



NPR 11C-9 596
 Plan #2 (3-06-18)
 9:51, 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 1690'FNL, 2472'FWL, SEC.9	1.0	0.0	0.0	39.632200	-108.174121	Point
BHL 835'FNL, 1316'FWL, SEC.9	10036.0	854.6	-1156.1	39.634546	-108.178226	Ellipse (Radii: L200.0 W100.0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	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	616.5	12.50	312.90	613.2	30.8	-33.1	3.00	312.90	45.0	
4	6420.6	12.50	312.90	6279.8	885.7	-953.0	0.00	0.00	1292.8	
5	6837.1	0.00	0.00	6693.0	916.5	-986.1	3.00	180.00	1337.8	
6	7162.7	3.26	250.00	7018.5	913.3	-994.8	1.00	250.00	1342.9	
7	10185.1	3.26	250.00	10036.0	854.6	-1156.1	0.00	0.00	1437.7	BHL 835'FNL, 1316'FWL, SEC.9



Directional

Caerus Oil and Gas LLC

SEC.9-T5S-R96W

NPR G09 596 Pad Sec.9-T5S-R96W

NPR 11C-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 11C-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 11C-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 11C-9 596					
Well Position	+N/-S	48.3 ft	Northing:	14,404,641.94 usft	Latitude:	39.632200
	+E/-W	104.2 ft	Easting:	2,436,117.72 usft	Longitude:	-108.174122
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	306.47

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	
616.5	12.50	312.90	613.2	30.8	-33.1	3.00	3.00	0.00	312.90	
6,420.6	12.50	312.90	6,279.8	885.7	-953.0	0.00	0.00	0.00	0.00	
6,837.1	0.00	0.00	6,693.0	916.5	-986.1	3.00	-3.00	0.00	180.00	
7,162.7	3.26	250.00	7,018.5	913.3	-994.8	1.00	1.00	-33.78	250.00	
10,185.1	3.26	250.00	10,036.0	854.6	-1,156.1	0.00	0.00	0.00	0.00	BHL 835'FNL, 1316'F'

