

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NPR 23C-3 596
Company:	Caerus Oil & Gas	TVD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Project:	Garfield County, CO (UTM 12N)	MD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Site:	NPR A03 596 PAD	North Reference:	True
Well:	NPR 23C-3 596	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		NPR A03 596 PAD			
Site Position:		Northing:	14,410,524.00 usft	Latitude:	39.647700
From:	Map	Easting:	2,443,431.60 usft	Longitude:	-108.147513
Position Uncertainty:	3.28 usft	Slot Radius:	13-3/16"	Grid Convergence:	1.82 °

Well	NPR 23C-3 596					
Well Position	+N/-S	0.00 usft	Northing:	14,410,494.20 usft	Latitude:	39.647617
	+E/-W	0.00 usft	Easting:	2,443,442.00 usft	Longitude:	-108.147480
Position Uncertainty		3.28 usft	Wellhead Elevation:	usft	Ground Level:	8,331.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	5/10/2018	9.65	65.90	51,422.60000000

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	214.72

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	
498.68	9.71	212.33	497.13	-23.12	-14.63	3.00	3.00	0.00	212.33	
7,529.07	9.71	212.33	7,426.80	-1,025.11	-648.79	0.00	0.00	0.00	0.00	
8,014.59	0.00	0.00	7,910.00	-1,059.80	-670.74	2.00	-2.00	0.00	180.00	
8,090.64	1.52	250.00	7,986.04	-1,060.14	-671.69	2.00	2.00	-144.65	250.00	
11,460.79	1.52	250.00	11,355.00	-1,090.73	-755.74	0.00	0.00	0.00	0.00	NPR 23C-3 596_PBH

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Project:	Garfield County, CO (UTM 12N)	MD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Site:	NPR A03 596 PAD	North Reference:	True
Well:	NPR 23C-3 596	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	212.33	200.00	-0.14	-0.09	0.16	3.00	3.00	
300.00	3.75	212.33	299.91	-3.46	-2.19	4.09	3.00	3.00	
400.00	6.75	212.33	399.48	-11.19	-7.08	13.23	3.00	3.00	
498.68	9.71	212.33	497.13	-23.12	-14.63	27.34	3.00	3.00	Start 7030.39 hold at 498.68 MD
500.00	9.71	212.33	498.43	-23.31	-14.75	27.56	0.00	0.00	
600.00	9.71	212.33	597.00	-37.56	-23.77	44.41	0.00	0.00	
700.00	9.71	212.33	695.57	-51.81	-32.79	61.27	0.00	0.00	
800.00	9.71	212.33	794.14	-66.07	-41.81	78.12	0.00	0.00	
900.00	9.71	212.33	892.70	-80.32	-50.83	94.97	0.00	0.00	
1,000.00	9.71	212.33	991.27	-94.57	-59.85	111.82	0.00	0.00	
1,100.00	9.71	212.33	1,089.84	-108.82	-68.87	128.67	0.00	0.00	
1,200.00	9.71	212.33	1,188.40	-123.08	-77.89	145.53	0.00	0.00	
1,300.00	9.71	212.33	1,286.97	-137.33	-86.91	162.38	0.00	0.00	
1,400.00	9.71	212.33	1,385.54	-151.58	-95.93	179.23	0.00	0.00	
1,500.00	9.71	212.33	1,484.11	-165.83	-104.95	196.08	0.00	0.00	
1,600.00	9.71	212.33	1,582.67	-180.08	-113.97	212.94	0.00	0.00	
1,700.00	9.71	212.33	1,681.24	-194.34	-122.99	229.79	0.00	0.00	
1,800.00	9.71	212.33	1,779.81	-208.59	-132.02	246.64	0.00	0.00	
1,900.00	9.71	212.33	1,878.38	-222.84	-141.04	263.49	0.00	0.00	
2,000.00	9.71	212.33	1,976.94	-237.09	-150.06	280.35	0.00	0.00	
2,100.00	9.71	212.33	2,075.51	-251.35	-159.08	297.20	0.00	0.00	
2,200.00	9.71	212.33	2,174.08	-265.60	-168.10	314.05	0.00	0.00	
2,300.00	9.71	212.33	2,272.64	-279.85	-177.12	330.90	0.00	0.00	
2,400.00	9.71	212.33	2,371.21	-294.10	-186.14	347.75	0.00	0.00	
2,500.00	9.71	212.33	2,469.78	-308.36	-195.16	364.61	0.00	0.00	
2,600.00	9.71	212.33	2,568.35	-322.61	-204.18	381.46	0.00	0.00	
2,700.00	9.71	212.33	2,666.91	-336.86	-213.20	398.31	0.00	0.00	
2,800.00	9.71	212.33	2,765.48	-351.11	-222.22	415.16	0.00	0.00	
2,900.00	9.71	212.33	2,864.05	-365.36	-231.24	432.02	0.00	0.00	
3,000.00	9.71	212.33	2,962.62	-379.62	-240.26	448.87	0.00	0.00	
3,100.00	9.71	212.33	3,061.18	-393.87	-249.28	465.72	0.00	0.00	
3,139.38	9.71	212.33	3,100.00	-399.48	-252.83	472.36	0.00	0.00	WASATCH.MBL (TVD)
3,200.00	9.71	212.33	3,159.75	-408.12	-258.30	482.57	0.00	0.00	
3,300.00	9.71	212.33	3,258.32	-422.37	-267.32	499.42	0.00	0.00	
3,400.00	9.71	212.33	3,356.88	-436.63	-276.34	516.28	0.00	0.00	
3,500.00	9.71	212.33	3,455.45	-450.88	-285.36	533.13	0.00	0.00	
3,600.00	9.71	212.33	3,554.02	-465.13	-294.38	549.98	0.00	0.00	
3,700.00	9.71	212.33	3,652.59	-479.38	-303.40	566.83	0.00	0.00	
3,800.00	9.71	212.33	3,751.15	-493.63	-312.42	583.69	0.00	0.00	
3,900.00	9.71	212.33	3,849.72	-507.89	-321.44	600.54	0.00	0.00	
4,000.00	9.71	212.33	3,948.29	-522.14	-330.46	617.39	0.00	0.00	
4,100.00	9.71	212.33	4,046.86	-536.39	-339.48	634.24	0.00	0.00	
4,200.00	9.71	212.33	4,145.42	-550.64	-348.50	651.09	0.00	0.00	
4,300.00	9.71	212.33	4,243.99	-564.90	-357.52	667.95	0.00	0.00	
4,400.00	9.71	212.33	4,342.56	-579.15	-366.54	684.80	0.00	0.00	
4,500.00	9.71	212.33	4,441.12	-593.40	-375.56	701.65	0.00	0.00	
4,600.00	9.71	212.33	4,539.69	-607.65	-384.58	718.50	0.00	0.00	
4,700.00	9.71	212.33	4,638.26	-621.91	-393.60	735.36	0.00	0.00	
4,800.00	9.71	212.33	4,736.83	-636.16	-402.62	752.21	0.00	0.00	

