



NPR 12A-9 596
 Plan #2 (3-06-18)
 10:27, March 15 2018

Azimuths to True North
 Magnetic North: 9.62°

Magnetic Field
 Strength: 51485.2snT
 Dip Angle: 65.85°
 Date: 3/15/2018
 Model: HDGM

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
SHL 1696'FNL, 2458'FWL, SEC.9	1.0	0.0	0.0	39.632183	-108.174169	Point
BHL 1516'FNL, 1310'FWL, SEC.9	10007.0	179.4	-1148.0	39.632675	-108.178245	Ellipse (Radii: L200.0 W100.0)

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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	509.0	9.27	283.86	507.6	6.0	-24.2	3.00	283.86	24.8	
4	6453.3	9.27	283.86	6374.4	235.3	-953.8	0.00	0.00	978.7	
5	6762.3	0.00	0.00	6682.0	241.3	-978.0	3.00	180.00	1003.5	
6	7089.8	3.28	250.00	7009.3	238.1	-986.8	1.00	250.00	1011.7	
7	10092.4	3.28	250.00	10007.0	179.4	-1148.0	0.00	0.00	1161.9	BHL 1516'FNL, 1310'FWL, SEC.9



Directional

Caerus Oil and Gas LLC

SEC.9-T5S-R96W

NPR G09 596 Pad Sec.9-T5S-R96W

NPR 12A-9 596

Wellbore #1

Plan: Plan #2 (3-06-18)

Standard Planning Report

15 March, 2018

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 12A-9 596
Company:	Caerus Oil and Gas LLC	TVD Reference:	WELL @ 7670.0ft (Original Well Elev)
Project:	SEC.9-T5S-R96W	MD Reference:	WELL @ 7670.0ft (Original Well Elev)
Site:	NPR G09 596 Pad Sec.9-T5S-R96W	North Reference:	True
Well:	NPR 12A-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-06-18)		

Project	SEC.9-T5S-R96W, Garfield County, CO		
Map System:	Universal Transverse Mercator (US Survey Feet)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 - Western US		Using Well Reference Point
Map Zone:	Zone 12N (114 W to 108 W)		Using geodetic scale factor

Site	NPR G09 596 Pad Sec.9-T5S-R96W				
Site Position:	Northing:	14,404,590.33 usft	Latitude:	39.632067	
From:	Lat/Long	Easting:	2,436,015.01 usft	Longitude:	-108.174492
Position Uncertainty:	0.0 ft	Slot Radius:	13-3/16 "	Grid Convergence:	1.80 °

Well	NPR 12A-9 596					
Well Position	+N/-S	42.1 ft	Northing:	14,404,635.26 usft	Latitude:	39.632183
	+E/-W	90.8 ft	Easting:	2,436,104.42 usft	Longitude:	-108.174170
Position Uncertainty		0.0 ft	Wellhead Elevation:	0.0 ft	Ground Level:	7,640.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	3/15/2018	9.62	65.85	51,485

Design	Plan #2 (3-06-18)			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	278.88

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	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	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
509.0	9.27	283.86	507.6	6.0	-24.2	3.00	3.00	0.00	283.86	
6,453.3	9.27	283.86	6,374.4	235.3	-953.8	0.00	0.00	0.00	0.00	
6,762.3	0.00	0.00	6,682.0	241.3	-978.0	3.00	-3.00	0.00	180.00	
7,089.8	3.28	250.00	7,009.3	238.1	-986.8	1.00	1.00	-33.59	250.00	
10,092.4	3.28	250.00	10,007.0	179.4	-1,148.0	0.00	0.00	0.00	0.00	BHL 1516'FNL, 1310'

