

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well FED 11C-24 - Slot FED 11C-24
Company:	Caerus Oil & Gas	TVD Reference:	GL + KB @ 8150.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	GL + KB @ 8150.00usft
Site:	S24-T4S-R96W ELU A24 496	North Reference:	True
Well:	FED 11C-24	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		S24-T4S-R96W ELU A24 496, Gravity = 0.997576			
Site Position:		Northing:	14,427,694.80 usft	Latitude:	39.694298
From:	Map	Easting:	2,449,140.90 usft	Longitude:	-108.125304
Position Uncertainty:	3.28 usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.84 °

Well	FED 11C-24 - Slot FED 11C-24					
Well Position	+N/-S	0.00 usft	Northing:	14,427,549.50 usft	Latitude:	39.693900
	+E/-W	0.00 usft	Easting:	2,449,137.90 usft	Longitude:	-108.125331
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	8,125.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM_FILE	7/27/2018	9.63	65.88	51,366.50000000

Design	PLAN #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	103.66

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	
175.00	0.00	0.00	175.00	0.00	0.00	0.00	0.00	0.00	0.00	
275.00	3.00	101.35	274.95	-0.52	2.57	3.00	3.00	0.00	101.35	
515.00	3.00	101.35	514.63	-2.99	14.88	0.00	0.00	0.00	0.00	
704.54	8.69	101.35	703.10	-6.78	33.79	3.00	3.00	0.00	0.00	
8,576.29	8.69	101.35	8,484.57	-240.70	1,199.36	0.00	0.00	0.00	0.00	
8,865.83	0.00	0.00	8,773.00	-245.01	1,220.84	3.00	-3.00	0.00	180.00	
8,936.80	1.42	250.00	8,843.97	-245.32	1,220.01	2.00	2.00	-154.99	250.00	
12,552.95	1.42	250.00	12,459.00	-275.95	1,135.84	0.00	0.00	0.00	0.00	FED 11C-24_PBHL

