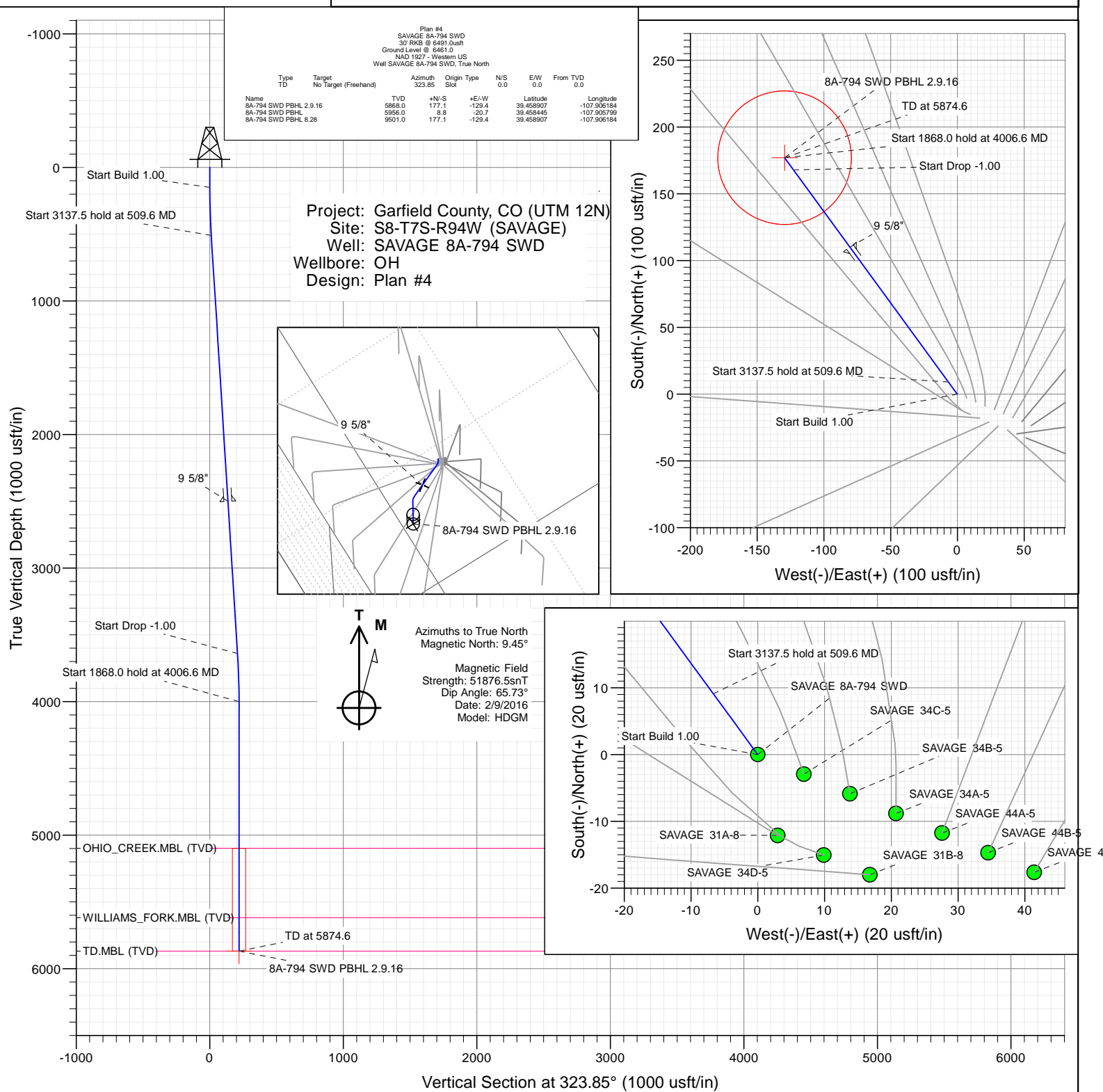




## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.0	
3	509.6	3.60	323.85	509.3	9.1	-6.7	1.00	323.85	11.3	
4	3647.1	3.60	323.85	3640.7	168.0	-122.7	0.00	0.00	208.1	
5	4006.6	0.00	0.00	4000.0	177.1	-129.4	1.00	180.00	219.3	
6	5874.6	0.00	0.00	5868.0	177.1	-129.4	0.00	0.00	219.3	8A-794 SWD PBHL 2.9.16



