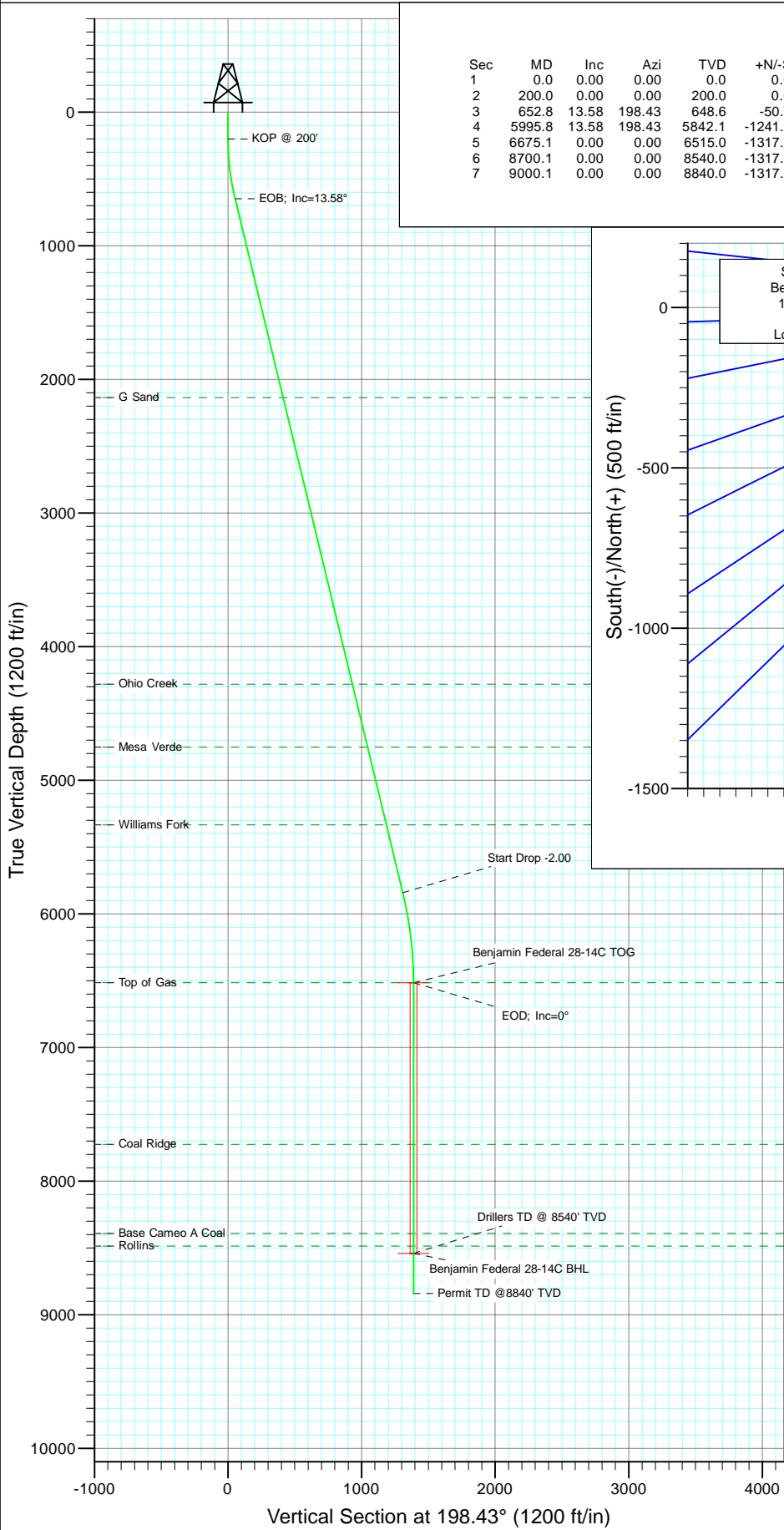
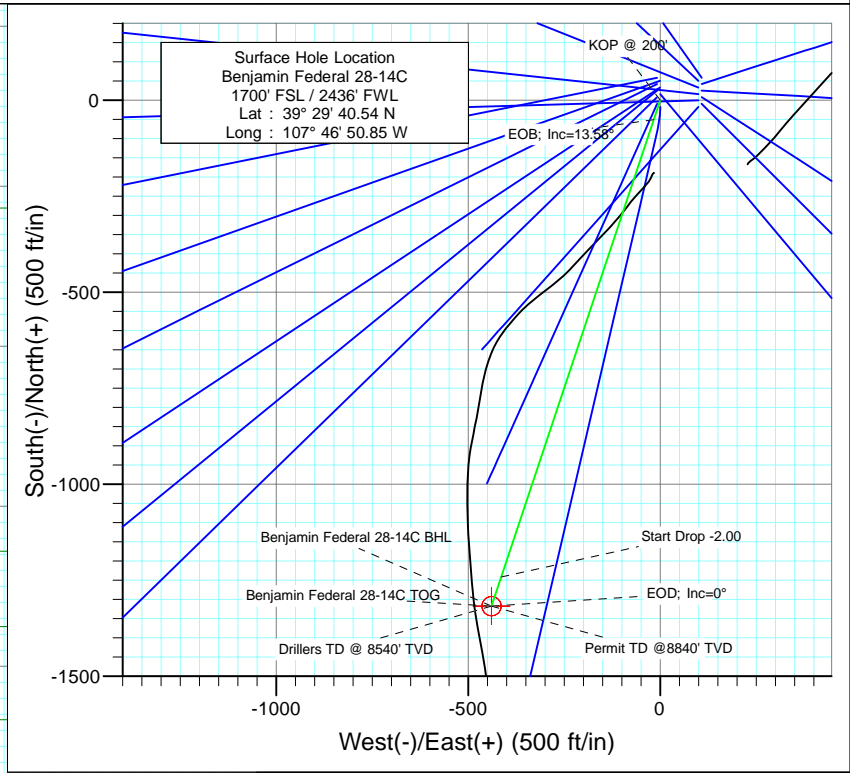




