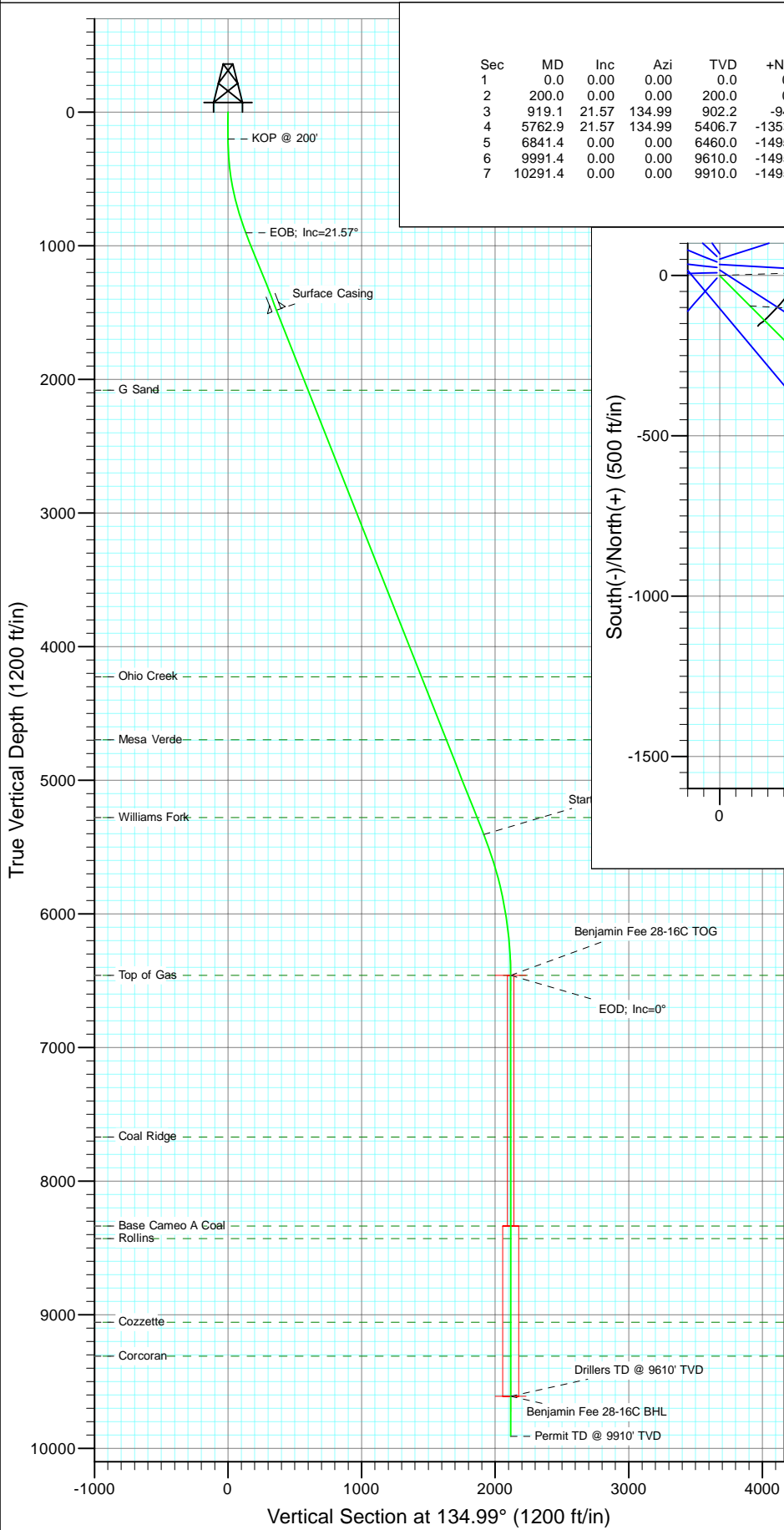
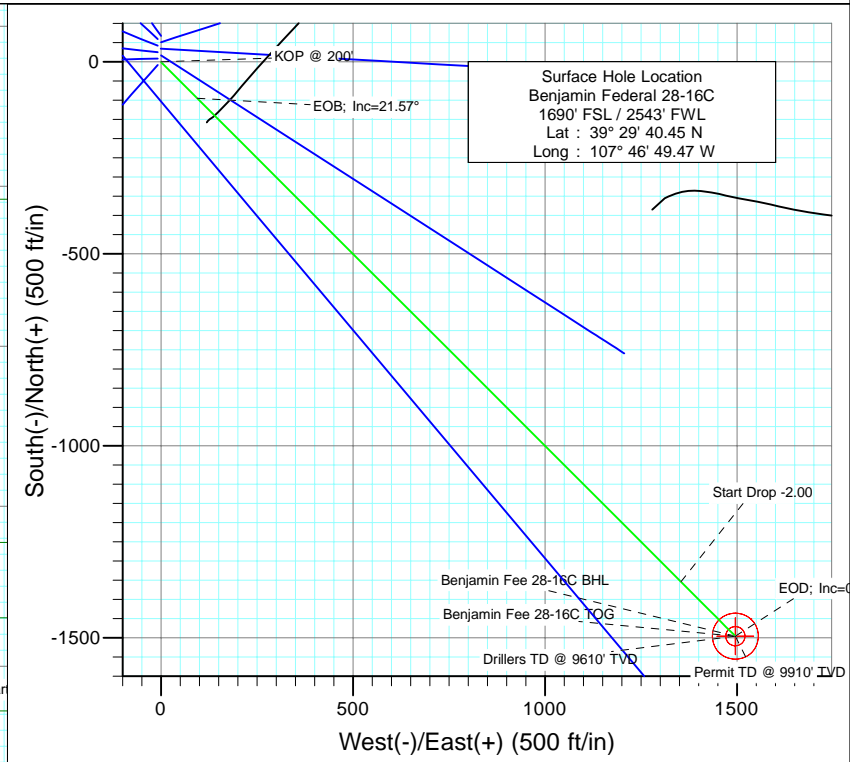




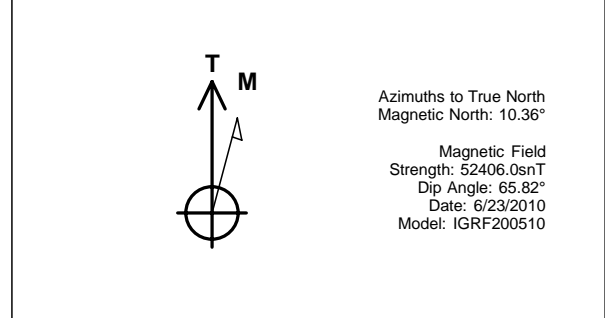
Project: Mamm Creek
Site: K28NW Pad
Well: Benjamin Federal 28-16C
Wellbore: DD
Design: Plan #1



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	919.1	21.57	134.99	902.2	-94.6	94.6	3.00	134.99	133.8	
4	5762.9	21.57	134.99	5406.7	-1353.7	1354.1	0.00	0.00	1914.7	
5	6841.4	0.00	0.00	6460.0	-1495.6	1496.0	2.00	180.00	2115.3	Benjamin Fee 28-16C TOG
6	9991.4	0.00	0.00	9610.0	-1495.6	1496.0	0.00	0.00	2115.3	Benjamin Fee 28-16C BHL
7	10291.4	0.00	0.00	9910.0	-1495.6	1496.0	0.00	0.00	2115.3	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2081.0	2186.7	G Sand
4225.0	4492.1	Ohio Creek
4697.0	4999.7	Mesa Verde
5279.0	5625.5	Williams Fork
6460.0	6841.4	Top of Gas
7669.0	8050.4	Coal Ridge
8335.0	8716.4	Base Cameo A Coal
8430.0	8811.4	Rollins
9055.0	9436.4	Cozzette
9310.0	9691.4	Corcoran



Plan #1 Benjamin Federal 28-16C BHL = (180 FSL - 1190 FEL) Job #10xxx: KR						
WELL @ 5965.0ft (Original Well Elev) North American Datum 1983 Well Benjamin Federal 28-16C, True North						
Type	Target	Azimuth	Origin	Type	N/S	E/W From
Target	Benjamin Fee 28-16C BHL	134.99	Slot	0.0	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Benjamin Fee 28-16C BHL	9610.0	-1495.6	1496.0	39° 29' 25.67 N	107° 46' 30.39 W	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-16C
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-16C	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project	Mamm Creek		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site		K28NW Pad			
Site Position:		Northing:	1,613,160.16 ft	Latitude:	39.494711
From:	Lat/Long	Easting:	2,356,412.22 ft	Longitude:	-107.780819
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.44 °

Well	Benjamin Federal 28-16C					
Well Position	+N/-S	0.0 ft	Northing:	1,613,105.86 ft	Latitude:	39.494570
	+E/-W	0.0 ft	Easting:	2,356,526.73 ft	Longitude:	-107.780409
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,943.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	6/23/2010	10.36	65.82	52,406

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	134.99

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
919.1	21.57	134.99	902.2	-94.6	94.6	3.00	3.00	0.00	134.99	
5,762.9	21.57	134.99	5,406.7	-1,353.7	1,354.1	0.00	0.00	0.00	0.00	
6,841.4	0.00	0.00	6,460.0	-1,495.6	1,496.0	2.00	-2.00	0.00	180.00	Benjamin Fee 28-16C
