

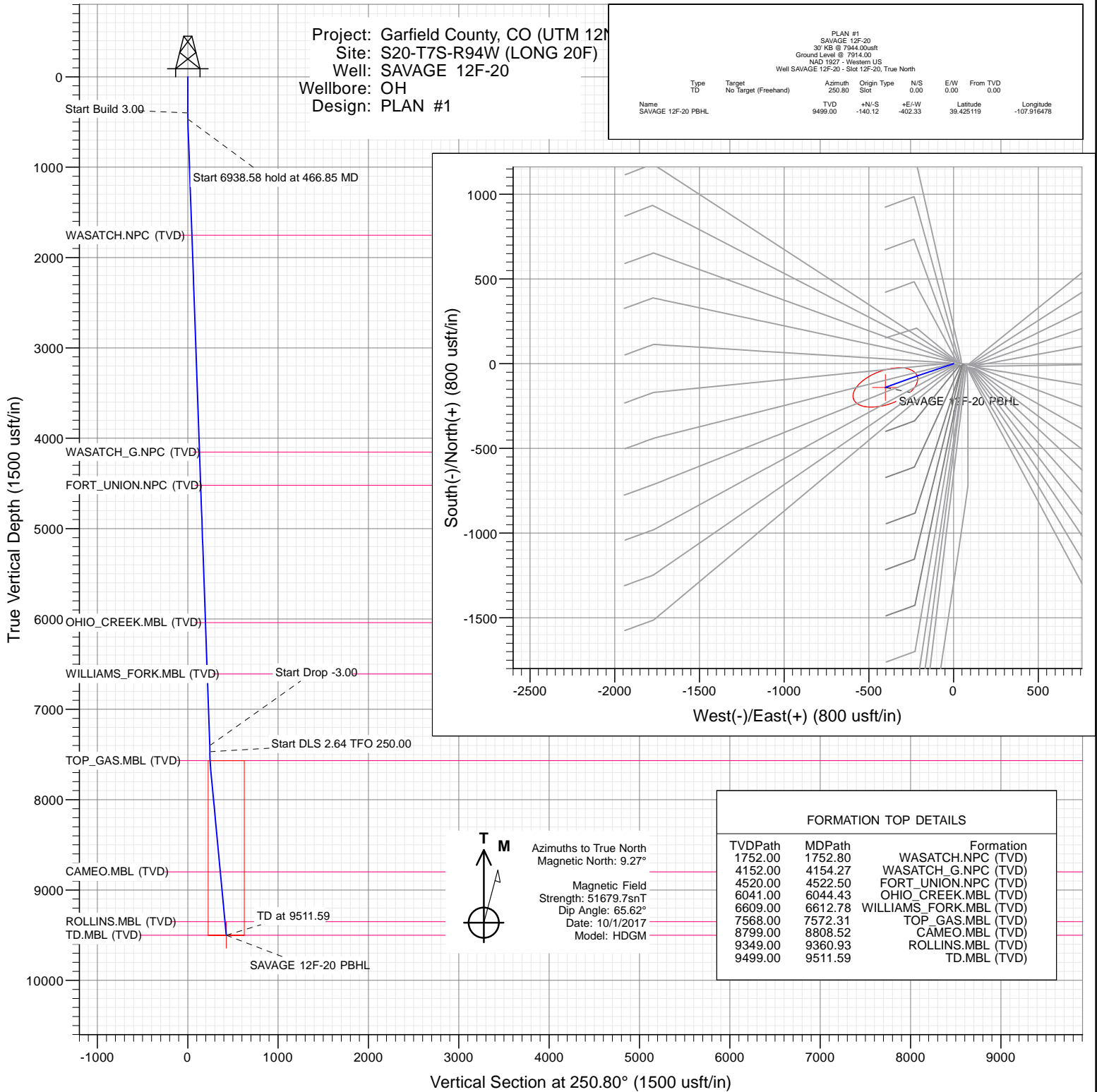


SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSeet	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
3	466.85	2.01	251.39	466.84	-0.37	-1.11	3.00	251.39	1.17	
4	7405.43	2.01	251.39	7401.16	-77.88	-231.22	0.00	0.00	243.97	
5	7472.28	0.00	0.00	7468.00	-78.25	-232.33	3.00	180.00	245.14	
6	7675.37	5.36	250.00	7670.80	-81.49	-241.24	2.64	250.00	254.63	
7	9511.59	5.36	250.00	9499.00	-140.12	-402.33	0.00	0.00	426.03	SAVAGE 12F-20 PBHL

