



NPR 12C-9 596
 Plan #1 (1-15-18)
 9:04, January 18 2018

Azimuths to True North
 Magnetic North: 9.63°

Magnetic Field
 Strength: 51503.2snT
 Dip Angle: 65.85°
 Date: 1/18/2018
 Model: HDGM

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
SHL 1758'FNL, 2327'FWL, SEC.9	1.0	0.0	0.0	39.632015	-108.174636	Point
BHL 2121'FNL, 1344'FWL, SEC.9	9988.0	-363.9	-986.6	39.631015	-108.178138	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	466.1	7.98	249.70	465.3	-6.4	-17.4	3.00	249.70	18.5	
4	6468.8	7.98	249.70	6409.7	-295.7	-799.3	0.00	0.00	852.3	
5	6734.9	0.00	0.00	6675.0	-302.1	-816.7	3.00	180.00	870.8	
6	7063.5	3.29	250.00	7003.4	-305.3	-825.6	1.00	250.00	880.2	
7	10053.0	3.29	250.00	9988.0	-363.9	-986.6	0.00	0.00	1051.5	BHL 2121'FNL, 1344'FWL, SEC.9



Directional

Caerus Oil and Gas LLC

SEC.9-T5S-R96W

NPR G09 596 Pad Sec.9-T5S-R96W

NPR 12C-9 596

Wellbore #1

Plan: Plan #1 (1-15-18)

Standard Planning Report

18 January, 2018

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 12C-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 12C-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-15-18)		

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 12C-9 596					
Well Position	+N/-S	-19.1 ft	Northing:	14,404,569.93 usft	Latitude:	39.632015
	+E/-W	-40.7 ft	Easting:	2,435,974.92 usft	Longitude:	-108.174636
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	1/18/2018	9.63	65.85	51,503

Design	Plan #1 (1-15-18)			
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	249.75

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	
466.1	7.98	249.70	465.3	-6.4	-17.4	3.00	3.00	0.00	249.70	
6,468.8	7.98	249.70	6,409.7	-295.7	-799.3	0.00	0.00	0.00	0.00	
6,734.9	0.00	0.00	6,675.0	-302.1	-816.7	3.00	-3.00	0.00	180.00	
7,063.5	3.29	250.00	7,003.4	-305.3	-825.6	1.00	1.00	-33.48	250.00	
10,053.0	3.29	250.00	9,988.0	-363.9	-986.6	0.00	0.00	0.00	0.00	BHL 2121'FNL, 1344'

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 12C-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 12C-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-15-18)		