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Site:	NPR A03 596 PAD	North Reference:	True
Well:	NPR 23C-3 596	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
4,900.00	9.71	212.33	4,835.39	-650.41	-411.64	769.06	0.00	0.00	
5,000.00	9.71	212.33	4,933.96	-664.66	-420.66	785.91	0.00	0.00	
5,100.00	9.71	212.33	5,032.53	-678.91	-429.68	802.76	0.00	0.00	
5,200.00	9.71	212.33	5,131.10	-693.17	-438.70	819.62	0.00	0.00	
5,300.00	9.71	212.33	5,229.66	-707.42	-447.72	836.47	0.00	0.00	
5,400.00	9.71	212.33	5,328.23	-721.67	-456.74	853.32	0.00	0.00	
5,500.00	9.71	212.33	5,426.80	-735.92	-465.76	870.17	0.00	0.00	
5,580.35	9.71	212.33	5,506.00	-747.38	-473.01	883.72	0.00	0.00	WASATCH_G_ZONE.MBL (TVD)
5,600.00	9.71	212.33	5,525.36	-750.18	-474.78	887.03	0.00	0.00	
5,700.00	9.71	212.33	5,623.93	-764.43	-483.80	903.88	0.00	0.00	
5,800.00	9.71	212.33	5,722.50	-778.68	-492.82	920.73	0.00	0.00	
5,884.71	9.71	212.33	5,806.00	-790.75	-500.47	935.01	0.00	0.00	FORT_UNION.MBL (TVD)
5,900.00	9.71	212.33	5,821.07	-792.93	-501.84	937.58	0.00	0.00	
6,000.00	9.71	212.33	5,919.63	-807.19	-510.86	954.44	0.00	0.00	
6,100.00	9.71	212.33	6,018.20	-821.44	-519.88	971.29	0.00	0.00	
6,200.00	9.71	212.33	6,116.77	-835.69	-528.90	988.14	0.00	0.00	
6,300.00	9.71	212.33	6,215.34	-849.94	-537.92	1,004.99	0.00	0.00	
6,400.00	9.71	212.33	6,313.90	-864.19	-546.95	1,021.84	0.00	0.00	
6,500.00	9.71	212.33	6,412.47	-878.45	-555.97	1,038.70	0.00	0.00	
6,600.00	9.71	212.33	6,511.04	-892.70	-564.99	1,055.55	0.00	0.00	
6,700.00	9.71	212.33	6,609.60	-906.95	-574.01	1,072.40	0.00	0.00	
6,800.00	9.71	212.33	6,708.17	-921.20	-583.03	1,089.25	0.00	0.00	
6,900.00	9.71	212.33	6,806.74	-935.46	-592.05	1,106.11	0.00	0.00	
7,000.00	9.71	212.33	6,905.31	-949.71	-601.07	1,122.96	0.00	0.00	
7,100.00	9.71	212.33	7,003.87	-963.96	-610.09	1,139.81	0.00	0.00	
7,200.00	9.71	212.33	7,102.44	-978.21	-619.11	1,156.66	0.00	0.00	
7,300.00	9.71	212.33	7,201.01	-992.46	-628.13	1,173.51	0.00	0.00	
7,400.00	9.71	212.33	7,299.58	-1,006.72	-637.15	1,190.37	0.00	0.00	
7,500.00	9.71	212.33	7,398.14	-1,020.97	-646.17	1,207.22	0.00	0.00	
7,529.07	9.71	212.33	7,426.80	-1,025.11	-648.79	1,212.12	0.00	0.00	Start Drop -2.00
7,600.00	8.29	212.33	7,496.85	-1,034.49	-654.72	1,223.21	2.00	-2.00	
7,700.00	6.29	212.33	7,596.04	-1,045.21	-661.51	1,235.89	2.00	-2.00	
7,800.00	4.29	212.33	7,695.61	-1,053.01	-666.44	1,245.10	2.00	-2.00	
7,870.53	2.88	212.33	7,766.00	-1,056.73	-668.80	1,249.51	2.00	-2.00	OHIO_CREEK.MBL (TVD)
7,900.00	2.29	212.33	7,795.44	-1,057.86	-669.51	1,250.84	2.00	-2.00	
8,000.00	0.29	212.33	7,895.41	-1,059.76	-670.72	1,253.09	2.00	-2.00	
8,014.59	0.00	0.00	7,910.00	-1,059.80	-670.74	1,253.13	2.00	-2.00	Start DLS 2.00 TFO 250.00
8,090.64	1.52	250.00	7,986.04	-1,060.14	-671.69	1,253.95	2.00	2.00	Start 3370.15 hold at 8090.64 MD
8,100.00	1.52	250.00	7,995.39	-1,060.23	-671.92	1,254.15	0.00	0.00	
8,114.61	1.52	250.00	8,010.00	-1,060.36	-672.29	1,254.47	0.00	0.00	WILLIAMS_FORK.MBL (TVD)
8,164.63	1.52	250.00	8,060.00	-1,060.81	-673.53	1,255.55	0.00	0.00	TOP_GAS.MBL (TVD)
8,200.00	1.52	250.00	8,095.36	-1,061.13	-674.42	1,256.32	0.00	0.00	
8,300.00	1.52	250.00	8,195.32	-1,062.04	-676.91	1,258.49	0.00	0.00	
8,400.00	1.52	250.00	8,295.29	-1,062.95	-679.40	1,260.65	0.00	0.00	
8,500.00	1.52	250.00	8,395.25	-1,063.86	-681.90	1,262.82	0.00	0.00	
8,600.00	1.52	250.00	8,495.22	-1,064.76	-684.39	1,264.99	0.00	0.00	
8,700.00	1.52	250.00	8,595.18	-1,065.67	-686.89	1,267.15	0.00	0.00	
8,800.00	1.52	250.00	8,695.15	-1,066.58	-689.38	1,269.32	0.00	0.00	
8,900.00	1.52	250.00	8,795.11	-1,067.49	-691.87	1,271.49	0.00	0.00	
9,000.00	1.52	250.00	8,895.08	-1,068.40	-694.37	1,273.65	0.00	0.00	
9,100.00	1.52	250.00	8,995.04	-1,069.30	-696.86	1,275.82	0.00	0.00	
9,200.00	1.52	250.00	9,095.01	-1,070.21	-699.36	1,277.99	0.00	0.00	