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 11C-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 11C-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 1690'FNL, 2472'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	312.90	300.0	1.8	-1.9	2.6	3.00	3.00	0.00	
400.0	6.00	312.90	399.6	7.1	-7.7	10.4	3.00	3.00	0.00	
500.0	9.00	312.90	498.8	16.0	-17.2	23.4	3.00	3.00	0.00	
600.0	12.00	312.90	597.1	28.4	-30.6	41.5	3.00	3.00	0.00	
616.5	12.50	312.90	613.2	30.8	-33.1	45.0	3.00	3.00	0.00	
700.0	12.50	312.90	694.7	43.1	-46.4	62.9	0.00	0.00	0.00	
800.0	12.50	312.90	792.4	57.8	-62.2	84.4	0.00	0.00	0.00	
900.0	12.50	312.90	890.0	72.6	-78.1	105.9	0.00	0.00	0.00	
1,000.0	12.50	312.90	987.6	87.3	-93.9	127.4	0.00	0.00	0.00	
1,100.0	12.50	312.90	1,085.3	102.0	-109.8	148.9	0.00	0.00	0.00	
1,200.0	12.50	312.90	1,182.9	116.7	-125.6	170.4	0.00	0.00	0.00	
1,300.0	12.50	312.90	1,280.5	131.5	-141.5	191.9	0.00	0.00	0.00	
1,400.0	12.50	312.90	1,378.1	146.2	-157.3	213.4	0.00	0.00	0.00	
1,500.0	12.50	312.90	1,475.8	160.9	-173.2	234.9	0.00	0.00	0.00	
1,600.0	12.50	312.90	1,573.4	175.7	-189.0	256.4	0.00	0.00	0.00	
1,700.0	12.50	312.90	1,671.0	190.4	-204.8	277.9	0.00	0.00	0.00	
1,800.0	12.50	312.90	1,768.7	205.1	-220.7	299.4	0.00	0.00	0.00	
1,900.0	12.50	312.90	1,866.3	219.8	-236.5	320.9	0.00	0.00	0.00	
2,000.0	12.50	312.90	1,963.9	234.6	-252.4	342.4	0.00	0.00	0.00	
2,039.0	12.50	312.90	2,002.0	240.3	-258.6	350.8	0.00	0.00	0.00	
WASATCH.MBL										
2,100.0	12.50	312.90	2,061.6	249.3	-268.2	363.9	0.00	0.00	0.00	
2,200.0	12.50	312.90	2,159.2	264.0	-284.1	385.4	0.00	0.00	0.00	
2,300.0	12.50	312.90	2,256.8	278.8	-299.9	406.9	0.00	0.00	0.00	
2,400.0	12.50	312.90	2,354.5	293.5	-315.8	428.4	0.00	0.00	0.00	
2,500.0	12.50	312.90	2,452.1	308.2	-331.6	449.9	0.00	0.00	0.00	
2,549.1	12.50	312.90	2,500.0	315.5	-339.4	460.4	0.00	0.00	0.00	
9 5/8"										
2,600.0	12.50	312.90	2,549.7	323.0	-347.5	471.4	0.00	0.00	0.00	
2,700.0	12.50	312.90	2,647.4	337.7	-363.3	492.9	0.00	0.00	0.00	
2,800.0	12.50	312.90	2,745.0	352.4	-379.2	514.4	0.00	0.00	0.00	
2,900.0	12.50	312.90	2,842.6	367.1	-395.0	535.9	0.00	0.00	0.00	
3,000.0	12.50	312.90	2,940.2	381.9	-410.9	557.4	0.00	0.00	0.00	
3,100.0	12.50	312.90	3,037.9	396.6	-426.7	578.9	0.00	0.00	0.00	
3,200.0	12.50	312.90	3,135.5	411.3	-442.6	600.4	0.00	0.00	0.00	
3,300.0	12.50	312.90	3,233.1	426.1	-458.4	621.9	0.00	0.00	0.00	
3,400.0	12.50	312.90	3,330.8	440.8	-474.3	643.4	0.00	0.00	0.00	
3,500.0	12.50	312.90	3,428.4	455.5	-490.1	664.9	0.00	0.00	0.00	
3,600.0	12.50	312.90	3,526.0	470.2	-506.0	686.4	0.00	0.00	0.00	
3,700.0	12.50	312.90	3,623.7	485.0	-521.8	707.9	0.00	0.00	0.00	
3,800.0	12.50	312.90	3,721.3	499.7	-537.7	729.4	0.00	0.00	0.00	
3,900.0	12.50	312.90	3,818.9	514.4	-553.5	750.9	0.00	0.00	0.00	
4,000.0	12.50	312.90	3,916.6	529.2	-569.4	772.4	0.00	0.00	0.00	
4,100.0	12.50	312.90	4,014.2	543.9	-585.2	793.9	0.00	0.00	0.00	
4,200.0	12.50	312.90	4,111.8	558.6	-601.0	815.4	0.00	0.00	0.00	
