



NPR 13B-9 596
 Plan #2 (3-06-18)
 12:34, 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 1767'FNL, 2331'FWL, SEC.9	1.0	0.0	0.0	39.631990	-108.174621	Point
BHL 2200'FSL, 1326'FWL, SEC.9	9957.0	-1311.2	-1003.1	39.628390	-108.178182	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	669.4	14.08	213.69	664.7	-47.7	-31.8	3.00	213.69	57.3	
4	6369.3	14.08	213.69	6193.3	-1201.6	-801.2	0.00	0.00	1441.1	
5	6838.7	0.00	0.00	6658.0	-1249.3	-833.0	3.00	180.00	1498.4	
6	7169.3	3.31	250.00	6988.4	-1252.6	-842.0	1.00	250.00	1506.4	
7	10142.8	3.31	250.00	9957.0	-1311.2	-1003.1	0.00	0.00	1650.9	BHL 2200'FSL, 1326'FWL, SEC.9



Directional

Caerus Oil and Gas LLC

SEC.9-T5S-R96W

NPR G09 596 Pad Sec.9-T5S-R96W

NPR 13B-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 13B-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 13B-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 13B-9 596					
Well Position	+N/-S	-28.1 ft	Northing:	14,404,561.11 usft	Latitude:	39.631990
	+E/-W	-36.5 ft	Easting:	2,435,979.37 usft	Longitude:	-108.174621
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	217.42

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	
669.4	14.08	213.69	664.7	-47.7	-31.8	3.00	3.00	0.00	213.69	
6,369.3	14.08	213.69	6,193.3	-1,201.6	-801.2	0.00	0.00	0.00	0.00	
6,838.7	0.00	0.00	6,658.0	-1,249.3	-833.0	3.00	-3.00	0.00	180.00	
7,169.3	3.31	250.00	6,988.4	-1,252.6	-842.0	1.00	1.00	-33.27	250.00	
10,142.8	3.31	250.00	9,957.0	-1,311.2	-1,003.1	0.00	0.00	0.00	0.00	BHL 2200'FSL, 1326'I