9,991.4	0.00	0.00	9,610.0	-1,495.6	1,496.0	0.00	0.00	0.00	0.00	Benjamin Fee 28-16C
10,291.4	0.00	0.00	9,910.0	-1,495.6	1,496.0	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-16C
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-16C	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200'
300.0	3.00	134.99	300.0	-1.9	1.9	2.6	3.00	3.00	
400.0	6.00	134.99	399.6	-7.4	7.4	10.5	3.00	3.00	
500.0	9.00	134.99	498.8	-16.6	16.6	23.5	3.00	3.00	
600.0	12.00	134.99	597.1	-29.5	29.5	41.7	3.00	3.00	
700.0	15.00	134.99	694.3	-46.0	46.0	65.1	3.00	3.00	
800.0	18.00	134.99	790.2	-66.1	66.1	93.5	3.00	3.00	
900.0	21.00	134.99	884.4	-89.7	89.7	126.9	3.00	3.00	
919.1	21.57	134.99	902.2	-94.6	94.6	133.8	3.00	3.00	EOB; Inc=21.57°
1,000.0	21.57	134.99	977.5	-115.6	115.6	163.5	0.00	0.00	
1,100.0	21.57	134.99	1,070.5	-141.6	141.7	200.3	0.00	0.00	
1,200.0	21.57	134.99	1,163.5	-167.6	167.7	237.1	0.00	0.00	
1,300.0	21.57	134.99	1,256.5	-193.6	193.7	273.8	0.00	0.00	
1,400.0	21.57	134.99	1,349.4	-219.6	219.7	310.6	0.00	0.00	
1,500.0	21.57	134.99	1,442.4	-245.6	245.7	347.4	0.00	0.00	
1,543.0	21.57	134.99	1,482.4	-256.8	256.8	363.2	0.00	0.00	Surface Casing
1,600.0	21.57	134.99	1,535.4	-271.6	271.7	384.1	0.00	0.00	
1,700.0	21.57	134.99	1,628.4	-297.6	297.7	420.9	0.00	0.00	
1,800.0	21.57	134.99	1,721.4	-323.6	323.7	457.7	0.00	0.00	
1,900.0	21.57	134.99	1,814.4	-349.6	349.7	494.4	0.00	0.00	
2,000.0	21.57	134.99	1,907.4	-375.6	375.7	531.2	0.00	0.00	
2,100.0	21.57	134.99	2,000.4	-401.6	401.7	568.0	0.00	0.00	
2,186.7	21.57	134.99	2,081.0	-424.1	424.2	599.8	0.00	0.00	G Sand
2,200.0	21.57	134.99	2,093.4	-427.6	427.7	604.7	0.00	0.00	
2,300.0	21.57	134.99	2,186.4	-453.5	453.7	641.5	0.00	0.00	
2,400.0	21.57	134.99	2,279.4	-479.5	479.7	678.3	0.00	0.00	
2,500.0	21.57	134.99	2,372.4	-505.5	505.7	715.0	0.00	0.00	
2,600.0	21.57	134.99	2,465.4	-531.5	531.7	751.8	0.00	0.00	
2,700.0	21.57	134.99	2,558.4	-557.5	557.7	788.6	0.00	0.00	
2,800.0	21.57	134.99	2,651.4	-583.5	583.7	825.3	0.00	0.00	
2,900.0	21.57	134.99	2,744.4	-609.5	609.7	862.1	0.00	0.00	
3,000.0	21.57	134.99	2,837.4	-635.5	635.7	898.9	0.00	0.00	
3,100.0	21.57	134.99	2,930.4	-661.5	661.7	935.6	0.00	0.00	
3,200.0	21.57	134.99	3,023.4	-687.5	687.7	972.4	0.00	0.00	
3,300.0	21.57	134.99	3,116.4	-713.5	713.7	1,009.2	0.00	0.00	
3,400.0	21.57	134.99	3,209.4	-739.5	739.7	1,045.9	0.00	0.00	
3,500.0	21.57	134.99	3,302.4	-765.5	765.7	1,082.7	0.00	0.00	
3,600.0	21.57	134.99	3,395.4	-791.5	791.7	1,119.5	0.00	0.00	