4,300.0	12.50	312.90	4,209.5	573.4	-616.9	836.9	0.00	0.00	0.00	
4,400.0	12.50	312.90	4,307.1	588.1	-632.7	858.4	0.00	0.00	0.00	
4,497.2	12.50	312.90	4,402.0	602.4	-648.2	879.3	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 11C-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)
4,500.0	12.50	312.90	4,404.7	602.8	-648.6	879.9	0.00	0.00	0.00
4,600.0	12.50	312.90	4,502.4	617.5	-664.4	901.4	0.00	0.00	0.00
4,700.0	12.50	312.90	4,600.0	632.3	-680.3	922.9	0.00	0.00	0.00
4,800.0	12.50	312.90	4,697.6	647.0	-696.1	944.4	0.00	0.00	0.00
4,810.6	12.50	312.90	4,708.0	648.6	-697.8	946.7	0.00	0.00	0.00
FORT_UNION.MBL									
4,900.0	12.50	312.90	4,795.2	661.7	-712.0	965.9	0.00	0.00	0.00
5,000.0	12.50	312.90	4,892.9	676.5	-727.8	987.4	0.00	0.00	0.00
5,100.0	12.50	312.90	4,990.5	691.2	-743.7	1,008.9	0.00	0.00	0.00
5,200.0	12.50	312.90	5,088.1	705.9	-759.5	1,030.4	0.00	0.00	0.00
5,300.0	12.50	312.90	5,185.8	720.7	-775.4	1,051.9	0.00	0.00	0.00
5,400.0	12.50	312.90	5,283.4	735.4	-791.2	1,073.4	0.00	0.00	0.00
5,500.0	12.50	312.90	5,381.0	750.1	-807.1	1,094.9	0.00	0.00	0.00
5,600.0	12.50	312.90	5,478.7	764.8	-822.9	1,116.4	0.00	0.00	0.00
5,700.0	12.50	312.90	5,576.3	779.6	-838.8	1,137.9	0.00	0.00	0.00
5,800.0	12.50	312.90	5,673.9	794.3	-854.6	1,159.4	0.00	0.00	0.00
5,900.0	12.50	312.90	5,771.6	809.0	-870.5	1,180.9	0.00	0.00	0.00
6,000.0	12.50	312.90	5,869.2	823.8	-886.3	1,202.4	0.00	0.00	0.00
6,100.0	12.50	312.90	5,966.8	838.5	-902.2	1,223.9	0.00	0.00	0.00
6,200.0	12.50	312.90	6,064.5	853.2	-918.0	1,245.4	0.00	0.00	0.00
6,300.0	12.50	312.90	6,162.1	867.9	-933.9	1,266.9	0.00	0.00	0.00
6,400.0	12.50	312.90	6,259.7	882.7	-949.7	1,288.4	0.00	0.00	0.00
6,420.6	12.50	312.90	6,279.8	885.7	-953.0	1,292.8	0.00	0.00	0.00
6,500.0	10.11	312.90	6,357.7	896.3	-964.4	1,308.3	3.00	-3.00	0.00
6,600.0	7.11	312.90	6,456.5	906.5	-975.3	1,323.2	3.00	-3.00	0.00
6,649.8	5.62	312.90	6,506.0	910.3	-979.4	1,328.6	3.00	-3.00	0.00
OHIO_CREEK.MBL									
6,700.0	4.11	312.90	6,556.1	913.2	-982.5	1,332.9	3.00	-3.00	0.00
6,800.0	1.11	312.90	6,655.9	916.3	-985.8	1,337.4	3.00	-3.00	0.00
6,837.1	0.00	0.00	6,693.0	916.5	-986.1	1,337.8	3.00	-3.00	0.00
6,887.1	0.50	250.00	6,743.0	916.4	-986.3	1,337.9	1.00	1.00	0.00
WILLIAMS_FORK.MBL									
6,900.0	0.63	250.00	6,755.9	916.4	-986.4	1,338.0	1.00	1.00	0.00
6,937.1	1.00	250.00	6,793.0	916.2	-986.9	1,338.2	1.00	1.00	0.00
TOP_GAS.MBL									
7,000.0	1.63	250.00	6,855.9	915.7	-988.3	1,339.0	1.00	1.00	0.00
7,100.0	2.63	250.00	6,955.8	914.4	-991.8	1,341.1	1.00	1.00	0.00
7,162.7	3.26	250.00	7,018.5	913.3	-994.8	1,342.9	1.00	1.00	0.00
7,200.0	3.26	250.00	7,055.7	912.6	-996.8	1,344.0	0.00	0.00	0.00
7,300.0	3.26	250.00	7,155.5	910.7	-1,002.1	1,347.2	0.00	0.00	0.00
7,400.0	3.26	250.00	7,255.4	908.7	-1,007.5	1,350.3	0.00	0.00	0.00
7,500.0	3.26	250.00	7,355.2	906.8	-1,012.8	1,353.5	0.00	0.00	0.00
7,600.0	3.26	250.00	7,455.1	904.8	-1,018.1	1,356.6	0.00	0.00	0.00
7,700.0	3.26	250.00	7,554.9	902.9	-1,023.5	1,359.7	0.00	0.00	0.00