## WELL DETAILS: SAVAGE 8A-794 SWD

+N/-S	+E/-W	Northing	Ground Level:	6461.0	Latitude	Longitude
0.0	0.0	14343843.70	Easting	2513883.10	39.458421	-107.905726





## Cathedral Energy Services

### Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAVAGE 8A-794 SWD
<b>Company:</b>	Caerus Oil & Gas	<b>TVD Reference:</b>	30' RKB @ 6491.0usft
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>MD Reference:</b>	30' RKB @ 6491.0usft
<b>Site:</b>	S8-T7S-R94W (SAVAGE)	<b>North Reference:</b>	True
<b>Well:</b>	SAVAGE 8A-794 SWD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

<b>Project</b>	Garfield County, CO (UTM 12N)		
<b>Map System:</b>	Universal Transverse Mercator (US Survey Feet)	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	NAD 1927 - Western US		
<b>Map Zone:</b>	Zone 12N (114 W to 108 W)		

Site		S8-T7S-R94W (SAVAGE)			
Site Position:		Northing:	14,343,841.00 usft	Latitude:	39.458413
From:	Map	Easting:	2,513,890.10 usft	Longitude:	-107.905702
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.97 °

Well	SAVAGE 8A-794 SWD					
Well Position	+N/-S	0.0 usft	Northing:	14,343,843.70 usft	Latitude:	39.458421
	+E/-W	0.0 usft	Easting:	2,513,883.10 usft	Longitude:	-107.905726
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	6,461.0 usft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	HDGM	2/9/2016	9.45	65.73	51,877

<b>Design</b>	Plan #4			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<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	323.85

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.00	0.00	0.00	0.00	
509.6	3.60	323.85	509.3	9.1	-6.7	1.00	1.00	0.00	323.85	
3,647.1	3.60	323.85	3,640.7	168.0	-122.7	0.00	0.00	0.00	0.00	
4,006.6	0.00	0.00	4,000.0	177.1	-129.4	1.00	-1.00	0.00	180.00	
5,874.6	0.00	0.00	5,868.0	177.1	-129.4	0.00	0.00	0.00	0.00	8A-794 SWD PBHL 2