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 12A-9 596
Company:	Caerus Oil and Gas LLC	TVD Reference:	WELL @ 7670.0ft (Original Well Elev)
Project:	SEC.9-T5S-R96W	MD Reference:	WELL @ 7670.0ft (Original Well Elev)
Site:	NPR G09 596 Pad Sec.9-T5S-R96W	North Reference:	True
Well:	NPR 12A-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-06-18)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	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	
1.0	0.00	0.00	1.0	0.0	0.0	0.0	0.00	0.00	0.00	
SHL 1696'FNL, 2458'FWL, SEC.9										
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	3.00	283.86	300.0	0.6	-2.5	2.6	3.00	3.00	0.00	
400.0	6.00	283.86	399.6	2.5	-10.2	10.4	3.00	3.00	0.00	
500.0	9.00	283.86	498.8	5.6	-22.8	23.4	3.00	3.00	0.00	
509.0	9.27	283.86	507.6	6.0	-24.2	24.8	3.00	3.00	0.00	
600.0	9.27	283.86	597.5	9.5	-38.4	39.5	0.00	0.00	0.00	
700.0	9.27	283.86	696.2	13.3	-54.1	55.5	0.00	0.00	0.00	
800.0	9.27	283.86	794.9	17.2	-69.7	71.5	0.00	0.00	0.00	
900.0	9.27	283.86	893.5	21.1	-85.4	87.6	0.00	0.00	0.00	
1,000.0	9.27	283.86	992.2	24.9	-101.0	103.6	0.00	0.00	0.00	
1,100.0	9.27	283.86	1,090.9	28.8	-116.6	119.7	0.00	0.00	0.00	
1,200.0	9.27	283.86	1,189.6	32.6	-132.3	135.7	0.00	0.00	0.00	
1,300.0	9.27	283.86	1,288.3	36.5	-147.9	151.8	0.00	0.00	0.00	
1,400.0	9.27	283.86	1,387.0	40.4	-163.6	167.8	0.00	0.00	0.00	
1,500.0	9.27	283.86	1,485.7	44.2	-179.2	183.9	0.00	0.00	0.00	
1,600.0	9.27	283.86	1,584.4	48.1	-194.8	199.9	0.00	0.00	0.00	
1,700.0	9.27	283.86	1,683.1	51.9	-210.5	216.0	0.00	0.00	0.00	
1,800.0	9.27	283.86	1,781.8	55.8	-226.1	232.0	0.00	0.00	0.00	
1,900.0	9.27	283.86	1,880.5	59.6	-241.7	248.1	0.00	0.00	0.00	
2,000.0	9.27	283.86	1,979.2	63.5	-257.4	264.1	0.00	0.00	0.00	
2,002.9	9.27	283.86	1,982.0	63.6	-257.8	264.6	0.00	0.00	0.00	
WASATCH.MBL										
2,100.0	9.27	283.86	2,077.9	67.4	-273.0	280.1	0.00	0.00	0.00	
2,200.0	9.27	283.86	2,176.6	71.2	-288.7	296.2	0.00	0.00	0.00	
2,300.0	9.27	283.86	2,275.3	75.1	-304.3	312.2	0.00	0.00	0.00	
2,400.0	9.27	283.86	2,374.0	78.9	-319.9	328.3	0.00	0.00	0.00	
2,500.0	9.27	283.86	2,472.7	82.8	-335.6	344.3	0.00	0.00	0.00	
2,527.7	9.27	283.86	2,500.0	83.9	-339.9	348.8	0.00	0.00	0.00	
9 5/8"										
2,600.0	9.27	283.86	2,571.4	86.7	-351.2	360.4	0.00	0.00	0.00	
2,700.0	9.27	283.86	2,670.0	90.5	-366.8	376.4	0.00	0.00	0.00	
2,800.0	9.27	283.86	2,768.7	94.4	-382.5	392.5	0.00	0.00	0.00	
2,900.0	9.27	283.86	2,867.4	98.2	-398.1	408.5	0.00	0.00	0.00	
3,000.0	9.27	283.86	2,966.1	102.1	-413.8	424.6	0.00	0.00	0.00	
3,100.0	9.27	283.86	3,064.8	105.9	-429.4	440.6	0.00	0.00	0.00	
3,200.0	9.27	283.86	3,163.5	109.8	-445.0	456.7	0.00	0.00	0.00	
3,300.0	9.27	283.86	3,262.2	113.7	-460.7	472.7	0.00	0.00	0.00	
3,400.0	9.27	283.86	3,360.9	117.5	-476.3	488.7	0.00	0.00	0.00	
3,500.0	9.27	283.86	3,459.6	121.4	-491.9	504.8	0.00	0.00	0.00	
3,600.0	9.27	283.86	3,558.3	125.2	-507.6	520.8	0.00	0.00	0.00	
3,700.0	9.27	283.86	3,657.0	129.1	-523.2	536.9	0.00	0.00	0.00	
3,800.0	9.27	283.86	3,755.7	133.0	-538.9	552.9	0.00	0.00	0.00	
3,900.0	9.27	283.86	3,854.4	136.8	-554.5	569.0	0.00	0.00	0.00	
4,000.0	9.27	283.86	3,953.1	140.7	-570.1	585.0	0.00	0.00	0.00	
4,100.0	9.27	283.86	4,051.8	144.5	-585.8	601.1	0.00	0.00	0.00	
4,200.0	9.27	283.86	4,150.5	148.4	-601.4	617.1	0.00	0.00	0.00	
4,300.0	9.27	283.86	4,249.2	152.2	-617.1	633.2	0.00	0.00	0.00	
4,400.0	9.27	283.86	4,347.8	156.1	-632.7	649.2	0.00	0.00	0.00	
4,434.6	9.27	283.86	4,382.0	157.4	-638.1	654.8	0.00	0.00	0.00	
WASATCH_G_ZONE.MBL										