3,700.0	21.57	134.99	3,488.3	-817.5	817.7	1,156.2	0.00	0.00	
3,800.0	21.57	134.99	3,581.3	-843.5	843.7	1,193.0	0.00	0.00	
3,900.0	21.57	134.99	3,674.3	-869.5	869.7	1,229.8	0.00	0.00	
4,000.0	21.57	134.99	3,767.3	-895.4	895.7	1,266.5	0.00	0.00	
4,100.0	21.57	134.99	3,860.3	-921.4	921.7	1,303.3	0.00	0.00	
4,200.0	21.57	134.99	3,953.3	-947.4	947.7	1,340.1	0.00	0.00	
4,300.0	21.57	134.99	4,046.3	-973.4	973.7	1,376.8	0.00	0.00	
4,400.0	21.57	134.99	4,139.3	-999.4	999.7	1,413.6	0.00	0.00	
4,492.1	21.57	134.99	4,225.0	-1,023.4	1,023.7	1,447.5	0.00	0.00	Ohio Creek
4,500.0	21.57	134.99	4,232.3	-1,025.4	1,025.7	1,450.4	0.00	0.00	
4,600.0	21.57	134.99	4,325.3	-1,051.4	1,051.7	1,487.1	0.00	0.00	
4,700.0	21.57	134.99	4,418.3	-1,077.4	1,077.7	1,523.9	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-16C
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-16C	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,800.0	21.57	134.99	4,511.3	-1,103.4	1,103.7	1,560.7	0.00	0.00	
4,900.0	21.57	134.99	4,604.3	-1,129.4	1,129.7	1,597.4	0.00	0.00	
4,999.7	21.57	134.99	4,697.0	-1,155.3	1,155.6	1,634.1	0.00	0.00	Mesa Verde
5,000.0	21.57	134.99	4,697.3	-1,155.4	1,155.7	1,634.2	0.00	0.00	
5,100.0	21.57	134.99	4,790.3	-1,181.4	1,181.7	1,671.0	0.00	0.00	
5,200.0	21.57	134.99	4,883.3	-1,207.4	1,207.7	1,707.7	0.00	0.00	
5,300.0	21.57	134.99	4,976.3	-1,233.4	1,233.7	1,744.5	0.00	0.00	
5,400.0	21.57	134.99	5,069.3	-1,259.4	1,259.7	1,781.3	0.00	0.00	
5,500.0	21.57	134.99	5,162.3	-1,285.4	1,285.7	1,818.0	0.00	0.00	
5,600.0	21.57	134.99	5,255.3	-1,311.4	1,311.7	1,854.8	0.00	0.00	
5,625.5	21.57	134.99	5,279.0	-1,318.0	1,318.4	1,864.2	0.00	0.00	Williams Fork
5,700.0	21.57	134.99	5,348.3	-1,337.4	1,337.7	1,891.6	0.00	0.00	
5,762.9	21.57	134.99	5,406.7	-1,353.7	1,354.1	1,914.7	0.00	0.00	Start Drop -2.00
5,800.0	20.83	134.99	5,441.3	-1,363.2	1,363.6	1,928.1	2.00	-2.00	
5,900.0	18.83	134.99	5,535.4	-1,387.2	1,387.6	1,962.0	2.00	-2.00	
6,000.0	16.83	134.99	5,630.6	-1,408.8	1,409.2	1,992.6	2.00	-2.00	
6,100.0	14.83	134.99	5,726.8	-1,428.1	1,428.5	2,019.9	2.00	-2.00	
6,200.0	12.83	134.99	5,823.9	-1,445.0	1,445.4	2,043.8	2.00	-2.00	
6,300.0	10.83	134.99	5,921.8	-1,459.5	1,459.9	2,064.3	2.00	-2.00	
6,400.0	8.83	134.99	6,020.3	-1,471.6	1,472.0	2,081.4	2.00	-2.00	
6,500.0	6.83	134.99	6,119.4	-1,481.2	1,481.6	2,095.0	2.00	-2.00	
6,600.0	4.83	134.99	6,218.8	-1,488.4	1,488.8	2,105.2	2.00	-2.00	
6,700.0	2.83	134.99	6,318.6	-1,493.1	1,493.5	2,111.8	2.00	-2.00	