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAVAGE 8A-794 SWD
<b>Company:</b>	Caerus Oil & Gas	<b>TVD Reference:</b>	30' RKB @ 6491.0usft
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>MD Reference:</b>	30' RKB @ 6491.0usft
<b>Site:</b>	S8-T7S-R94W (SAVAGE)	<b>North Reference:</b>	True
<b>Well:</b>	SAVAGE 8A-794 SWD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
150.0	0.00	0.00	150.0	0.0	0.0	0.0	0.00	0.00	Start Build 1.00
200.0	0.50	323.85	200.0	0.2	-0.1	0.2	1.00	1.00	
300.0	1.50	323.85	300.0	1.6	-1.2	2.0	1.00	1.00	
400.0	2.50	323.85	399.9	4.4	-3.2	5.5	1.00	1.00	
509.6	3.60	323.85	509.3	9.1	-6.7	11.3	1.00	1.00	Start 3137.5 hold at 509.6 MD
600.0	3.60	323.85	599.6	13.7	-10.0	17.0	0.00	0.00	
700.0	3.60	323.85	699.4	18.8	-13.7	23.2	0.00	0.00	
800.0	3.60	323.85	799.2	23.8	-17.4	29.5	0.00	0.00	
900.0	3.60	323.85	899.0	28.9	-21.1	35.8	0.00	0.00	
1,000.0	3.60	323.85	998.8	33.9	-24.8	42.0	0.00	0.00	
1,100.0	3.60	323.85	1,098.6	39.0	-28.5	48.3	0.00	0.00	
1,200.0	3.60	323.85	1,198.4	44.1	-32.2	54.6	0.00	0.00	
1,300.0	3.60	323.85	1,298.2	49.1	-35.9	60.9	0.00	0.00	
1,400.0	3.60	323.85	1,398.0	54.2	-39.6	67.1	0.00	0.00	
1,500.0	3.60	323.85	1,497.8	59.3	-43.3	73.4	0.00	0.00	
1,600.0	3.60	323.85	1,597.6	64.3	-47.0	79.7	0.00	0.00	
1,700.0	3.60	323.85	1,697.4	69.4	-50.7	85.9	0.00	0.00	
1,800.0	3.60	323.85	1,797.2	74.5	-54.4	92.2	0.00	0.00	
1,900.0	3.60	323.85	1,897.0	79.5	-58.1	98.5	0.00	0.00	
2,000.0	3.60	323.85	1,996.8	84.6	-61.8	104.8	0.00	0.00	
2,100.0	3.60	323.85	2,096.6	89.6	-65.5	111.0	0.00	0.00	
2,200.0	3.60	323.85	2,196.4	94.7	-69.2	117.3	0.00	0.00	
2,300.0	3.60	323.85	2,296.2	99.8	-72.9	123.6	0.00	0.00	
2,400.0	3.60	323.85	2,396.0	104.8	-76.6	129.8	0.00	0.00	
2,500.0	3.60	323.85	2,495.8	109.9	-80.3	136.1	0.00	0.00	
2,504.2	3.60	323.85	2,500.0	110.1	-80.5	136.4	0.00	0.00	9 5/8"
2,600.0	3.60	323.85	2,595.6	115.0	-84.0	142.4	0.00	0.00	
2,700.0	3.60	323.85	2,695.5	120.0	-87.7	148.7	0.00	0.00	
2,800.0	3.60	323.85	2,795.3	125.1	-91.4	154.9	0.00	0.00	
2,900.0	3.60	323.85	2,895.1	130.2	-95.1	161.2	0.00	0.00	
3,000.0	3.60	323.85	2,994.9	135.2	-98.8	167.5	0.00	0.00	
3,100.0	3.60	323.85	3,094.7	140.3	-102.5	173.7	0.00	0.00	
3,200.0	3.60	323.85	3,194.5	145.4	-106.2	180.0	0.00	0.00	
3,300.0	3.60	323.85	3,294.3	150.4	-109.9	186.3	0.00	0.00	
3,400.0	3.60	323.85	3,394.1	155.5	-113.6	192.6	0.00	0.00	
3,500.0	3.60	323.85	3,493.9	160.5	-117.3	198.8	0.00	0.00	
3,600.0	3.60	323.85	3,593.7	165.6	-121.0	205.1	0.00	0.00	
3,647.1	3.60	323.85	3,640.7	168.0	-122.7	208.1	0.00	0.00	Start Drop -1.00
3,700.0	3.07	323.85	3,693.5	170.5	-124.6	211.1	1.00	-1.00	
3,800.0	2.07	323.85	3,793.4	174.1	-127.2	215.6	1.00	-1.00	
3,900.0	1.07	323.85	3,893.4	176.3	-128.8	218.3	1.00	-1.00	
4,006.6	0.00	0.00	4,000.0	177.1	-129.4	219.3	1.00	-1.00	Start 1868.0 hold at 4006.6 MD
4,100.0	0.00	0.00	4,093.4	177.1	-129.4	219.3	0.00	0.00	
4,200.0	0.00	0.00	4,193.4	177.1	-129.4	219.3	0.00	0.00	
4,300.0	0.00	0.00	4,293.4	177.1	-129.4	219.3	0.00	0.00	
4,400.0	0.00	0.00	4,393.4	177.1	-129.4	219.3	0.00	0.00	
4,500.0	0.00	0.00	4,493.4	177.1	-129.4	219.3	0.00	0.00	
4,600.0	0.00	0.00	4,593.4	177.1	-129.4	219.3	0.00	0.00	
4,700.0	0.00	0.00	4,693.4	177.1	-129.4	219.3	0.00	0.00	
4,800.0	0.00	0.00	4,793.4	177.1	-129.4	219.3	0.00	0.00	