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Site:	NPR A03 596 PAD	North Reference:	True
Well:	NPR 23C-3 596	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	1.52	250.00	9,194.97	-1,071.12	-701.85	1,280.15	0.00	0.00	
9,400.00	1.52	250.00	9,294.94	-1,072.03	-704.35	1,282.32	0.00	0.00	
9,500.00	1.52	250.00	9,394.90	-1,072.93	-706.84	1,284.49	0.00	0.00	
9,600.00	1.52	250.00	9,494.86	-1,073.84	-709.33	1,286.65	0.00	0.00	
9,700.00	1.52	250.00	9,594.83	-1,074.75	-711.83	1,288.82	0.00	0.00	
9,800.00	1.52	250.00	9,694.79	-1,075.66	-714.32	1,290.99	0.00	0.00	
9,900.00	1.52	250.00	9,794.76	-1,076.57	-716.82	1,293.15	0.00	0.00	
10,000.00	1.52	250.00	9,894.72	-1,077.47	-719.31	1,295.32	0.00	0.00	
10,100.00	1.52	250.00	9,994.69	-1,078.38	-721.80	1,297.49	0.00	0.00	
10,200.00	1.52	250.00	10,094.65	-1,079.29	-724.30	1,299.65	0.00	0.00	
10,300.00	1.52	250.00	10,194.62	-1,080.20	-726.79	1,301.82	0.00	0.00	
10,400.00	1.52	250.00	10,294.58	-1,081.10	-729.29	1,303.99	0.00	0.00	
10,500.00	1.52	250.00	10,394.55	-1,082.01	-731.78	1,306.15	0.00	0.00	
10,600.00	1.52	250.00	10,494.51	-1,082.92	-734.27	1,308.32	0.00	0.00	
10,700.00	1.52	250.00	10,594.48	-1,083.83	-736.77	1,310.49	0.00	0.00	
10,760.54	1.52	250.00	10,655.00	-1,084.38	-738.28	1,311.80	0.00	0.00	CAMEO.MBL (TVD)
10,800.00	1.52	250.00	10,694.44	-1,084.74	-739.26	1,312.65	0.00	0.00	
10,900.00	1.52	250.00	10,794.41	-1,085.64	-741.76	1,314.82	0.00	0.00	
11,000.00	1.52	250.00	10,894.37	-1,086.55	-744.25	1,316.99	0.00	0.00	
11,100.00	1.52	250.00	10,994.34	-1,087.46	-746.75	1,319.15	0.00	0.00	
11,200.00	1.52	250.00	11,094.30	-1,088.37	-749.24	1,321.32	0.00	0.00	
11,300.00	1.52	250.00	11,194.27	-1,089.27	-751.73	1,323.49	0.00	0.00	
11,310.74	1.52	250.00	11,205.00	-1,089.37	-752.00	1,323.72	0.00	0.00	ROLLINS.MBL (TVD)
11,400.00	1.52	250.00	11,294.23	-1,090.18	-754.23	1,325.65	0.00	0.00	
11,460.79	1.52	250.00	11,355.00	-1,090.73	-755.74	1,326.97	0.00	0.00	TD at 11460.79 - NPR 23C-3 596_PBHL