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 1758'FNL, 2327'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	249.70	300.0	-0.9	-2.5	2.6	3.00	3.00	0.00	
400.0	6.00	249.70	399.6	-3.6	-9.8	10.5	3.00	3.00	0.00	
466.1	7.98	249.70	465.3	-6.4	-17.4	18.5	3.00	3.00	0.00	
500.0	7.98	249.70	498.8	-8.1	-21.8	23.2	0.00	0.00	0.00	
600.0	7.98	249.70	597.8	-12.9	-34.8	37.1	0.00	0.00	0.00	
700.0	7.98	249.70	696.9	-17.7	-47.8	51.0	0.00	0.00	0.00	
800.0	7.98	249.70	795.9	-22.5	-60.9	64.9	0.00	0.00	0.00	
900.0	7.98	249.70	894.9	-27.3	-73.9	78.8	0.00	0.00	0.00	
1,000.0	7.98	249.70	994.0	-32.1	-86.9	92.7	0.00	0.00	0.00	
1,100.0	7.98	249.70	1,093.0	-37.0	-99.9	106.6	0.00	0.00	0.00	
1,200.0	7.98	249.70	1,192.0	-41.8	-113.0	120.4	0.00	0.00	0.00	
1,300.0	7.98	249.70	1,291.1	-46.6	-126.0	134.3	0.00	0.00	0.00	
1,400.0	7.98	249.70	1,390.1	-51.4	-139.0	148.2	0.00	0.00	0.00	
1,500.0	7.98	249.70	1,489.1	-56.2	-152.0	162.1	0.00	0.00	0.00	
1,600.0	7.98	249.70	1,588.1	-61.1	-165.1	176.0	0.00	0.00	0.00	
1,700.0	7.98	249.70	1,687.2	-65.9	-178.1	189.9	0.00	0.00	0.00	
1,800.0	7.98	249.70	1,786.2	-70.7	-191.1	203.8	0.00	0.00	0.00	
1,900.0	7.98	249.70	1,885.2	-75.5	-204.2	217.7	0.00	0.00	0.00	
1,979.5	7.98	249.70	1,964.0	-79.4	-214.5	228.7	0.00	0.00	0.00	
WASATCH.MBL										
2,000.0	7.98	249.70	1,984.3	-80.3	-217.2	231.6	0.00	0.00	0.00	
2,100.0	7.98	249.70	2,083.3	-85.2	-230.2	245.5	0.00	0.00	0.00	
2,200.0	7.98	249.70	2,182.3	-90.0	-243.2	259.3	0.00	0.00	0.00	
2,300.0	7.98	249.70	2,281.4	-94.8	-256.3	273.2	0.00	0.00	0.00	
2,400.0	7.98	249.70	2,380.4	-99.6	-269.3	287.1	0.00	0.00	0.00	
2,500.0	7.98	249.70	2,479.4	-104.4	-282.3	301.0	0.00	0.00	0.00	
2,520.8	7.98	249.70	2,500.0	-105.4	-285.0	303.9	0.00	0.00	0.00	
9 5/8"										
2,600.0	7.98	249.70	2,578.5	-109.2	-295.3	314.9	0.00	0.00	0.00	
2,700.0	7.98	249.70	2,677.5	-114.1	-308.4	328.8	0.00	0.00	0.00	
2,800.0	7.98	249.70	2,776.5	-118.9	-321.4	342.7	0.00	0.00	0.00	
2,900.0	7.98	249.70	2,875.5	-123.7	-334.4	356.6	0.00	0.00	0.00	
3,000.0	7.98	249.70	2,974.6	-128.5	-347.5	370.5	0.00	0.00	0.00	
3,100.0	7.98	249.70	3,073.6	-133.3	-360.5	384.4	0.00	0.00	0.00	
3,200.0	7.98	249.70	3,172.6	-138.2	-373.5	398.2	0.00	0.00	0.00	
3,300.0	7.98	249.70	3,271.7	-143.0	-386.5	412.1	0.00	0.00	0.00	
3,400.0	7.98	249.70	3,370.7	-147.8	-399.6	426.0	0.00	0.00	0.00	
3,500.0	7.98	249.70	3,469.7	-152.6	-412.6	439.9	0.00	0.00	0.00	
3,600.0	7.98	249.70	3,568.8	-157.4	-425.6	453.8	0.00	0.00	0.00	
3,700.0	7.98	249.70	3,667.8	-162.3	-438.6	467.7	0.00	0.00	0.00	
3,800.0	7.98	249.70	3,766.8	-167.1	-451.7	481.6	0.00	0.00	0.00	
3,900.0	7.98	249.70	3,865.9	-171.9	-464.7	495.5	0.00	0.00	0.00	
4,000.0	7.98	249.70	3,964.9	-176.7	-477.7	509.4	0.00	0.00	0.00	
4,100.0	7.98	249.70	4,063.9	-181.5	-490.8	523.3	0.00	0.00	0.00	
4,200.0	7.98	249.70	4,162.9	-186.3	-503.8	537.1	0.00	0.00	0.00	
4,300.0	7.98	249.70	4,262.0	-191.2	-516.8	551.0	0.00	0.00	0.00	
4,400.0	7.98	249.70	4,361.0	-196.0	-529.8	564.9	0.00	0.00	0.00	
4,403.0	7.98	249.70	4,364.0	-196.1	-530.2	565.3	0.00	0.00	0.00	
WASATCH_G_ZONE.MBL										

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Site:	NPR G09 596 Pad Sec.9-T5S-R96W	North Reference:	True
Well:	NPR 12C-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-15-18)		