Project: Garfield County, CO (UTM 12N)
Site: S20-T7S-R94W (LONG 20F)
Well: SAVAGE 12F-20
Wellbore: OH
Design: PLAN #1

PLAN #1 SAVAGE 12F-20 30' KB @ 7944.00usft Ground Level @ 7914.00 NAD 1927 - Western US Well SAVAGE 12F-20 - Slot 12F-20, True North									
Type	Target	No Target (Freehand)	Azimuth	Origin Type	N/S	E/W	From TVD		
Name	TD		250.80	Slot			0.00		
SAVAGE 12F-20 PBHL	TVD		9499.00	+N/-S	-140.12	+E/-W	-402.33	Latitude	39.425119
								Longitude	-107.916478



WELL DETAILS: SAVAGE 12F-20

		7914.00			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	14331764.80	2511659.70	39.425504	-107.915055

CATHEDRAL



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAVAGE 12F-20 - Slot 12F-20
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7944.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7944.00usft
Site:	S20-T7S-R94W (LONG 20F)	North Reference:	True
Well:	SAVAGE 12F-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

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

Site		S20-T7S-R94W (LONG 20F)			
Site Position:		Northing:	14,331,773.27 usft	Latitude:	39.425526
From:	Map	Easting:	2,511,668.92 usft	Longitude:	-107.915021
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	1.96 °

Well	SAVAGE 12F-20 - Slot 12F-20					
Well Position	+N/-S	0.00 usft	Northing:	14,331,764.80 usft	Latitude:	39.425504
	+E/-W	0.00 usft	Easting:	2,511,659.70 usft	Longitude:	-107.915055
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	7,914.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	HDGM	10/1/2017	9.27	65.62	51,679.70000000

Design	PLAN #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(usft)	(usft)	(usft)	(°)
	0.00	0.00	0.00	250.80

Plan Sections										
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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
466.85	2.01	251.39	466.84	-0.37	-1.11	3.00	3.00	0.00	251.39	
7,405.43	2.01	251.39	7,401.16	-77.88	-231.22	0.00	0.00	0.00	0.00	
7,472.28	0.00	0.00	7,468.00	-78.25	-232.33	3.00	-3.00	0.00	180.00	
7,675.37	5.36	250.00	7,670.80	-81.49	-241.24	2.64	2.64	-54.16	250.00	
9,511.59	5.36	250.00	9,499.00	-140.12	-402.33	0.00	0.00	0.00	0.00	SAVAGE 12F-20 PBH