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Wellbore:	Wellbore #1		
Design:	Plan #2 (3-06-18)		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,500.0	9.27	283.86	4,446.5	160.0	-648.3	665.3	0.00	0.00	0.00
4,600.0	9.27	283.86	4,545.2	163.8	-664.0	681.3	0.00	0.00	0.00
4,700.0	9.27	283.86	4,643.9	167.7	-679.6	697.3	0.00	0.00	0.00
4,760.9	9.27	283.86	4,704.0	170.0	-689.1	707.1	0.00	0.00	0.00
FORT_UNION.MBL									
4,800.0	9.27	283.86	4,742.6	171.5	-695.2	713.4	0.00	0.00	0.00
4,900.0	9.27	283.86	4,841.3	175.4	-710.9	729.4	0.00	0.00	0.00
5,000.0	9.27	283.86	4,940.0	179.3	-726.5	745.5	0.00	0.00	0.00
5,100.0	9.27	283.86	5,038.7	183.1	-742.2	761.5	0.00	0.00	0.00
5,200.0	9.27	283.86	5,137.4	187.0	-757.8	777.6	0.00	0.00	0.00
5,300.0	9.27	283.86	5,236.1	190.8	-773.4	793.6	0.00	0.00	0.00
5,400.0	9.27	283.86	5,334.8	194.7	-789.1	809.7	0.00	0.00	0.00
5,500.0	9.27	283.86	5,433.5	198.5	-804.7	825.7	0.00	0.00	0.00
5,600.0	9.27	283.86	5,532.2	202.4	-820.3	841.8	0.00	0.00	0.00
5,700.0	9.27	283.86	5,630.9	206.3	-836.0	857.8	0.00	0.00	0.00
5,800.0	9.27	283.86	5,729.6	210.1	-851.6	873.9	0.00	0.00	0.00
5,900.0	9.27	283.86	5,828.3	214.0	-867.3	889.9	0.00	0.00	0.00
6,000.0	9.27	283.86	5,927.0	217.8	-882.9	905.9	0.00	0.00	0.00
6,100.0	9.27	283.86	6,025.7	221.7	-898.5	922.0	0.00	0.00	0.00
6,200.0	9.27	283.86	6,124.3	225.6	-914.2	938.0	0.00	0.00	0.00
6,300.0	9.27	283.86	6,223.0	229.4	-929.8	954.1	0.00	0.00	0.00
6,400.0	9.27	283.86	6,321.7	233.3	-945.4	970.1	0.00	0.00	0.00
6,453.3	9.27	283.86	6,374.4	235.3	-953.8	978.7	0.00	0.00	0.00
6,500.0	7.87	283.86	6,420.5	237.0	-960.5	985.6	3.00	-3.00	0.00
6,576.0	5.59	283.86	6,496.0	239.1	-969.2	994.5	3.00	-3.00	0.00
OHIO_CREEK.MBL									