Project: Mamm Creek
 Site: K28NW Pad
 Well: Benjamin Federal 28-14C
 Wellbore: DD
 Design: Plan #1



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	652.8	13.58	198.43	648.6	-50.7	-16.9	3.00	198.43	53.4	
4	5995.8	13.58	198.43	5842.1	-1241.3	-413.7	0.00	0.00	1308.4	
5	6675.1	0.00	0.00	6515.0	-1317.3	-439.0	2.00	180.00	1388.5	Benjamin Federal 28-14C TOG
6	8700.1	0.00	0.00	8540.0	-1317.3	-439.0	0.00	0.00	1388.5	Benjamin Federal 28-14C BHL
7	9000.1	0.00	0.00	8840.0	-1317.3	-439.0	0.00	0.00	1388.5	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2136.0	2183.0	G Sand
4280.0	4388.7	Ohio Creek
4752.0	4874.3	Mesa Verde
5334.0	5473.1	Williams Fork
6515.0	6675.1	Top of Gas
7724.0	7884.1	Coal Ridge
8390.0	8550.1	Base Cameo A Coal
8485.0	8645.1	Rollins

Azimuths to True North
 Magnetic North: 10.36°

 Magnetic Field
 Strength: 52406.0snT
 Dip Angle: 65.82°
 Date: 6/23/2010
 Model: IGRF200510

Plan #1 Benjamin Federal 28-14C BHL = (390 FSL - 1950 FWL) Job #10xxx: KR						
WELL @ 5965.0ft (Original Well Elev) North American Datum 1983 Well Benjamin Federal 28-14C, True North						
Type	Target	Target	Azimuth	Origin Type	N/S	E/W From
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	
Benjamin Federal 28-14C BHL	8540.0	-1317.3	-439.039° 29' 27.52 N	107° 46' 56.45 W		

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference: Well Benjamin Federal 28-14C
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 28-14C	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 28-14C					
Well Position	+N/-S	0.0 ft	Northing:	1,613,117.47 ft	Latitude: 39.494594
	+E/-W	0.0 ft	Easting:	2,356,418.99 ft	Longitude: -107.780792
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
	IGRF200510	6/23/2010	(°) 10.36	(°) 65.82	(nT) 52,406

Design Plan #1					
Audit Notes:					
Version:	Phase:	PLAN	Tie On Depth:	0.0	
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	198.43	