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Site:	S24-T4S-R96W ELU A24 496	North Reference:	True
Well:	FED 11C-24	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	
175.00	0.00	0.00	175.00	0.00	0.00	0.00	0.00	0.00	Start Build 3.00
200.00	0.75	101.35	200.00	-0.03	0.16	0.16	3.00	3.00	
275.00	3.00	101.35	274.95	-0.52	2.57	2.62	3.00	3.00	Start 240.00 hold at 275.00 MD
300.00	3.00	101.35	299.92	-0.77	3.85	3.92	0.00	0.00	
400.00	3.00	101.35	399.78	-1.80	8.98	9.15	0.00	0.00	
500.00	3.00	101.35	499.65	-2.83	14.11	14.38	0.00	0.00	
515.00	3.00	101.35	514.63	-2.99	14.88	15.17	0.00	0.00	Start DLS 3.00 TFO 0.00
600.00	5.55	101.35	599.38	-4.23	21.09	21.50	3.00	3.00	
700.00	8.55	101.35	698.61	-6.65	33.13	33.76	3.00	3.00	
704.54	8.69	101.35	703.10	-6.78	33.79	34.44	3.00	3.00	Start 7871.75 hold at 704.54 MD
800.00	8.69	101.35	797.47	-9.62	47.93	48.84	0.00	0.00	
900.00	8.69	101.35	896.32	-12.59	62.73	63.93	0.00	0.00	
1,000.00	8.69	101.35	995.17	-15.56	77.54	79.02	0.00	0.00	
1,100.00	8.69	101.35	1,094.03	-18.53	92.35	94.11	0.00	0.00	
1,200.00	8.69	101.35	1,192.88	-21.51	107.15	109.20	0.00	0.00	
1,300.00	8.69	101.35	1,291.73	-24.48	121.96	124.29	0.00	0.00	
1,400.00	8.69	101.35	1,390.59	-27.45	136.77	139.38	0.00	0.00	
1,500.00	8.69	101.35	1,489.44	-30.42	151.58	154.47	0.00	0.00	
1,600.00	8.69	101.35	1,588.29	-33.39	166.38	169.56	0.00	0.00	
1,700.00	8.69	101.35	1,687.15	-36.36	181.19	184.65	0.00	0.00	
1,800.00	8.69	101.35	1,786.00	-39.34	196.00	199.74	0.00	0.00	
1,900.00	8.69	101.35	1,884.85	-42.31	210.80	214.83	0.00	0.00	
2,000.00	8.69	101.35	1,983.70	-45.28	225.61	229.92	0.00	0.00	
2,100.00	8.69	101.35	2,082.56	-48.25	240.42	245.01	0.00	0.00	
2,200.00	8.69	101.35	2,181.41	-51.22	255.23	260.10	0.00	0.00	
2,300.00	8.69	101.35	2,280.26	-54.19	270.03	275.19	0.00	0.00	
2,400.00	8.69	101.35	2,379.12	-57.17	284.84	290.28	0.00	0.00	
2,500.00	8.69	101.35	2,477.97	-60.14	299.65	305.37	0.00	0.00	
2,600.00	8.69	101.35	2,576.82	-63.11	314.45	320.46	0.00	0.00	
2,700.00	8.69	101.35	2,675.68	-66.08	329.26	335.55	0.00	0.00	
2,800.00	8.69	101.35	2,774.53	-69.05	344.07	350.64	0.00	0.00	
2,900.00	8.69	101.35	2,873.38	-72.02	358.87	365.73	0.00	0.00	
3,000.00	8.69	101.35	2,972.24	-75.00	373.68	380.82	0.00	0.00	
3,100.00	8.69	101.35	3,071.09	-77.97	388.49	395.91	0.00	0.00	
3,200.00	8.69	101.35	3,169.94	-80.94	403.30	411.00	0.00	0.00	
3,300.00	8.69	101.35	3,268.79	-83.91	418.10	426.09	0.00	0.00	
3,400.00	8.69	101.35	3,367.65	-86.88	432.91	441.18	0.00	0.00	
3,500.00	8.69	101.35	3,466.50	-89.85	447.72	456.27	0.00	0.00	
3,600.00	8.69	101.35	3,565.35	-92.83	462.52	471.36	0.00	0.00	
3,700.00	8.69	101.35	3,664.21	-95.80	477.33	486.45	0.00	0.00	
3,800.00	8.69	101.35	3,763.06	-98.77	492.14	501.54	0.00	0.00	
3,900.00	8.69	101.35	3,861.91	-101.74	506.94	516.63	0.00	0.00	
4,000.00	8.69	101.35	3,960.77	-104.71	521.75	531.72	0.00	0.00	
4,100.00	8.69	101.35	4,059.62	-107.68	536.56	546.81	0.00	0.00	
4,200.00	8.69	101.35	4,158.47	-110.66	551.37	561.90	0.00	0.00	
4,300.00	8.69	101.35	4,257.32	-113.63	566.17	576.99	0.00	0.00	
4,400.00	8.69	101.35	4,356.18	-116.60	580.98	592.08	0.00	0.00	
4,500.00	8.69	101.35	4,455.03	-119.57	595.79	607.17	0.00	0.00	
4,600.00	8.69	101.35	4,553.88	-122.54	610.59	622.26	0.00	0.00	
4,700.00	8.69	101.35	4,652.74	-125.51	625.40	637.35	0.00	0.00	

