	288.32	3,185.3	171.8	-580.5	605.2	0.00	0.00	0.00
3,400.0	23.27	288.32	3,277.1	184.2	-618.0	644.7	0.00	0.00	0.00
3,500.0	23.27	288.32	3,369.0	196.6	-655.4	684.2	0.00	0.00	0.00
3,600.0	23.27	288.32	3,460.9	209.0	-692.9	723.7	0.00	0.00	0.00
3,700.0	23.27	288.32	3,552.7	221.4	-730.4	763.2	0.00	0.00	0.00
3,800.0	23.27	288.32	3,644.6	233.8	-767.9	802.7	0.00	0.00	0.00
3,900.0	23.27	288.32	3,736.5	246.3	-805.4	842.2	0.00	0.00	0.00
3,996.4	23.27	288.32	3,825.0	258.2	-841.6	880.2	0.00	0.00	0.00
Williams Fork									
4,000.0	23.27	288.32	3,828.3	258.7	-842.9	881.7	0.00	0.00	0.00
4,100.0	23.27	288.32	3,920.2	271.1	-880.4	921.2	0.00	0.00	0.00
4,200.0	23.27	288.32	4,012.1	283.5	-917.9	960.7	0.00	0.00	0.00
4,300.0	23.27	288.32	4,104.0	295.9	-955.4	1,000.2	0.00	0.00	0.00
4,400.0	23.27	288.32	4,195.8	308.3	-992.9	1,039.7	0.00	0.00	0.00
4,500.0	23.27	288.32	4,287.7	320.8	-1,030.4	1,079.2	0.00	0.00	0.00

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 24A-10-07-91 @ 7300.4usft (PAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 24A-10-07-91	<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)	
4,600.0	23.27	288.32	4,379.6	333.2	-1,067.9	1,118.7	0.00	0.00	0.00	
4,700.0	23.27	288.32	4,471.4	345.6	-1,105.4	1,158.2	0.00	0.00	0.00	
4,800.0	23.27	288.32	4,563.3	358.0	-1,142.9	1,197.7	0.00	0.00	0.00	
4,900.0	23.27	288.32	4,655.2	370.4	-1,180.4	1,237.2	0.00	0.00	0.00	
5,000.0	23.27	288.32	4,747.0	382.8	-1,217.9	1,276.7	0.00	0.00	0.00	
5,100.0	23.27	288.32	4,838.9	395.3	-1,255.4	1,316.2	0.00	0.00	0.00	
5,200.0	23.27	288.32	4,930.8	407.7	-1,292.9	1,355.6	0.00	0.00	0.00	
5,300.0	23.27	288.32	5,022.6	420.1	-1,330.4	1,395.1	0.00	0.00	0.00	
5,400.0	23.27	288.32	5,114.5	432.5	-1,367.9	1,434.6	0.00	0.00	0.00	
5,500.0	23.27	288.32	5,206.4	444.9	-1,405.4	1,474.1	0.00	0.00	0.00	
5,600.0	23.27	288.32	5,298.2	457.3	-1,442.9	1,513.6	0.00	0.00	0.00	
5,700.0	23.27	288.32	5,390.1	469.7	-1,480.4	1,553.1	0.00	0.00	0.00	
5,800.0	23.27	288.32	5,482.0	482.2	-1,517.9	1,592.6	0.00	0.00	0.00	
5,824.4	23.27	288.32	5,504.4	485.2	-1,527.0	1,602.3	0.00	0.00	0.00	
<b>Start Drop -3.50</b>										
5,900.0	20.62	288.32	5,574.5	494.1	-1,553.9	1,630.5	3.50	-3.50	0.00	
6,000.0	17.12	288.32	5,669.1	504.2	-1,584.6	1,662.8	3.50	-3.50	0.00	
6,100.0	13.62	288.32	5,765.5	512.6	-1,609.7	1,689.3	3.50	-3.50	0.00	
6,200.0	10.12	288.32	5,863.4	519.0	-1,629.2	1,709.9	3.50	-3.50	0.00	
6,300.0	6.62	288.32	5,962.3	523.6	-1,643.0	1,724.5	3.50	-3.50	0.00	
6,400.0	3.12	288.32	6,061.9	526.3	-1,651.1	1,732.9	3.50	-3.50	0.00	
6,489.1	0.00	0.00	6,151.0	527.0	-1,653.4	1,735.4	3.50	-3.50	0.00	
<b>Start 1865.0 hold at 6489.1 MD - Top of Gas - 24A-10-07-91 TGT</b>										
6,500.0	0.00	0.00	6,161.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,261.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
6,638.1	0.00	0.00	6,300.0	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
<b>Cameo</b>										
6,700.0	0.00	0.00	6,361.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,461.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,561.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,000.0	0.00	0.00	6,661.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,100.0	0.00	0.00	6,761.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,200.0	0.00	0.00	6,861.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,300.0	0.00	0.00	6,961.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,061.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,161.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,261.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,361.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,461.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,561.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
8,000.0	0.00	0.00	7,661.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
8,054.1	0.00	0.00	7,716.0	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
<b>Rollins</b>										
8,100.0	0.00	0.00	7,761.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
8,200.0	0.00	0.00	7,861.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
8,300.0	0.00	0.00	7,961.9	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
8,354.1	0.00	0.00	8,016.0	527.0	-1,653.4	1,735.4	0.00	0.00	0.00	
<b>TD at 8354.1</b>										