6,600.0	4.87	283.86	6,519.9	239.6	-971.3	996.7	3.00	-3.00	0.00
6,700.0	1.87	283.86	6,619.7	241.1	-977.0	1,002.5	3.00	-3.00	0.00
6,762.3	0.00	0.00	6,682.0	241.3	-978.0	1,003.5	3.00	-3.00	0.00
6,800.0	0.38	250.00	6,719.7	241.3	-978.1	1,003.6	1.00	1.00	0.00
6,812.3	0.50	250.00	6,732.0	241.2	-978.2	1,003.7	1.00	1.00	0.00
WILLIAMS_FORK.MBL									
6,862.3	1.00	250.00	6,782.0	241.0	-978.8	1,004.3	1.00	1.00	0.00
TOP_GAS.MBL									
6,900.0	1.38	250.00	6,819.7	240.7	-979.6	1,005.0	1.00	1.00	0.00
7,000.0	2.38	250.00	6,919.6	239.6	-982.6	1,007.8	1.00	1.00	0.00
7,089.8	3.28	250.00	7,009.3	238.1	-986.8	1,011.7	1.00	1.00	0.00
7,100.0	3.28	250.00	7,019.5	237.9	-987.3	1,012.2	0.00	0.00	0.00
7,200.0	3.28	250.00	7,119.3	235.9	-992.7	1,017.2	0.00	0.00	0.00
7,300.0	3.28	250.00	7,219.2	234.0	-998.1	1,022.2	0.00	0.00	0.00
7,400.0	3.28	250.00	7,319.0	232.0	-1,003.4	1,027.2	0.00	0.00	0.00
7,500.0	3.28	250.00	7,418.8	230.1	-1,008.8	1,032.2	0.00	0.00	0.00
7,600.0	3.28	250.00	7,518.7	228.1	-1,014.2	1,037.2	0.00	0.00	0.00
7,700.0	3.28	250.00	7,618.5	226.2	-1,019.6	1,042.2	0.00	0.00	0.00
7,800.0	3.28	250.00	7,718.4	224.2	-1,024.9	1,047.3	0.00	0.00	0.00
7,900.0	3.28	250.00	7,818.2	222.3	-1,030.3	1,052.3	0.00	0.00	0.00
8,000.0	3.28	250.00	7,918.0	220.3	-1,035.7	1,057.3	0.00	0.00	0.00
8,100.0	3.28	250.00	8,017.9	218.4	-1,041.0	1,062.3	0.00	0.00	0.00
8,200.0	3.28	250.00	8,117.7	216.4	-1,046.4	1,067.3	0.00	0.00	0.00
8,300.0	3.28	250.00	8,217.5	214.5	-1,051.8	1,072.3	0.00	0.00	0.00
8,400.0	3.28	250.00	8,317.4	212.5	-1,057.1	1,077.3	0.00	0.00	0.00
8,500.0	3.28	250.00	8,417.2	210.5	-1,062.5	1,082.3	0.00	0.00	0.00
8,600.0	3.28	250.00	8,517.0	208.6	-1,067.9	1,087.3	0.00	0.00	0.00