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAVAGE 12F-20 - Slot 12F-20
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7944.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7944.00usft
Site:	S20-T7S-R94W (LONG 20F)	North Reference:	True
Well:	SAVAGE 12F-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #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 (°/100u)	Comments / Formations
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	
466.85	2.01	251.39	466.84	-0.37	-1.11	1.17	3.00	3.00	
500.00	2.01	251.39	499.97	-0.74	-2.21	2.33	0.00	0.00	
600.00	2.01	251.39	599.90	-1.86	-5.52	5.83	0.00	0.00	
700.00	2.01	251.39	699.84	-2.98	-8.84	9.33	0.00	0.00	
800.00	2.01	251.39	799.78	-4.09	-12.16	12.83	0.00	0.00	
900.00	2.01	251.39	899.72	-5.21	-15.47	16.33	0.00	0.00	
1,000.00	2.01	251.39	999.66	-6.33	-18.79	19.83	0.00	0.00	
1,100.00	2.01	251.39	1,099.60	-7.45	-22.11	23.33	0.00	0.00	
1,200.00	2.01	251.39	1,199.54	-8.56	-25.42	26.82	0.00	0.00	
1,300.00	2.01	251.39	1,299.48	-9.68	-28.74	30.32	0.00	0.00	
1,400.00	2.01	251.39	1,399.41	-10.80	-32.06	33.82	0.00	0.00	
1,500.00	2.01	251.39	1,499.35	-11.91	-35.37	37.32	0.00	0.00	
1,600.00	2.01	251.39	1,599.29	-13.03	-38.69	40.82	0.00	0.00	
1,700.00	2.01	251.39	1,699.23	-14.15	-42.01	44.32	0.00	0.00	
1,752.80	2.01	251.39	1,752.00	-14.74	-43.76	46.17	0.00	0.00	WASATCH.NPC (TVD)
1,800.00	2.01	251.39	1,799.17	-15.26	-45.32	47.82	0.00	0.00	
1,900.00	2.01	251.39	1,899.11	-16.38	-48.64	51.32	0.00	0.00	
2,000.00	2.01	251.39	1,999.05	-17.50	-51.95	54.82	0.00	0.00	
2,100.00	2.01	251.39	2,098.99	-18.62	-55.27	58.32	0.00	0.00	
2,200.00	2.01	251.39	2,198.92	-19.73	-58.59	61.82	0.00	0.00	
2,300.00	2.01	251.39	2,298.86	-20.85	-61.90	65.32	0.00	0.00	
2,400.00	2.01	251.39	2,398.80	-21.97	-65.22	68.82	0.00	0.00	
2,500.00	2.01	251.39	2,498.74	-23.08	-68.54	72.32	0.00	0.00	
2,600.00	2.01	251.39	2,598.68	-24.20	-71.85	75.81	0.00	0.00	
2,700.00	2.01	251.39	2,698.62	-25.32	-75.17	79.31	0.00	0.00	
2,800.00	2.01	251.39	2,798.56	-26.43	-78.49	82.81	0.00	0.00	
2,900.00	2.01	251.39	2,898.50	-27.55	-81.80	86.31	0.00	0.00	
3,000.00	2.01	251.39	2,998.43	-28.67	-85.12	89.81	0.00	0.00	
3,100.00	2.01	251.39	3,098.37	-29.79	-88.44	93.31	0.00	0.00	
3,200.00	2.01	251.39	3,198.31	-30.90	-91.75	96.81	0.00	0.00	
3,300.00	2.01	251.39	3,298.25	-32.02	-95.07	100.31	0.00	0.00	
3,400.00	2.01	251.39	3,398.19	-33.14	-98.38	103.81	0.00	0.00	
3,500.00	2.01	251.39	3,498.13	-34.25	-101.70	107.31	0.00	0.00	
3,600.00	2.01	251.39	3,598.07	-35.37	-105.02	110.81	0.00	0.00	
3,700.00	2.01	251.39	3,698.01	-36.49	-108.33	114.31	0.00	0.00	
3,800.00	2.01	251.39	3,797.94	-37.60	-111.65	117.81	0.00	0.00	
3,900.00	2.01	251.39	3,897.88	-38.72	-114.97	121.31	0.00	0.00	
4,000.00	2.01	251.39	3,997.82	-39.84	-118.28	124.81	0.00	0.00	
4,100.00	2.01	251.39	4,097.76	-40.96	-121.60	128.30	0.00	0.00	