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Site:	S24-T4S-R96W ELU A24 496	North Reference:	True
Well:	FED 11C-24	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	8.69	101.35	4,751.59	-128.49	640.21	652.44	0.00	0.00	
4,900.00	8.69	101.35	4,850.44	-131.46	655.01	667.53	0.00	0.00	
5,000.00	8.69	101.35	4,949.30	-134.43	669.82	682.62	0.00	0.00	
5,100.00	8.69	101.35	5,048.15	-137.40	684.63	697.71	0.00	0.00	
5,200.00	8.69	101.35	5,147.00	-140.37	699.44	712.80	0.00	0.00	
5,300.00	8.69	101.35	5,245.85	-143.34	714.24	727.89	0.00	0.00	
5,400.00	8.69	101.35	5,344.71	-146.32	729.05	742.98	0.00	0.00	
5,500.00	8.69	101.35	5,443.56	-149.29	743.86	758.07	0.00	0.00	
5,600.00	8.69	101.35	5,542.41	-152.26	758.66	773.16	0.00	0.00	
5,700.00	8.69	101.35	5,641.27	-155.23	773.47	788.25	0.00	0.00	
5,800.00	8.69	101.35	5,740.12	-158.20	788.28	803.34	0.00	0.00	
5,900.00	8.69	101.35	5,838.97	-161.17	803.08	818.43	0.00	0.00	
6,000.00	8.69	101.35	5,937.83	-164.15	817.89	833.52	0.00	0.00	
6,100.00	8.69	101.35	6,036.68	-167.12	832.70	848.61	0.00	0.00	
6,200.00	8.69	101.35	6,135.53	-170.09	847.51	863.70	0.00	0.00	
6,253.08	8.69	101.35	6,188.00	-171.67	855.36	871.71	0.00	0.00	WASATCH_G.NPC (TVD)
6,300.00	8.69	101.35	6,234.39	-173.06	862.31	878.79	0.00	0.00	
6,400.00	8.69	101.35	6,333.24	-176.03	877.12	893.88	0.00	0.00	
6,500.00	8.69	101.35	6,432.09	-179.00	891.93	908.97	0.00	0.00	
6,600.00	8.69	101.35	6,530.94	-181.98	906.73	924.06	0.00	0.00	
6,700.00	8.69	101.35	6,629.80	-184.95	921.54	939.15	0.00	0.00	
6,786.19	8.69	101.35	6,715.00	-187.51	934.30	952.16	0.00	0.00	FORT_UNION.NPC (TVD)
6,800.00	8.69	101.35	6,728.65	-187.92	936.35	954.24	0.00	0.00	
6,900.00	8.69	101.35	6,827.50	-190.89	951.15	969.33	0.00	0.00	
7,000.00	8.69	101.35	6,926.36	-193.86	965.96	984.42	0.00	0.00	
7,100.00	8.69	101.35	7,025.21	-196.83	980.77	999.51	0.00	0.00	
7,200.00	8.69	101.35	7,124.06	-199.81	995.58	1,014.60	0.00	0.00	
7,300.00	8.69	101.35	7,222.92	-202.78	1,010.38	1,029.69	0.00	0.00	
7,400.00	8.69	101.35	7,321.77	-205.75	1,025.19	1,044.78	0.00	0.00	
7,500.00	8.69	101.35	7,420.62	-208.72	1,040.00	1,059.87	0.00	0.00	
7,600.00	8.69	101.35	7,519.47	-211.69	1,054.80	1,074.96	0.00	0.00	
7,700.00	8.69	101.35	7,618.33	-214.66	1,069.61	1,090.05	0.00	0.00	
7,800.00	8.69	101.35	7,717.18	-217.64	1,084.42	1,105.14	0.00	0.00	
7,900.00	8.69	101.35	7,816.03	-220.61	1,099.22	1,120.23	0.00	0.00	
8,000.00	8.69	101.35	7,914.89	-223.58	1,114.03	1,135.32	0.00	0.00	
8,100.00	8.69	101.35	8,013.74	-226.55	1,128.84	1,150.41	0.00	0.00	
8,200.00	8.69	101.35	8,112.59	-229.52	1,143.65	1,165.50	0.00	0.00	
8,300.00	8.69	101.35	8,211.45	-232.49	1,158.45	1,180.59	0.00	0.00	
8,400.00	8.69	101.35	8,310.30	-235.47	1,173.26	1,195.68	0.00	0.00	
8,500.00	8.69	101.35	8,409.15	-238.44	1,188.07	1,210.77	0.00	0.00	
8,576.29	8.69	101.35	8,484.57	-240.70	1,199.36	1,222.29	0.00	0.00	Start Drop -3.00
8,586.84	8.37	101.35	8,495.00	-241.01	1,200.90	1,223.85	3.00	-3.00	OHIO_CREEK.NPC
8,600.00	7.97	101.35	8,508.03	-241.38	1,202.73	1,225.72	3.00	-3.00	
8,700.00	4.97	101.35	8,607.38	-243.60	1,213.79	1,236.99	3.00	-3.00	
8,800.00	1.97	101.35	8,707.18	-244.79	1,219.73	1,243.04	3.00	-3.00	
8,865.83	0.00	0.00	8,773.00	-245.01	1,220.84	1,244.17	3.00	-3.00	Start DLS 2.00 TFO 250.00
8,900.00	0.68	250.00	8,807.17	-245.08	1,220.65	1,244.00	2.00	2.00	
8,915.83	1.00	250.00	8,823.00	-245.16	1,220.43	1,243.81	2.00	2.00	WILLIAMS_FORK.NPC (TVD)
8,936.80	1.42	250.00	8,843.97	-245.32	1,220.01	1,243.44	2.00	2.00	
8,936.90	1.42	250.00	8,844.06	-245.32	1,220.01	1,243.44	0.00	0.00	Start 3611.05 hold at 8936.90 MD
8,965.85	1.42	250.00	8,873.00	-245.56	1,219.34	1,242.84	0.00	0.00	TOP_GAS.NPC (TVD)
9,000.00	1.42	250.00	8,907.14	-245.85	1,218.54	1,242.14	0.00	0.00	