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 13B-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 13B-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 1767'FNL, 2331'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	213.69	300.0	-2.2	-1.5	2.6	3.00	3.00	0.00	
400.0	6.00	213.69	399.6	-8.7	-5.8	10.4	3.00	3.00	0.00	
500.0	9.00	213.69	498.8	-19.6	-13.0	23.5	3.00	3.00	0.00	
600.0	12.00	213.69	597.1	-34.7	-23.2	41.6	3.00	3.00	0.00	
669.4	14.08	213.69	664.7	-47.7	-31.8	57.3	3.00	3.00	0.00	
700.0	14.08	213.69	694.4	-53.9	-36.0	64.7	0.00	0.00	0.00	
800.0	14.08	213.69	791.4	-74.2	-49.5	89.0	0.00	0.00	0.00	
900.0	14.08	213.69	888.4	-94.4	-63.0	113.3	0.00	0.00	0.00	
1,000.0	14.08	213.69	985.4	-114.7	-76.5	137.5	0.00	0.00	0.00	
1,100.0	14.08	213.69	1,082.3	-134.9	-90.0	161.8	0.00	0.00	0.00	
1,200.0	14.08	213.69	1,179.3	-155.2	-103.5	186.1	0.00	0.00	0.00	
1,300.0	14.08	213.69	1,276.3	-175.4	-117.0	210.4	0.00	0.00	0.00	
1,400.0	14.08	213.69	1,373.3	-195.6	-130.4	234.6	0.00	0.00	0.00	
1,500.0	14.08	213.69	1,470.3	-215.9	-143.9	258.9	0.00	0.00	0.00	
1,600.0	14.08	213.69	1,567.3	-236.1	-157.4	283.2	0.00	0.00	0.00	
1,700.0	14.08	213.69	1,664.3	-256.4	-170.9	307.5	0.00	0.00	0.00	
1,800.0	14.08	213.69	1,761.3	-276.6	-184.4	331.8	0.00	0.00	0.00	
1,900.0	14.08	213.69	1,858.3	-296.9	-197.9	356.0	0.00	0.00	0.00	
1,987.3	14.08	213.69	1,943.0	-314.5	-209.7	377.2	0.00	0.00	0.00	
WASATCH.MBL										
2,000.0	14.08	213.69	1,955.3	-317.1	-211.4	380.3	0.00	0.00	0.00	
2,100.0	14.08	213.69	2,052.3	-337.3	-224.9	404.6	0.00	0.00	0.00	
2,200.0	14.08	213.69	2,149.3	-357.6	-238.4	428.9	0.00	0.00	0.00	
2,300.0	14.08	213.69	2,246.3	-377.8	-251.9	453.2	0.00	0.00	0.00	
2,400.0	14.08	213.69	2,343.3	-398.1	-265.4	477.4	0.00	0.00	0.00	
2,500.0	14.08	213.69	2,440.3	-418.3	-278.9	501.7	0.00	0.00	0.00	
2,561.6	14.08	213.69	2,500.0	-430.8	-287.2	516.7	0.00	0.00	0.00	
9 5/8"										
2,600.0	14.08	213.69	2,537.3	-438.6	-292.4	526.0	0.00	0.00	0.00	
2,700.0	14.08	213.69	2,634.3	-458.8	-305.9	550.3	0.00	0.00	0.00	
2,800.0	14.08	213.69	2,731.3	-479.0	-319.4	574.5	0.00	0.00	0.00	
2,900.0	14.08	213.69	2,828.3	-499.3	-332.9	598.8	0.00	0.00	0.00	
3,000.0	14.08	213.69	2,925.3	-519.5	-346.4	623.1	0.00	0.00	0.00	
3,100.0	14.08	213.69	3,022.3	-539.8	-359.9	647.4	0.00	0.00	0.00	
3,200.0	14.08	213.69	3,119.2	-560.0	-373.4	671.7	0.00	0.00	0.00	
3,300.0	14.08	213.69	3,216.2	-580.2	-386.9	695.9	0.00	0.00	0.00	
3,400.0	14.08	213.69	3,313.2	-600.5	-400.4	720.2	0.00	0.00	0.00	
3,500.0	14.08	213.69	3,410.2	-620.7	-413.9	744.5	0.00	0.00	0.00	
3,600.0	14.08	213.69	3,507.2	-641.0	-427.4	768.8	0.00	0.00	0.00	
3,700.0	14.08	213.69	3,604.2	-661.2	-440.9	793.0	0.00	0.00	0.00	
3,800.0	14.08	213.69	3,701.2	-681.5	-454.4	817.3	0.00	0.00	0.00	
3,900.0	14.08	213.69	3,798.2	-701.7	-467.9	841.6	0.00	0.00	0.00	
4,000.0	14.08	213.69	3,895.2	-721.9	-481.4	865.9	0.00	0.00	0.00	
4,100.0	14.08	213.69	3,992.2	-742.2	-494.9	890.2	0.00	0.00	0.00	
4,200.0	14.08	213.69	4,089.2	-762.4	-508.4	914.4	0.00	0.00	0.00	
4,300.0	14.08	213.69	4,186.2	-782.7	-521.9	938.7	0.00	0.00	0.00	
4,400.0	14.08	213.69	4,283.2	-802.9	-535.4	963.0	0.00	0.00	0.00	
4,461.7	14.08	213.69	4,343.0	-815.4	-543.7	978.0	0.00	0.00	0.00	
WASATCH_G_ZONE.MBL										