4,154.27	2.01	251.39	4,152.00	-41.56	-123.40	130.20	0.00	0.00	WASATCH_G.NPC (TVD)
4,200.00	2.01	251.39	4,197.70	-42.07	-124.92	131.80	0.00	0.00	
4,300.00	2.01	251.39	4,297.64	-43.19	-128.23	135.30	0.00	0.00	
4,400.00	2.01	251.39	4,397.58	-44.31	-131.55	138.80	0.00	0.00	
4,500.00	2.01	251.39	4,497.52	-45.42	-134.87	142.30	0.00	0.00	
4,522.50	2.01	251.39	4,520.00	-45.67	-135.61	143.09	0.00	0.00	FORT_UNION.NPC (TVD)
4,600.00	2.01	251.39	4,597.45	-46.54	-138.18	145.80	0.00	0.00	
4,700.00	2.01	251.39	4,697.39	-47.66	-141.50	149.30	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAVAGE 12F-20 - Slot 12F-20
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7944.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7944.00usft
Site:	S20-T7S-R94W (LONG 20F)	North Reference:	True
Well:	SAVAGE 12F-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #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 (°/100u)	Comments / Formations
4,800.00	2.01	251.39	4,797.33	-48.77	-144.81	152.80	0.00	0.00	
4,900.00	2.01	251.39	4,897.27	-49.89	-148.13	156.30	0.00	0.00	
5,000.00	2.01	251.39	4,997.21	-51.01	-151.45	159.80	0.00	0.00	
5,100.00	2.01	251.39	5,097.15	-52.13	-154.76	163.30	0.00	0.00	
5,200.00	2.01	251.39	5,197.09	-53.24	-158.08	166.80	0.00	0.00	
5,300.00	2.01	251.39	5,297.03	-54.36	-161.40	170.30	0.00	0.00	
5,400.00	2.01	251.39	5,396.96	-55.48	-164.71	173.80	0.00	0.00	
5,500.00	2.01	251.39	5,496.90	-56.59	-168.03	177.29	0.00	0.00	
5,600.00	2.01	251.39	5,596.84	-57.71	-171.35	180.79	0.00	0.00	
5,700.00	2.01	251.39	5,696.78	-58.83	-174.66	184.29	0.00	0.00	
5,800.00	2.01	251.39	5,796.72	-59.94	-177.98	187.79	0.00	0.00	
5,900.00	2.01	251.39	5,896.66	-61.06	-181.29	191.29	0.00	0.00	
6,000.00	2.01	251.39	5,996.60	-62.18	-184.61	194.79	0.00	0.00	
6,044.43	2.01	251.39	6,041.00	-62.67	-186.08	196.35	0.00	0.00	OHIO_CREEK.MBL (TVD)
6,100.00	2.01	251.39	6,096.54	-63.30	-187.93	198.29	0.00	0.00	
6,200.00	2.01	251.39	6,196.47	-64.41	-191.24	201.79	0.00	0.00	
6,300.00	2.01	251.39	6,296.41	-65.53	-194.56	205.29	0.00	0.00	
6,400.00	2.01	251.39	6,396.35	-66.65	-197.88	208.79	0.00	0.00	
6,500.00	2.01	251.39	6,496.29	-67.76	-201.19	212.29	0.00	0.00	
6,600.00	2.01	251.39	6,596.23	-68.88	-204.51	215.79	0.00	0.00	
6,612.78	2.01	251.39	6,609.00	-69.02	-204.93	216.23	0.00	0.00	WILLIAMS_FORK.MBL (TVD)
6,700.00	2.01	251.39	6,696.17	-70.00	-207.83	219.29	0.00	0.00	
6,800.00	2.01	251.39	6,796.11	-71.11	-211.14	222.79	0.00	0.00	
6,900.00	2.01	251.39	6,896.05	-72.23	-214.46	226.28	0.00	0.00	
7,000.00	2.01	251.39	6,995.98	-73.35	-217.78	229.78	0.00	0.00	
7,100.00	2.01	251.39	7,095.92	-74.47	-221.09	233.28	0.00	0.00	
7,200.00	2.01	251.39	7,195.86	-75.58	-224.41	236.78	0.00	0.00	
7,300.00	2.01	251.39	7,295.80	-76.70	-227.72	240.28	0.00	0.00	
7,400.00	2.01	251.39	7,395.74	-77.82	-231.04	243.78	0.00	0.00	
7,405.43	2.01	251.39	7,401.16	-77.88	-231.22	243.97	0.00	0.00	