# Cathedral Energy Services

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well SAVAGE 8A-794 SWD
<b>Company:</b>	Caerus Oil & Gas	<b>TVD Reference:</b>	30' RKB @ 6491.0usft
<b>Project:</b>	Garfield County, CO (UTM 12N)	<b>MD Reference:</b>	30' RKB @ 6491.0usft
<b>Site:</b>	S8-T7S-R94W (SAVAGE)	<b>North Reference:</b>	True
<b>Well:</b>	SAVAGE 8A-794 SWD	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OH		
<b>Design:</b>	Plan #4		

### Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100u)	Comments / Formations
4,900.0	0.00	0.00	4,893.4	177.1	-129.4	219.3	0.00	0.00	
5,000.0	0.00	0.00	4,993.4	177.1	-129.4	219.3	0.00	0.00	
5,100.0	0.00	0.00	5,093.4	177.1	-129.4	219.3	0.00	0.00	
5,104.6	0.00	0.00	5,098.0	177.1	-129.4	219.3	0.00	0.00	OHIO_CREEK.MBL (TVD)
5,200.0	0.00	0.00	5,193.4	177.1	-129.4	219.3	0.00	0.00	
5,300.0	0.00	0.00	5,293.4	177.1	-129.4	219.3	0.00	0.00	
5,400.0	0.00	0.00	5,393.4	177.1	-129.4	219.3	0.00	0.00	
5,500.0	0.00	0.00	5,493.4	177.1	-129.4	219.3	0.00	0.00	
5,600.0	0.00	0.00	5,593.4	177.1	-129.4	219.3	0.00	0.00	
5,624.6	0.00	0.00	5,618.0	177.1	-129.4	219.3	0.00	0.00	WILLIAMS_FORK.MBL (TVD)
5,700.0	0.00	0.00	5,693.4	177.1	-129.4	219.3	0.00	0.00	
5,800.0	0.00	0.00	5,793.4	177.1	-129.4	219.3	0.00	0.00	
5,874.6	0.00	0.00	5,868.0	177.1	-129.4	219.3	0.00	0.00	TD at 5874.6 - TD.MBL (TVD)

### Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
8A-794 SWD PBHL 2.9: - plan hits target center - Circle (radius 50.0)	0.00	0.00	5,868.0	177.1	-129.4	14,344,016.25	2,513,747.70	39.458907	-107.906184
8A-794 SWD PBHL - plan misses target center by 218.8usft at 5874.6usft MD (5868.0 TVD, 177.1 N, -129.4 E) - Circle (radius 50.0)	0.00	0.00	5,956.0	8.8	-20.7	14,343,851.80	2,513,862.10	39.458445	-107.905799
8A-794 SWD PBHL 8.28 - plan misses target center by 3633.0usft at 5874.6usft MD (5868.0 TVD, 177.1 N, -129.4 E) - Circle (radius 50.0)	0.00	0.00	9,501.0	177.1	-129.4	14,344,016.30	2,513,747.70	39.458907	-107.906184

### Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
9,507.7	5 1/2"		5-1/2	8-3/4
2,504.2	2,500.0	9 5/8"	9-5/8	13-1/2

### Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,104.6	5,098.0	OHIO_CREEK.MBL (TVD)			
5,624.6	5,618.0	WILLIAMS_FORK.MBL (TVD)			
5,874.6	5,868.0	TD.MBL (TVD)		0.00	



## Cathedral Energy Services

### Planning Report

**Database:** USA EDM 5000 Multi Users DB  
**Company:** Caerus Oil & Gas  
**Project:** Garfield County, CO (UTM 12N)  
**Site:** S8-T7S-R94W (SAVAGE)  
**Well:** SAVAGE 8A-794 SWD  
**Wellbore:** OH  
**Design:** Plan #4

**Local Co-ordinate Reference:** Well SAVAGE 8A-794 SWD  
**TVD Reference:** 30' RKB @ 6491.0usft  
**MD Reference:** 30' RKB @ 6491.0usft  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature

#### Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
150.0	150.0	0.0	0.0	Start Build 1.00
509.6	509.3	9.1	-6.7	Start 3137.5 hold at 509.6 MD
3,647.1	3,640.7	168.0	-122.7	Start Drop -1.00
4,006.6	4,000.0	177.1	-129.4	Start 1868.0 hold at 4006.6 MD
5,874.6	5,868.0	177.1	-129.4	TD at 5874.6