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 13B-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 13B-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	14.08	213.69	4,380.2	-823.2	-548.9	987.3	0.00	0.00	0.00
4,600.0	14.08	213.69	4,477.2	-843.4	-562.4	1,011.6	0.00	0.00	0.00
4,700.0	14.08	213.69	4,574.2	-863.6	-575.9	1,035.8	0.00	0.00	0.00
4,800.0	14.08	213.69	4,671.2	-883.9	-589.4	1,060.1	0.00	0.00	0.00
4,823.5	14.08	213.69	4,694.0	-888.6	-592.5	1,065.8	0.00	0.00	0.00
FORT_UNION.MBL									
4,900.0	14.08	213.69	4,768.2	-904.1	-602.8	1,084.4	0.00	0.00	0.00
5,000.0	14.08	213.69	4,865.2	-924.4	-616.3	1,108.7	0.00	0.00	0.00
5,100.0	14.08	213.69	4,962.2	-944.6	-629.8	1,132.9	0.00	0.00	0.00
5,200.0	14.08	213.69	5,059.2	-964.9	-643.3	1,157.2	0.00	0.00	0.00
5,300.0	14.08	213.69	5,156.1	-985.1	-656.8	1,181.5	0.00	0.00	0.00
5,400.0	14.08	213.69	5,253.1	-1,005.3	-670.3	1,205.8	0.00	0.00	0.00
5,500.0	14.08	213.69	5,350.1	-1,025.6	-683.8	1,230.1	0.00	0.00	0.00
5,600.0	14.08	213.69	5,447.1	-1,045.8	-697.3	1,254.3	0.00	0.00	0.00
5,700.0	14.08	213.69	5,544.1	-1,066.1	-710.8	1,278.6	0.00	0.00	0.00
5,800.0	14.08	213.69	5,641.1	-1,086.3	-724.3	1,302.9	0.00	0.00	0.00
5,900.0	14.08	213.69	5,738.1	-1,106.6	-737.8	1,327.2	0.00	0.00	0.00
6,000.0	14.08	213.69	5,835.1	-1,126.8	-751.3	1,351.4	0.00	0.00	0.00
6,100.0	14.08	213.69	5,932.1	-1,147.0	-764.8	1,375.7	0.00	0.00	0.00
6,200.0	14.08	213.69	6,029.1	-1,167.3	-778.3	1,400.0	0.00	0.00	0.00
6,300.0	14.08	213.69	6,126.1	-1,187.5	-791.8	1,424.3	0.00	0.00	0.00
6,369.3	14.08	213.69	6,193.3	-1,201.6	-801.2	1,441.1	0.00	0.00	0.00
6,400.0	13.16	213.69	6,223.2	-1,207.6	-805.2	1,448.3	3.00	-3.00	0.00
6,500.0	10.16	213.69	6,321.1	-1,224.4	-816.4	1,468.5	3.00	-3.00	0.00
6,600.0	7.16	213.69	6,419.9	-1,236.9	-824.7	1,483.5	3.00	-3.00	0.00
6,658.4	5.41	213.69	6,478.0	-1,242.2	-828.3	1,489.9	3.00	-3.00	0.00
OHIO_CREEK.MBL									
6,700.0	4.16	213.69	6,519.4	-1,245.1	-830.2	1,493.4	3.00	-3.00	0.00
6,800.0	1.16	213.69	6,619.3	-1,249.0	-832.8	1,498.0	3.00	-3.00	0.00
6,838.7	0.00	0.00	6,658.0	-1,249.3	-833.0	1,498.4	3.00	-3.00	0.00
6,888.7	0.50	250.00	6,708.0	-1,249.4	-833.2	1,498.6	1.00	1.00	0.00
WILLIAMS_FORK.MBL									
6,900.0	0.61	250.00	6,719.3	-1,249.4	-833.3	1,498.7	1.00	1.00	0.00
6,938.7	1.00	250.00	6,758.0	-1,249.6	-833.8	1,499.1	1.00	1.00	0.00
TOP_GAS.MBL									
7,000.0	1.61	250.00	6,819.3	-1,250.1	-835.1	1,500.3	1.00	1.00	0.00
7,100.0	2.61	250.00	6,919.2	-1,251.3	-838.6	1,503.4	1.00	1.00	0.00
7,169.3	3.31	250.00	6,988.4	-1,252.6	-842.0	1,506.4	1.00	1.00	0.00
7,200.0	3.31	250.00	7,019.1	-1,253.2	-843.6	1,507.9	0.00	0.00	0.00
7,300.0	3.31	250.00	7,118.9	-1,255.1	-849.0	1,512.8	0.00	0.00	0.00
7,400.0	3.31	250.00	7,218.7	-1,257.1	-854.5	1,517.6	0.00	0.00	0.00
7,500.0	3.31	250.00	7,318.6	-1,259.1	-859.9	1,522.5	0.00	0.00	0.00
7,600.0	3.31	250.00	7,418.4	-1,261.1	-865.3	1,527.3	0.00	0.00	0.00
7,700.0	3.31	250.00	7,518.2	-1,263.0	-870.7	1,532.2	0.00	0.00	0.00
7,800.0	3.31	250.00	7,618.1	-1,265.0	-876.1	1,537.1	0.00	0.00	0.00
7,900.0	3.31	250.00	7,717.9	-1,267.0	-881.6	1,541.9	0.00	0.00	0.00
8,000.0	3.31	250.00	7,817.7	-1,269.0	-887.0	1,546.8	0.00	0.00	0.00
8,100.0	3.31	250.00	7,917.6	-1,270.9	-892.4	1,551.6	0.00	0.00	0.00
8,200.0	3.31	250.00	8,017.4	-1,272.9	-897.8	1,556.5	0.00	0.00	0.00
8,300.0	3.31	250.00	8,117.2	-1,274.9	-903.2	1,561.4	0.00	0.00	0.00
8,400.0	3.31	250.00	8,217.1	-1,276.8	-908.7	1,566.2	0.00	0.00	0.00
8,500.0	3.31	250.00	8,316.9	-1,278.8	-914.1	1,571.1	0.00	0.00	0.00
8,600.0	3.31	250.00	8,416.7	-1,280.8	-919.5	1,575.9	0.00	0.00	0.00