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	7.98	249.70	4,460.0	-200.8	-542.9	578.8	0.00	0.00	0.00
4,600.0	7.98	249.70	4,559.1	-205.6	-555.9	592.7	0.00	0.00	0.00
4,700.0	7.98	249.70	4,658.1	-210.4	-568.9	606.6	0.00	0.00	0.00
4,746.4	7.98	249.70	4,704.0	-212.7	-575.0	613.0	0.00	0.00	0.00
FORT_UNION.MBL									
4,800.0	7.98	249.70	4,757.1	-215.3	-581.9	620.5	0.00	0.00	0.00
4,900.0	7.98	249.70	4,856.2	-220.1	-595.0	634.4	0.00	0.00	0.00
5,000.0	7.98	249.70	4,955.2	-224.9	-608.0	648.3	0.00	0.00	0.00
5,100.0	7.98	249.70	5,054.2	-229.7	-621.0	662.1	0.00	0.00	0.00
5,200.0	7.98	249.70	5,153.3	-234.5	-634.1	676.0	0.00	0.00	0.00
5,300.0	7.98	249.70	5,252.3	-239.4	-647.1	689.9	0.00	0.00	0.00
5,400.0	7.98	249.70	5,351.3	-244.2	-660.1	703.8	0.00	0.00	0.00
5,500.0	7.98	249.70	5,450.3	-249.0	-673.1	717.7	0.00	0.00	0.00
5,600.0	7.98	249.70	5,549.4	-253.8	-686.2	731.6	0.00	0.00	0.00
5,700.0	7.98	249.70	5,648.4	-258.6	-699.2	745.5	0.00	0.00	0.00
5,800.0	7.98	249.70	5,747.4	-263.5	-712.2	759.4	0.00	0.00	0.00
5,900.0	7.98	249.70	5,846.5	-268.3	-725.2	773.3	0.00	0.00	0.00
6,000.0	7.98	249.70	5,945.5	-273.1	-738.3	787.2	0.00	0.00	0.00
6,100.0	7.98	249.70	6,044.5	-277.9	-751.3	801.0	0.00	0.00	0.00
6,200.0	7.98	249.70	6,143.6	-282.7	-764.3	814.9	0.00	0.00	0.00
6,300.0	7.98	249.70	6,242.6	-287.5	-777.4	828.8	0.00	0.00	0.00
6,400.0	7.98	249.70	6,341.6	-292.4	-790.4	842.7	0.00	0.00	0.00
6,468.8	7.98	249.70	6,409.7	-295.7	-799.3	852.3	0.00	0.00	0.00
6,500.0	7.05	249.70	6,440.7	-297.1	-803.2	856.4	3.00	-3.00	0.00
6,549.6	5.56	249.70	6,490.0	-299.0	-808.3	861.8	3.00	-3.00	0.00
OHIO_CREEK.MBL									
6,600.0	4.05	249.70	6,540.2	-300.4	-812.2	866.0	3.00	-3.00	0.00
6,700.0	1.05	249.70	6,640.1	-302.0	-816.4	870.5	3.00	-3.00	0.00
6,734.9	0.00	0.00	6,675.0	-302.1	-816.7	870.8	3.00	-3.00	0.00
6,784.9	0.50	250.00	6,725.0	-302.2	-816.9	871.0	1.00	1.00	0.00
WILLIAMS_FORK.MBL									
6,800.0	0.65	250.00	6,740.1	-302.2	-817.0	871.2	1.00	1.00	0.00
6,834.9	1.00	250.00	6,775.0	-302.4	-817.5	871.7	1.00	1.00	0.00
TOP_GAS.MBL									
6,900.0	1.65	250.00	6,840.1	-302.9	-818.9	873.2	1.00	1.00	0.00
7,000.0	2.65	250.00	6,940.0	-304.2	-822.5	876.9	1.00	1.00	0.00
7,063.5	3.29	250.00	7,003.4	-305.3	-825.6	880.2	1.00	1.00	0.00
7,100.0	3.29	250.00	7,039.9	-306.0	-827.5	882.3	0.00	0.00	0.00
7,200.0	3.29	250.00	7,139.7	-308.0	-832.9	888.0	0.00	0.00	0.00
7,300.0	3.29	250.00	7,239.5	-310.0	-838.3	893.8	0.00	0.00	0.00
7,400.0	3.29	250.00	7,339.4	-311.9	-843.7	899.5	0.00	0.00	0.00
7,500.0	3.29	250.00	7,439.2	-313.9	-849.1	905.2	0.00	0.00	0.00
7,600.0	3.29	250.00	7,539.0	-315.8	-854.4	911.0	0.00	0.00	0.00
7,700.0	3.29	250.00	7,638.9	-317.8	-859.8	916.7	0.00	0.00	0.00
7,800.0	3.29	250.00	7,738.7	-319.8	-865.2	922.4	0.00	0.00	0.00
7,900.0	3.29	250.00	7,838.5	-321.7	-870.6	928.1	0.00	0.00	0.00
8,000.0	3.29	250.00	7,938.4	-323.7	-876.0	933.9	0.00	0.00	0.00
8,100.0	3.29	250.00	8,038.2	-325.6	-881.4	939.6	0.00	0.00	0.00
8,200.0	3.29	250.00	8,138.0	-327.6	-886.8	945.3	0.00	0.00	0.00
8,300.0	3.29	250.00	8,237.9	-329.6	-892.1	951.1	0.00	0.00	0.00
8,400.0	3.29	250.00	8,337.7	-331.5	-897.5	956.8	0.00	0.00	0.00
8,500.0	3.29	250.00	8,437.6	-333.5	-902.9	962.5	0.00	0.00	0.00
8,600.0	3.29	250.00	8,537.4	-335.4	-908.3	968.3	0.00	0.00	0.00