7,472.28	0.00	0.00	7,468.00	-78.25	-232.33	245.14	3.00	-3.00	
7,500.00	0.73	250.00	7,495.72	-78.31	-232.50	245.32	2.64	2.64	
7,572.31	2.64	250.00	7,568.00	-79.04	-234.49	247.44	2.64	2.64	TOP_GAS.MBL (TVD)
7,600.00	3.37	250.00	7,595.65	-79.53	-235.86	248.89	2.64	2.64	
7,675.37	5.36	250.00	7,670.80	-81.49	-241.24	254.63	2.64	2.64	
7,700.00	5.36	250.00	7,695.32	-82.28	-243.41	256.93	0.00	0.00	
7,800.00	5.36	250.00	7,794.88	-85.47	-252.18	266.26	0.00	0.00	
7,900.00	5.36	250.00	7,894.45	-88.67	-260.95	275.59	0.00	0.00	
8,000.00	5.36	250.00	7,994.01	-91.86	-269.72	284.93	0.00	0.00	
8,100.00	5.36	250.00	8,093.57	-95.05	-278.50	294.26	0.00	0.00	
8,200.00	5.36	250.00	8,193.14	-98.24	-287.27	303.60	0.00	0.00	
8,300.00	5.36	250.00	8,292.70	-101.44	-296.04	312.93	0.00	0.00	
8,400.00	5.36	250.00	8,392.26	-104.63	-304.81	322.27	0.00	0.00	
8,500.00	5.36	250.00	8,491.83	-107.82	-313.59	331.60	0.00	0.00	
8,600.00	5.36	250.00	8,591.39	-111.01	-322.36	340.94	0.00	0.00	
8,700.00	5.36	250.00	8,690.95	-114.21	-331.13	350.27	0.00	0.00	
8,800.00	5.36	250.00	8,790.52	-117.40	-339.90	359.61	0.00	0.00	
8,808.52	5.36	250.00	8,799.00	-117.67	-340.65	360.40	0.00	0.00	CAMEO.MBL (TVD)
8,900.00	5.36	250.00	8,890.08	-120.59	-348.68	368.94	0.00	0.00	
9,000.00	5.36	250.00	8,989.64	-123.79	-357.45	378.28	0.00	0.00	
9,100.00	5.36	250.00	9,089.21	-126.98	-366.22	387.61	0.00	0.00	
9,200.00	5.36	250.00	9,188.77	-130.17	-374.99	396.94	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well SAVAGE 12F-20 - Slot 12F-20
Company:	Caerus Oil & Gas	TVD Reference:	30' KB @ 7944.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	30' KB @ 7944.00usft
Site:	S20-T7S-R94W (LONG 20F)	North Reference:	True
Well:	SAVAGE 12F-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #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 (°/100u)	Comments / Formations
9,300.00	5.36	250.00	9,288.33	-133.36	-383.77	406.28	0.00	0.00	
9,360.93	5.36	250.00	9,349.00	-135.31	-389.11	411.97	0.00	0.00	ROLLINS.MBL (TVD)
9,400.00	5.36	250.00	9,387.90	-136.56	-392.54	415.61	0.00	0.00	
9,500.00	5.36	250.00	9,487.46	-139.75	-401.31	424.95	0.00	0.00	
9,511.59	5.36	250.00	9,499.00	-140.12	-402.33	426.03	0.00	0.00	TD.MBL (TVD)

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									
SAVAGE 12F-20 PBHL	0.00	0.00	9,499.00	-140.12	-402.33	14,331,611.00	2,511,262.40	39.425119	-107.916478
- plan hits target center									
- Ellipse (radii L200.00 W100.00 on 250.00 azi)									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,752.80	1,752.00	WASATCH.NPC (TVD)			
4,154.27	4,152.00	WASATCH_G.NPC (TVD)			
4,522.50	4,520.00	FORT_UNION.NPC (TVD)			
6,044.43	6,041.00	OHIO_CREEK.MBL (TVD)			
6,612.78	6,609.00	WILLIAMS_FORK.MBL (TVD)			
7,572.31	7,568.00	TOP_GAS.MBL (TVD)			
8,808.52	8,799.00	CAMEO.MBL (TVD)			
9,360.93	9,349.00	ROLLINS.MBL (TVD)			
9,511.59	9,499.00	TD.MBL (TVD)			