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Company:	Caerus Oil and Gas LLC	TVD Reference:	WELL @ 7670.0ft (Original Well Elev)
Project:	SEC.9-T5S-R96W	MD Reference:	WELL @ 7670.0ft (Original Well Elev)
Site:	NPR G09 596 Pad Sec.9-T5S-R96W	North Reference:	True
Well:	NPR 12A-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-06-18)		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
8,700.0	3.28	250.00	8,616.9	206.6	-1,073.2	1,092.3	0.00	0.00	0.00	
8,800.0	3.28	250.00	8,716.7	204.7	-1,078.6	1,097.3	0.00	0.00	0.00	
8,900.0	3.28	250.00	8,816.6	202.7	-1,084.0	1,102.3	0.00	0.00	0.00	
9,000.0	3.28	250.00	8,916.4	200.8	-1,089.3	1,107.3	0.00	0.00	0.00	
9,100.0	3.28	250.00	9,016.2	198.8	-1,094.7	1,112.3	0.00	0.00	0.00	
9,200.0	3.28	250.00	9,116.1	196.9	-1,100.1	1,117.3	0.00	0.00	0.00	
9,276.1	3.28	250.00	9,192.0	195.4	-1,104.2	1,121.1	0.00	0.00	0.00	
CAMEO.MBL										
9,300.0	3.28	250.00	9,215.9	194.9	-1,105.4	1,122.3	0.00	0.00	0.00	
9,400.0	3.28	250.00	9,315.7	193.0	-1,110.8	1,127.3	0.00	0.00	0.00	
9,500.0	3.28	250.00	9,415.6	191.0	-1,116.2	1,132.3	0.00	0.00	0.00	
9,600.0	3.28	250.00	9,515.4	189.0	-1,121.6	1,137.3	0.00	0.00	0.00	
9,700.0	3.28	250.00	9,615.3	187.1	-1,126.9	1,142.3	0.00	0.00	0.00	
9,800.0	3.28	250.00	9,715.1	185.1	-1,132.3	1,147.3	0.00	0.00	0.00	
9,900.0	3.28	250.00	9,814.9	183.2	-1,137.7	1,152.3	0.00	0.00	0.00	
9,917.1	3.28	250.00	9,832.0	182.8	-1,138.6	1,153.2	0.00	0.00	0.00	
ROLLINS.MBL										
10,000.0	3.28	250.00	9,914.8	181.2	-1,143.0	1,157.3	0.00	0.00	0.00	
10,092.4	3.28	250.00	10,007.0	179.4	-1,148.0	1,161.9	0.00	0.00	0.00	
TD.MBL - BHL 1516'FNL, 1310'FWL, SEC.9										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
SHL 1696'FNL, 2458'FW - hit/miss target - Shape - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	14,404,635.26	2,436,104.42	39.632183	-108.174170	
BHL 1516'FNL, 1310'FW - plan hits target center - Ellipse (radii L200.0 W100.0 on 250.00 azi)	0.00	0.00	10,007.0	179.4	-1,148.0	14,404,778.51	2,434,950.99	39.632675	-108.178245	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
2,527.7	2,500.0	9 5/8"	9-5/8	12-1/4		

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 12A-9 596
Company:	Caerus Oil and Gas LLC	TVD Reference:	WELL @ 7670.0ft (Original Well Elev)
Project:	SEC.9-T5S-R96W	MD Reference:	WELL @ 7670.0ft (Original Well Elev)
Site:	NPR G09 596 Pad Sec.9-T5S-R96W	North Reference:	True
Well:	NPR 12A-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2 (3-06-18)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,002.9	1,982.0	WASATCH.MBL		0.00		
4,434.6	4,382.0	WASATCH_G_ZONE.MBL		0.00		
4,760.9	4,704.0	FORT_UNION.MBL		0.00		
6,576.0	6,496.0	OHIO_CREEK.MBL		0.00		
6,812.3	6,732.0	WILLIAMS_FORK.MBL		0.00		
6,862.3	6,782.0	TOP_GAS.MBL		0.00		
9,276.1	9,192.0	CAMEO.MBL		0.00		
9,917.1	9,832.0	ROLLINS.MBL		0.00		
10,092.4	10,007.0	TD.MBL		0.00		