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									
NPR 23C-3 596_PBHL	0.00	0.00	11,355.00	-1,090.73	-755.74	14,409,380.00	2,442,721.30	39.644624	-108.150163
- plan hits target center									
- Ellipse (radii L100.00 W50.00 on 250.00 azi)									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,139.38	3,100.00	WASATCH.MBL (TVD)			
5,580.35	5,506.00	WASATCH_G_ZONE.MBL (TVD)			
5,884.71	5,806.00	FORT_UNION.MBL (TVD)			
7,870.53	7,766.00	OHIO_CREEK.MBL (TVD)			
8,114.61	8,010.00	WILLIAMS_FORK.MBL (TVD)			
8,164.63	8,060.00	TOP_GAS.MBL (TVD)			
10,760.54	10,655.00	CAMEO.MBL (TVD)			
11,310.74	11,205.00	ROLLINS.MBL (TVD)			
11,460.79	11,355.00	TD.MBL (TVD)			

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well NPR 23C-3 596
Company:	Caerus Oil & Gas	TVD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Project:	Garfield County, CO (UTM 12N)	MD Reference:	GL+KB @ 8361.00usft (Original Well Elev)
Site:	NPR A03 596 PAD	North Reference:	True
Well:	NPR 23C-3 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	PLAN #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
175.00	175.00	0.00	0.00	Start Build 3.00
498.68	497.13	-23.12	-14.63	Start 7030.39 hold at 498.68 MD
7,529.07	7,426.80	-1,025.11	-648.79	Start Drop -2.00
8,014.59	7,910.00	-1,059.80	-670.74	Start DLS 2.00 TFO 250.00
8,090.64	7,986.04	-1,060.14	-671.69	Start 3370.15 hold at 8090.64 MD
11,460.79	11,355.00	-1,090.73	-755.74	TD at 11460.79