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	
652.8	13.58	198.43	648.6	-50.7	-16.9	3.00	3.00	0.00	198.43	
5,995.8	13.58	198.43	5,842.1	-1,241.3	-413.7	0.00	0.00	0.00	0.00	
6,675.1	0.00	0.00	6,515.0	-1,317.3	-439.0	2.00	-2.00	0.00	180.00	Benjamin Federal 28-
8,700.1	0.00	0.00	8,540.0	-1,317.3	-439.0	0.00	0.00	0.00	0.00	Benjamin Federal 28-
9,000.1	0.00	0.00	8,840.0	-1,317.3	-439.0	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 28-14C
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 28-14C	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	198.43	300.0	-2.5	-0.8	2.6	3.00	3.00	
400.0	6.00	198.43	399.6	-9.9	-3.3	10.5	3.00	3.00	
500.0	9.00	198.43	498.8	-22.3	-7.4	23.5	3.00	3.00	
600.0	12.00	198.43	597.1	-39.6	-13.2	41.7	3.00	3.00	
652.8	13.58	198.43	648.6	-50.7	-16.9	53.4	3.00	3.00	EOB; Inc=13.58°
700.0	13.58	198.43	694.4	-61.2	-20.4	64.5	0.00	0.00	
800.0	13.58	198.43	791.7	-83.5	-27.8	88.0	0.00	0.00	
900.0	13.58	198.43	888.9	-105.8	-35.2	111.5	0.00	0.00	
1,000.0	13.58	198.43	986.1	-128.1	-42.7	135.0	0.00	0.00	
1,100.0	13.58	198.43	1,083.3	-150.3	-50.1	158.5	0.00	0.00	
1,200.0	13.58	198.43	1,180.5	-172.6	-57.5	182.0	0.00	0.00	
1,300.0	13.58	198.43	1,277.7	-194.9	-65.0	205.4	0.00	0.00	
1,350.0	13.58	198.43	1,326.3	-206.0	-68.7	217.2	0.00	0.00	Surface Casing
1,400.0	13.58	198.43	1,374.9	-217.2	-72.4	228.9	0.00	0.00	
1,500.0	13.58	198.43	1,472.1	-239.5	-79.8	252.4	0.00	0.00	
1,600.0	13.58	198.43	1,569.3	-261.8	-87.2	275.9	0.00	0.00	
1,700.0	13.58	198.43	1,666.5	-284.0	-94.7	299.4	0.00	0.00	
1,800.0	13.58	198.43	1,763.7	-306.3	-102.1	322.9	0.00	0.00	
1,900.0	13.58	198.43	1,860.9	-328.6	-109.5	346.4	0.00	0.00	
2,000.0	13.58	198.43	1,958.1	-350.9	-116.9	369.9	0.00	0.00	
2,100.0	13.58	198.43	2,055.3	-373.2	-124.4	393.3	0.00	0.00	
2,183.0	13.58	198.43	2,136.0	-391.7	-130.5	412.9	0.00	0.00	G Sand
2,200.0	13.58	198.43	2,152.5	-395.5	-131.8	416.8	0.00	0.00	
2,300.0	13.58	198.43	2,249.7	-417.7	-139.2	440.3	0.00	0.00	
2,400.0	13.58	198.43	2,346.9	-440.0	-146.6	463.8	0.00	0.00	
2,500.0	13.58	198.43	2,444.1	-462.3	-154.1	487.3	0.00	0.00	
2,600.0	13.58	198.43	2,541.3	-484.6	-161.5	510.8	0.00	0.00	
2,700.0	13.58	198.43	2,638.5	-506.9	-168.9	534.3	0.00	0.00	
2,800.0	13.58	198.43	2,735.7	-529.2	-176.3	557.8	0.00	0.00	
2,900.0	13.58	198.43	2,832.9	-551.4	-183.8	581.3	0.00	0.00	
3,000.0	13.58	198.43	2,930.1	-573.7	-191.2	604.7	0.00	0.00	
3,100.0	13.58	198.43	3,027.3	-596.0	-198.6	628.2	0.00	0.00	
3,200.0	13.58	198.43	3,124.5	-618.3	-206.0	651.7	0.00	0.00	
3,300.0	13.58	198.43	3,221.7	-640.6	-213.5	675.2	0.00	0.00	
3,400.0	13.58	198.43	3,318.9	-662.9	-220.9	698.7	0.00	0.00	
3,500.0	13.58	198.43	3,416.1	-685.1	-228.3	722.2	0.00	0.00	
3,600.0	13.58	198.43	3,513.3	-707.4	-235.8	745.7	0.00	0.00	
3,700.0	13.58	198.43	3,610.5	-729.7	-243.2	769.2	0.00	0.00	
3,800.0	13.58	198.43	3,707.7	-752.0	-250.6	792.6	0.00	0.00	
3,900.0	13.58	198.43	3,804.9	-774.3	-258.0	816.1	0.00	0.00	
4,000.0	13.58	198.43	3,902.1	-796.6	-265.5	839.6	0.00	0.00	
4,100.0	13.58	198.43	3,999.3	-818.8	-272.9	863.1	0.00	0.00	
4,200.0	13.58	198.43	4,096.5	-841.1	-280.3	886.6	0.00	0.00	
4,300.0	13.58	198.43	4,193.7	-863.4	-287.7	910.1	0.00	0.00	
4,388.7	13.58	198.43	4,280.0	-883.2	-294.3	930.9	0.00	0.00	Ohio Creek
4,400.0	13.58	198.43	4,290.9	-885.7	-295.2	933.6	0.00	0.00	
4,500.0	13.58	198.43	4,388.1	-908.0	-302.6	957.1	0.00	0.00	
4,600.0	13.58	198.43	4,485.3	-930.3	-310.0	980.6	0.00	0.00	
4,700.0	13.58	198.43	4,582.5	-952.5	-317.4	1,004.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference:	Well Benjamin Federal 28-14C
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 28-14C	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	13.58	198.43	4,679.7	-974.8	-324.9	1,027.5	0.00	0.00	