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 13B-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 13B-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	3.31	250.00	8,516.6	-1,282.8	-924.9	1,580.8	0.00	0.00	0.00	
8,800.0	3.31	250.00	8,616.4	-1,284.7	-930.3	1,585.7	0.00	0.00	0.00	
8,900.0	3.31	250.00	8,716.2	-1,286.7	-935.8	1,590.5	0.00	0.00	0.00	
9,000.0	3.31	250.00	8,816.1	-1,288.7	-941.2	1,595.4	0.00	0.00	0.00	
9,100.0	3.31	250.00	8,915.9	-1,290.7	-946.6	1,600.2	0.00	0.00	0.00	
9,200.0	3.31	250.00	9,015.7	-1,292.6	-952.0	1,605.1	0.00	0.00	0.00	
9,300.0	3.31	250.00	9,115.6	-1,294.6	-957.4	1,610.0	0.00	0.00	0.00	
9,400.0	3.31	250.00	9,215.4	-1,296.6	-962.9	1,614.8	0.00	0.00	0.00	
9,481.7	3.31	250.00	9,297.0	-1,298.2	-967.3	1,618.8	0.00	0.00	0.00	
CAMEO.MBL										
9,500.0	3.31	250.00	9,315.2	-1,298.5	-968.3	1,619.7	0.00	0.00	0.00	
9,600.0	3.31	250.00	9,415.1	-1,300.5	-973.7	1,624.5	0.00	0.00	0.00	
9,700.0	3.31	250.00	9,514.9	-1,302.5	-979.1	1,629.4	0.00	0.00	0.00	
9,800.0	3.31	250.00	9,614.7	-1,304.5	-984.5	1,634.3	0.00	0.00	0.00	
9,900.0	3.31	250.00	9,714.6	-1,306.4	-989.9	1,639.1	0.00	0.00	0.00	
9,967.5	3.31	250.00	9,782.0	-1,307.8	-993.6	1,642.4	0.00	0.00	0.00	
ROLLINS.MBL										
10,000.0	3.31	250.00	9,814.4	-1,308.4	-995.4	1,644.0	0.00	0.00	0.00	
10,100.0	3.31	250.00	9,914.2	-1,310.4	-1,000.8	1,648.8	0.00	0.00	0.00	
10,142.8	3.31	250.00	9,957.0	-1,311.2	-1,003.1	1,650.9	0.00	0.00	0.00	
TD.MBL - BHL 2200'FSL, 1326'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 1767'FNL, 2331'FW - plan hits target center - Point	0.00	0.00	1.0	0.0	0.0	14,404,561.11	2,435,979.37	39.631990	-108.174621	
BHL 2200'FSL, 1326'FW - plan hits target center - Ellipse (radii L200.0 W100.0 on 250.00 azi)	0.00	0.00	9,957.0	-1,311.2	-1,003.1	14,403,218.53	2,435,017.71	39.628390	-108.178183	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")		
2,561.6	2,500.0	9 5/8"	9-5/8	12-1/4		

Database:	US_EDM	Local Co-ordinate Reference:	Well NPR 13B-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 13B-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 (°)	
1,987.3	1,943.0	WASATCH.MBL		0.00		
4,461.7	4,343.0	WASATCH_G_ZONE.MBL		0.00		
4,823.5	4,694.0	FORT_UNION.MBL		0.00		
6,658.4	6,478.0	OHIO_CREEK.MBL		0.00		
6,888.7	6,708.0	WILLIAMS_FORK.MBL		0.00		
6,938.7	6,758.0	TOP_GAS.MBL		0.00		
9,481.7	9,297.0	CAMEO.MBL		0.00		
9,967.5	9,782.0	ROLLINS.MBL		0.00		
10,142.8	9,957.0	TD.MBL		0.00		