7,800.0	3.26	250.00	7,654.7	901.0	-1,028.8	1,362.9	0.00	0.00	0.00
7,900.0	3.26	250.00	7,754.6	899.0	-1,034.1	1,366.0	0.00	0.00	0.00
8,000.0	3.26	250.00	7,854.4	897.1	-1,039.5	1,369.1	0.00	0.00	0.00
8,100.0	3.26	250.00	7,954.2	895.1	-1,044.8	1,372.3	0.00	0.00	0.00
8,200.0	3.26	250.00	8,054.1	893.2	-1,050.2	1,375.4	0.00	0.00	0.00
8,300.0	3.26	250.00	8,153.9	891.2	-1,055.5	1,378.6	0.00	0.00	0.00
8,400.0	3.26	250.00	8,253.8	889.3	-1,060.8	1,381.7	0.00	0.00	0.00
8,500.0	3.26	250.00	8,353.6	887.4	-1,066.2	1,384.8	0.00	0.00	0.00
8,600.0	3.26	250.00	8,453.4	885.4	-1,071.5	1,388.0	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 11C-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	3.26	250.00	8,553.3	883.5	-1,076.9	1,391.1	0.00	0.00	0.00	
8,800.0	3.26	250.00	8,653.1	881.5	-1,082.2	1,394.2	0.00	0.00	0.00	
8,900.0	3.26	250.00	8,753.0	879.6	-1,087.5	1,397.4	0.00	0.00	0.00	
9,000.0	3.26	250.00	8,852.8	877.6	-1,092.9	1,400.5	0.00	0.00	0.00	
9,100.0	3.26	250.00	8,952.6	875.7	-1,098.2	1,403.7	0.00	0.00	0.00	
9,200.0	3.26	250.00	9,052.5	873.8	-1,103.5	1,406.8	0.00	0.00	0.00	
9,300.0	3.26	250.00	9,152.3	871.8	-1,108.9	1,409.9	0.00	0.00	0.00	
9,333.7	3.26	250.00	9,186.0	871.2	-1,110.7	1,411.0	0.00	0.00	0.00	
CAMEO.MBL										
9,400.0	3.26	250.00	9,252.1	869.9	-1,114.2	1,413.1	0.00	0.00	0.00	
9,500.0	3.26	250.00	9,352.0	867.9	-1,119.6	1,416.2	0.00	0.00	0.00	
9,600.0	3.26	250.00	9,451.8	866.0	-1,124.9	1,419.3	0.00	0.00	0.00	
9,700.0	3.26	250.00	9,551.7	864.0	-1,130.2	1,422.5	0.00	0.00	0.00	
9,800.0	3.26	250.00	9,651.5	862.1	-1,135.6	1,425.6	0.00	0.00	0.00	
9,900.0	3.26	250.00	9,751.3	860.2	-1,140.9	1,428.8	0.00	0.00	0.00	
10,000.0	3.26	250.00	9,851.2	858.2	-1,146.2	1,431.9	0.00	0.00	0.00	
10,009.8	3.26	250.00	9,861.0	858.0	-1,146.8	1,432.2	0.00	0.00	0.00	
ROLLINS.MBL										
10,100.0	3.26	250.00	9,951.0	856.3	-1,151.6	1,435.0	0.00	0.00	0.00	
10,185.1	3.26	250.00	10,036.0	854.6	-1,156.1	1,437.7	0.00	0.00	0.00	
TD.MBL - BHL 835'FNL, 1316'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 1690'FNL, 2472'FW - hit/miss target - Shape - Point	0.00	0.00	1.0	0.0	0.0	14,404,641.94	2,436,117.72	39.632200	-108.174122	
BHL 835'FNL, 1316'FWL - plan hits target center - Ellipse (radii L200.0 W100.0 on 250.00 azi)	0.00	0.00	10,036.0	854.6	-1,156.1	14,405,460.01	2,434,934.89	39.634546	-108.178226	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
2,549.1	2,500.0	9 5/8"	9-5/8	12-1/4		

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 11C-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 11C-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 (°)	
2,039.0	2,002.0	WASATCH.MBL		0.00		
4,497.2	4,402.0	WASATCH_G_ZONE.MBL		0.00		
4,810.6	4,708.0	FORT_UNION.MBL		0.00		
6,649.8	6,506.0	OHIO_CREEK.MBL		0.00		
6,887.1	6,743.0	WILLIAMS_FORK.MBL		0.00		
6,937.1	6,793.0	TOP_GAS.MBL		0.00		
9,333.7	9,186.0	CAMEO.MBL		0.00		
10,009.8	9,861.0	ROLLINS.MBL		0.00		
10,185.1	10,036.0	TD.MBL		0.00		