4,874.3	13.58	198.43	4,752.0	-991.4	-330.4	1,045.0	0.00	0.00	Mesa Verde
4,900.0	13.58	198.43	4,776.9	-997.1	-332.3	1,051.0	0.00	0.00	
5,000.0	13.58	198.43	4,874.2	-1,019.4	-339.7	1,074.5	0.00	0.00	
5,100.0	13.58	198.43	4,971.4	-1,041.7	-347.1	1,098.0	0.00	0.00	
5,200.0	13.58	198.43	5,068.6	-1,064.0	-354.6	1,121.5	0.00	0.00	
5,300.0	13.58	198.43	5,165.8	-1,086.2	-362.0	1,145.0	0.00	0.00	
5,400.0	13.58	198.43	5,263.0	-1,108.5	-369.4	1,168.5	0.00	0.00	
5,473.1	13.58	198.43	5,334.0	-1,124.8	-374.9	1,185.6	0.00	0.00	Williams Fork
5,500.0	13.58	198.43	5,360.2	-1,130.8	-376.9	1,191.9	0.00	0.00	
5,600.0	13.58	198.43	5,457.4	-1,153.1	-384.3	1,215.4	0.00	0.00	
5,700.0	13.58	198.43	5,554.6	-1,175.4	-391.7	1,238.9	0.00	0.00	
5,800.0	13.58	198.43	5,651.8	-1,197.7	-399.1	1,262.4	0.00	0.00	
5,900.0	13.58	198.43	5,749.0	-1,219.9	-406.6	1,285.9	0.00	0.00	
5,995.8	13.58	198.43	5,842.1	-1,241.3	-413.7	1,308.4	0.00	0.00	Start Drop -2.00
6,000.0	13.50	198.43	5,846.2	-1,242.2	-414.0	1,309.4	2.00	-2.00	
6,100.0	11.50	198.43	5,943.8	-1,262.8	-420.8	1,331.0	2.00	-2.00	
6,200.0	9.50	198.43	6,042.1	-1,280.0	-426.6	1,349.3	2.00	-2.00	
6,300.0	7.50	198.43	6,141.0	-1,294.1	-431.3	1,364.0	2.00	-2.00	
6,400.0	5.50	198.43	6,240.4	-1,304.8	-434.8	1,375.4	2.00	-2.00	
6,500.0	3.50	198.43	6,340.1	-1,312.3	-437.3	1,383.2	2.00	-2.00	
6,600.0	1.50	198.43	6,440.0	-1,316.4	-438.7	1,387.6	2.00	-2.00	
6,675.1	0.00	0.00	6,515.0	-1,317.3	-439.0	1,388.5	2.00	-2.00	EOD; Inc=0° - Top of Gas - Benjamin Federal 2
6,700.0	0.00	0.00	6,539.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
6,800.0	0.00	0.00	6,639.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
6,900.0	0.00	0.00	6,739.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,000.0	0.00	0.00	6,839.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,100.0	0.00	0.00	6,939.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,200.0	0.00	0.00	7,039.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,300.0	0.00	0.00	7,139.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,400.0	0.00	0.00	7,239.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,500.0	0.00	0.00	7,339.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,600.0	0.00	0.00	7,439.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,700.0	0.00	0.00	7,539.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,800.0	0.00	0.00	7,639.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
7,884.1	0.00	0.00	7,724.0	-1,317.3	-439.0	1,388.5	0.00	0.00	Coal Ridge
7,900.0	0.00	0.00	7,739.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,000.0	0.00	0.00	7,839.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,100.0	0.00	0.00	7,939.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,200.0	0.00	0.00	8,039.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,300.0	0.00	0.00	8,139.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,400.0	0.00	0.00	8,239.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,500.0	0.00	0.00	8,339.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,550.1	0.00	0.00	8,390.0	-1,317.3	-439.0	1,388.5	0.00	0.00	Base Cameo A Coal
8,600.0	0.00	0.00	8,439.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,645.1	0.00	0.00	8,485.0	-1,317.3	-439.0	1,388.5	0.00	0.00	Rollins
8,700.0	0.00	0.00	8,539.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,700.1	0.00	0.00	8,540.0	-1,317.3	-439.0	1,388.5	0.00	0.00	Drillers TD @ 8540' TVD - Benjamin Federal 28
8,800.0	0.00	0.00	8,639.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
8,900.0	0.00	0.00	8,739.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
9,000.0	0.00	0.00	8,839.9	-1,317.3	-439.0	1,388.5	0.00	0.00	
9,000.1	0.00	0.00	8,840.0	-1,317.3	-439.0	1,388.5	0.00	0.00	Permit TD @8840' TVD