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Site:	NPR G09 596 Pad Sec.9-T5S-R96W	North Reference:	True
Well:	NPR 12C-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-15-18)		

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	3.29	250.00	8,637.2	-337.4	-913.7	974.0	0.00	0.00	0.00
8,800.0	3.29	250.00	8,737.1	-339.4	-919.1	979.7	0.00	0.00	0.00
8,900.0	3.29	250.00	8,836.9	-341.3	-924.5	985.5	0.00	0.00	0.00
9,000.0	3.29	250.00	8,936.7	-343.3	-929.8	991.2	0.00	0.00	0.00
9,100.0	3.29	250.00	9,036.6	-345.2	-935.2	996.9	0.00	0.00	0.00
9,200.0	3.29	250.00	9,136.4	-347.2	-940.6	1,002.6	0.00	0.00	0.00
9,289.7	3.29	250.00	9,226.0	-348.9	-945.5	1,007.8	0.00	0.00	0.00
CAMEO.MBL									
9,300.0	3.29	250.00	9,236.2	-349.2	-946.0	1,008.4	0.00	0.00	0.00
9,400.0	3.29	250.00	9,336.1	-351.1	-951.4	1,014.1	0.00	0.00	0.00
9,500.0	3.29	250.00	9,435.9	-353.1	-956.8	1,019.8	0.00	0.00	0.00
9,600.0	3.29	250.00	9,535.7	-355.0	-962.2	1,025.6	0.00	0.00	0.00
9,700.0	3.29	250.00	9,635.6	-357.0	-967.5	1,031.3	0.00	0.00	0.00
9,800.0	3.29	250.00	9,735.4	-358.9	-972.9	1,037.0	0.00	0.00	0.00
9,877.7	3.29	250.00	9,813.0	-360.5	-977.1	1,041.5	0.00	0.00	0.00
ROLLINS.MBL									
9,900.0	3.29	250.00	9,835.3	-360.9	-978.3	1,042.8	0.00	0.00	0.00
10,000.0	3.29	250.00	9,935.1	-362.9	-983.7	1,048.5	0.00	0.00	0.00
10,053.0	3.29	250.00	9,988.0	-363.9	-986.6	1,051.5	0.00	0.00	0.00
TD.MBL - BHL 2121'FNL, 1344'FWL, SEC.9									

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SHL 1758'FNL, 2327'FW - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	14,404,569.93	2,435,974.92	39.632015	-108.174636
BHL 2121'FNL, 1344'FW - plan hits target center - Ellipse (radii L200.0 W100.0 on 250.00 azi)	0.00	0.00	9,988.0	-363.9	-986.6	14,404,175.04	2,434,999.98	39.631016	-108.178139

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
2,520.8	2,500.0	9 5/8"	9-5/8	12-1/4	

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 12C-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 12C-9 596	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 (1-15-18)		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,979.5	1,964.0	WASATCH.MBL		0.00		
4,403.0	4,364.0	WASATCH_G_ZONE.MBL		0.00		
4,746.4	4,704.0	FORT_UNION.MBL		0.00		
6,549.6	6,490.0	OHIO_CREEK.MBL		0.00		
6,784.9	6,725.0	WILLIAMS_FORK.MBL		0.00		
6,834.9	6,775.0	TOP_GAS.MBL		0.00		
9,289.7	9,226.0	CAMEO.MBL		0.00		
9,877.7	9,813.0	ROLLINS.MBL		0.00		
10,053.0	9,988.0	TD.MBL		0.00		