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<b>Project:</b>	Rockies Region	<b>MD Reference:</b>	CSF 24A-10-07-91 @ 7300.4usft (PAD Est KB)
<b>Site:</b>	CSF Q	<b>North Reference:</b>	True
<b>Well:</b>	CSF 24A-10-07-91	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #2		

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									
24A-10-07-91 TGT	0.00	0.00	6,151.0	527.0	-1,653.4	1,598,119.00	2,423,501.26	39° 27' 28.148 N	107° 32' 30.962 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)			(°)	(°)
3,996.4	3,825.0	Williams Fork		0.00	
6,489.1	6,151.0	Top of Gas		0.00	
6,638.1	6,300.0	Cameo		0.00	
8,054.1	7,716.0	Rollins		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,200.0	1,200.0	0.0	0.0	Start Build 1.00
1,500.0	1,499.9	-4.5	-6.4	Start DLS 3.50 TFO 59.37
2,117.2	2,098.6	24.9	-136.9	Start 3707.2 hold at 2117.2 MD
5,824.4	5,504.4	485.2	-1,527.0	Start Drop -3.50
6,489.1	6,151.0	527.0	-1,653.4	Start 1865.0 hold at 6489.1 MD
8,354.1	8,016.0	527.0	-1,653.4	TD at 8354.1



Well Name:CSF 24A-10-07-91  
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 1597555.05 2425142.43 39° 27' 22.939 N 107° 32' 9.881 W  
PAD Est KB CSF 24A-10-07-91 @ 7300.4usft (PAD 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 24A-10-07-91  
Design #2  
11:58, February 18 2014

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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
24A-10-07-91 TGT	6151.0	527.0	-1653.4	1598119.00	2423501.25	39° 27' 28.148 N 107° 32' 30.962 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	235.00	1499.9	-4.5	-6.4	1.00	235.00	4.8	
4	2117.2	23.27	288.32	2098.6	24.9	-136.9	3.50	59.37	138.0	
5	5824.4	23.27	288.32	5504.4	485.2	-1527.0	0.00	0.00	1602.3	
6	6489.1	0.00	0.00	6151.0	527.0	-1653.4	3.50	180.00	1735.4	24A-10-07-91 TGT
7	8354.1	0.00	0.00	8016.0	527.0	-1653.4	0.00	0.00	1735.4	

#### ANNOTATIONS

TVD	MD	Annotation
1200.0	1200.0	Start Build 1.00
1499.9	1500.0	Start DLS 3.50 TFO 59.37
2098.6	2117.2	Start 3707.2 hold at 2117.2 MD
5504.4	5824.4	Start Drop -3.50
6151.0	6489.1	Start 1865.0 hold at 6489.1 MD
8016.0	8354.1	TD at 8354.1

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation	DipAngle	DipDir
3825.0	3996.4	Williams Fork	0.00	
6151.0	6489.1	Top of Gas	0.00	
6300.0	6638.1	Cameo	0.00	
7716.0	8054.1	Rollins	0.00	