Cathedral Energy Services

Planning Report

Database: EDM 5000.1 US Multi Users DB	Local Co-ordinate Reference: Well Benjamin Federal 28-14C
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 28-14C	Survey Calculation Method: Minimum Curvature
Wellbore: DD	
Design: Plan #1	

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
Benjamin Federal 28-14 - plan hits target center - Point	0.00	0.00	6,515.0	-1,317.3	-439.0	1,611,811.59	2,355,947.05	39.490978	-107.782347
Benjamin Federal 28-14 - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,540.0	-1,317.3	-439.0	1,611,811.59	2,355,947.05	39.490978	-107.782347

Casing Points					
Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter	
(ft)	(ft)		(in)	(in)	
1,350.0	1,326.3	Surface Casing	5.500	6.000	

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(ft)	(ft)			(°)	(°)	
2,183.0	2,136.0	G Sand				
4,388.7	4,280.0	Ohio Creek				
4,874.3	4,752.0	Mesa Verde				
5,473.1	5,334.0	Williams Fork				
6,675.1	6,515.0	Top of Gas				
7,884.1	7,724.0	Coal Ridge				
8,550.1	8,390.0	Base Cameo A Coal				
8,645.1	8,485.0	Rollins				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)		
200.0	200.0	0.0	0.0	KOP @ 200'	
652.8	648.6	-50.7	-16.9	EOB; Inc=13.58°	
5,995.8	5,842.1	-1,241.3	-413.7	Start Drop -2.00	
6,675.1	6,515.0	-1,317.3	-439.0	EOD; Inc=0°	
8,700.1	8,540.0	-1,317.3	-439.0	Drillers TD @ 8540' TVD	
9,000.1	8,840.0	-1,317.3	-439.0	Permit TD @8840' TVD	