6,800.0	0.83	134.99	6,418.6	-1,495.3	1,495.8	2,115.0	2.00	-2.00	
6,841.4	0.00	0.00	6,460.0	-1,495.6	1,496.0	2,115.3	2.00	-2.00	EOD; Inc=0° - Top of Gas - Benjamin Fee 28-16
6,900.0	0.00	0.00	6,518.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,000.0	0.00	0.00	6,618.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,100.0	0.00	0.00	6,718.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,200.0	0.00	0.00	6,818.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,300.0	0.00	0.00	6,918.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,400.0	0.00	0.00	7,018.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,500.0	0.00	0.00	7,118.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,600.0	0.00	0.00	7,218.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,700.0	0.00	0.00	7,318.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,800.0	0.00	0.00	7,418.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
7,900.0	0.00	0.00	7,518.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,000.0	0.00	0.00	7,618.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,050.4	0.00	0.00	7,669.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Coal Ridge
8,100.0	0.00	0.00	7,718.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,200.0	0.00	0.00	7,818.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,300.0	0.00	0.00	7,918.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,400.0	0.00	0.00	8,018.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,500.0	0.00	0.00	8,118.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,600.0	0.00	0.00	8,218.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,700.0	0.00	0.00	8,318.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,716.4	0.00	0.00	8,335.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Base Cameo A Coal
8,800.0	0.00	0.00	8,418.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
8,811.4	0.00	0.00	8,430.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Rollins
8,900.0	0.00	0.00	8,518.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,000.0	0.00	0.00	8,618.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,100.0	0.00	0.00	8,718.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,200.0	0.00	0.00	8,818.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-16C
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-16C	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,300.0	0.00	0.00	8,918.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,400.0	0.00	0.00	9,018.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,436.4	0.00	0.00	9,055.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Cozzette