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Project:	Garfield County, CO (UTM 12N)	MD Reference:	GL + KB @ 8150.00usft
Site:	S24-T4S-R96W ELU A24 496	North Reference:	True
Well:	FED 11C-24	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
9,100.00	1.42	250.00	9,007.11	-246.70	1,216.22	1,240.08	0.00	0.00	
9,200.00	1.42	250.00	9,107.08	-247.55	1,213.89	1,238.02	0.00	0.00	
9,300.00	1.42	250.00	9,207.05	-248.39	1,211.56	1,235.95	0.00	0.00	
9,400.00	1.42	250.00	9,307.02	-249.24	1,209.23	1,233.89	0.00	0.00	
9,500.00	1.42	250.00	9,406.99	-250.09	1,206.90	1,231.83	0.00	0.00	
9,600.00	1.42	250.00	9,506.96	-250.93	1,204.58	1,229.77	0.00	0.00	
9,700.00	1.42	250.00	9,606.93	-251.78	1,202.25	1,227.71	0.00	0.00	
9,800.00	1.42	250.00	9,706.90	-252.63	1,199.92	1,225.64	0.00	0.00	
9,900.00	1.42	250.00	9,806.87	-253.48	1,197.59	1,223.58	0.00	0.00	
10,000.00	1.42	250.00	9,906.84	-254.32	1,195.26	1,221.52	0.00	0.00	
10,100.00	1.42	250.00	10,006.80	-255.17	1,192.94	1,219.46	0.00	0.00	
10,200.00	1.42	250.00	10,106.77	-256.02	1,190.61	1,217.40	0.00	0.00	
10,300.00	1.42	250.00	10,206.74	-256.87	1,188.28	1,215.33	0.00	0.00	
10,400.00	1.42	250.00	10,306.71	-257.71	1,185.95	1,213.27	0.00	0.00	
10,500.00	1.42	250.00	10,406.68	-258.56	1,183.63	1,211.21	0.00	0.00	
10,600.00	1.42	250.00	10,506.65	-259.41	1,181.30	1,209.15	0.00	0.00	
10,700.00	1.42	250.00	10,606.62	-260.25	1,178.97	1,207.09	0.00	0.00	
10,800.00	1.42	250.00	10,706.59	-261.10	1,176.64	1,205.02	0.00	0.00	
10,900.00	1.42	250.00	10,806.56	-261.95	1,174.31	1,202.96	0.00	0.00	
11,000.00	1.42	250.00	10,906.53	-262.80	1,171.99	1,200.90	0.00	0.00	
11,100.00	1.42	250.00	11,006.50	-263.64	1,169.66	1,198.84	0.00	0.00	
11,200.00	1.42	250.00	11,106.47	-264.49	1,167.33	1,196.78	0.00	0.00	
11,300.00	1.42	250.00	11,206.44	-265.34	1,165.00	1,194.71	0.00	0.00	
11,400.00	1.42	250.00	11,306.41	-266.19	1,162.68	1,192.65	0.00	0.00	
11,500.00	1.42	250.00	11,406.38	-267.03	1,160.35	1,190.59	0.00	0.00	
11,600.00	1.42	250.00	11,506.34	-267.88	1,158.02	1,188.53	0.00	0.00	
11,700.00	1.42	250.00	11,606.31	-268.73	1,155.69	1,186.47	0.00	0.00	
11,800.00	1.42	250.00	11,706.28	-269.57	1,153.36	1,184.40	0.00	0.00	
11,852.73	1.42	250.00	11,759.00	-270.02	1,152.14	1,183.32	0.00	0.00	CAMEO.NPC (TVD)
11,900.00	1.42	250.00	11,806.25	-270.42	1,151.04	1,182.34	0.00	0.00	
12,000.00	1.42	250.00	11,906.22	-271.27	1,148.71	1,180.28	0.00	0.00	
12,100.00	1.42	250.00	12,006.19	-272.12	1,146.38	1,178.22	0.00	0.00	
12,200.00	1.42	250.00	12,106.16	-272.96	1,144.05	1,176.16	0.00	0.00	
12,300.00	1.42	250.00	12,206.13	-273.81	1,141.73	1,174.09	0.00	0.00	
12,352.89	1.42	250.00	12,259.00	-274.26	1,140.49	1,173.00	0.00	0.00	ROLLINS.NPC (TVD)
12,400.00	1.42	250.00	12,306.10	-274.66	1,139.40	1,172.03	0.00	0.00	
12,500.00	1.42	250.00	12,406.07	-275.50	1,137.07	1,169.97	0.00	0.00	
12,547.95	1.42	250.00	12,454.00	-275.91	1,135.95	1,168.98	0.00	0.00	TD at 12547.95
12,552.95	1.42	250.00	12,459.00	-275.95	1,135.84	1,168.88	0.00	0.00	TD.MBL (TVD) - FED 11C-24_PBHL

Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
FED 11C-24_PBHL	0.00	0.00	12,459.00	-275.95	1,135.84	14,427,310.10	2,450,282.00	39.693143	-108.121296
- hit/miss target									
- Shape									
- plan hits target center									
- Ellipse (radii L100.00 W50.00 on 250.00 azi)									

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well FED 11C-24 - Slot FED 11C-24
Company:	Caerus Oil & Gas	TVD Reference:	GL + KB @ 8150.00usft
Project:	Garfield County, CO (UTM 12N)	MD Reference:	GL + KB @ 8150.00usft
Site:	S24-T4S-R96W ELU A24 496	North Reference:	True
Well:	FED 11C-24	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
6,253.08	6,188.00	WASATCH_G.NPC (TVD)				
6,786.19	6,715.00	FORT_UNION.NPC (TVD)				
8,586.84	8,495.00	OHIO_CREEK.NPC				
8,915.83	8,823.00	WILLIAMS_FORK.NPC (TVD)				
8,965.85	8,873.00	TOP_GAS.NPC (TVD)				
11,852.73	11,759.00	CAMEO.NPC (TVD)				
12,352.89	12,259.00	ROLLINS.NPC (TVD)				
12,552.95	12,459.00	TD.MBL (TVD)				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
175.00	175.00	0.00	0.00	Start Build 3.00	
275.00	274.95	-0.52	2.57	Start 240.00 hold at 275.00 MD	
515.00	514.63	-2.99	14.88	Start DLS 3.00 TFO 0.00	
704.54	703.10	-6.78	33.79	Start 7871.75 hold at 704.54 MD	
8,576.29	8,484.57	-240.70	1,199.36	Start Drop -3.00	
8,865.83	8,773.00	-245.01	1,220.84	Start DLS 2.00 TFO 250.00	
8,936.90	8,844.06	-245.32	1,220.01	Start 3611.05 hold at 8936.90 MD	
12,547.95	12,454.00	-275.91	1,135.95	TD at 12547.95	