9,500.0	0.00	0.00	9,118.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,600.0	0.00	0.00	9,218.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,691.4	0.00	0.00	9,310.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Corcoran
9,700.0	0.00	0.00	9,318.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,800.0	0.00	0.00	9,418.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,900.0	0.00	0.00	9,518.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
9,991.4	0.00	0.00	9,610.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Drillers TD @ 9610' TVD - Benjamin Fee 28-16C
10,000.0	0.00	0.00	9,618.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
10,100.0	0.00	0.00	9,718.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
10,200.0	0.00	0.00	9,818.6	-1,495.6	1,496.0	2,115.3	0.00	0.00	
10,291.4	0.00	0.00	9,910.0	-1,495.6	1,496.0	2,115.3	0.00	0.00	Permit TD @ 9910' TVD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Benjamin Fee 28-16C T1	0.00	0.00	6,460.0	-1,495.6	1,496.0	1,611,573.23	2,357,984.69	39.490464	-107.775108
- plan hits target center									
- Circle (radius 25.0)									
Benjamin Fee 28-16C B	0.00	0.00	9,610.0	-1,495.6	1,496.0	1,611,573.23	2,357,984.69	39.490464	-107.775108
- plan hits target center									
- Circle (radius 60.0)									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,543.0	1,482.4	Surface Casing		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,186.7	2,081.0	G Sand			
4,492.1	4,225.0	Ohio Creek			
4,999.7	4,697.0	Mesa Verde			
5,625.5	5,279.0	Williams Fork			
6,841.4	6,460.0	Top of Gas			
8,050.4	7,669.0	Coal Ridge			
8,716.4	8,335.0	Base Cameo A Coal			
8,811.4	8,430.0	Rollins			
9,436.4	9,055.0	Cozzette			
9,691.4	9,310.0	Corcoran			

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-16C
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 5965.0ft (Original Well Elev)
Project:	Mamm Creek	MD Reference:	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	North Reference:	True
Well:	Benjamin Federal 28-16C	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200'
919.1	902.2	-94.6	94.6	EOB; Inc=21.57°
5,762.9	5,406.7	-1,353.7	1,354.1	Start Drop -2.00
6,841.4	6,460.0	-1,495.6	1,496.0	EOD; Inc=0°
9,991.4	9,610.0	-1,495.6	1,496.0	Drillers TD @ 9610' TVD
10,291.4	9,910.0	-1,495.6	1,496.0	Permit TD @ 9910' TVD