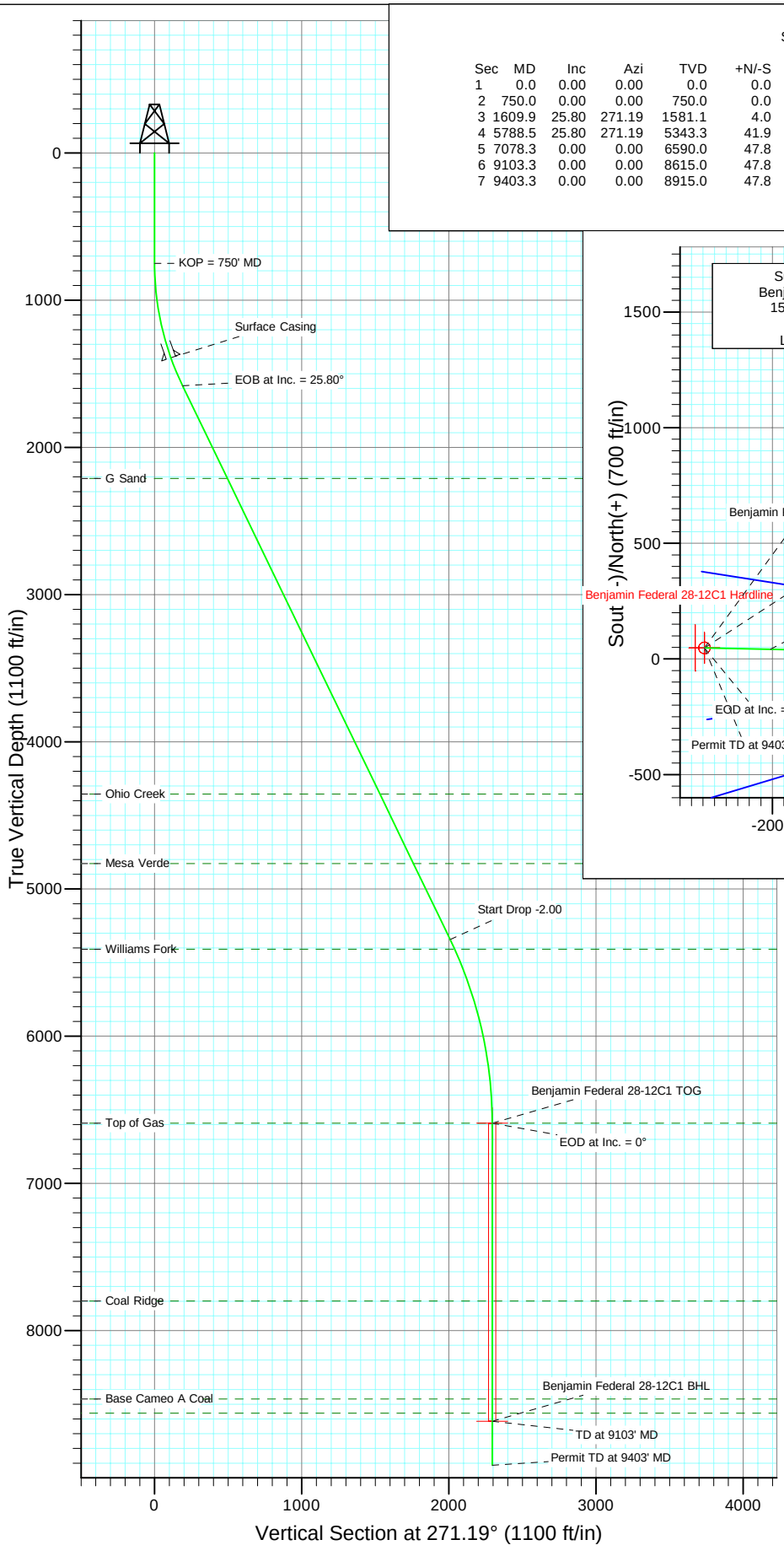
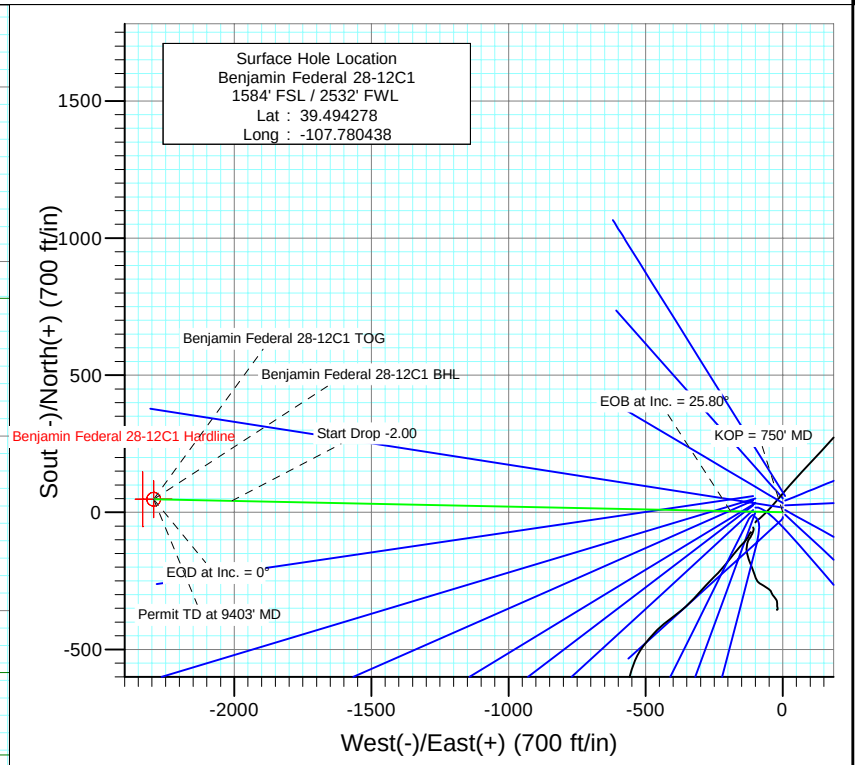
Project: Mamm Creek
Site: K28NW Pad
Well: Benjamin Federal 28-12C1
Wellbore: DD
Design: Plan #2

CATHEDRAL

SECTION DETAILS

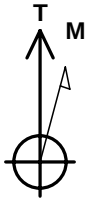
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	1609.9	25.80	271.19	1581.1	4.0	-190.3	3.00	271.19	190.3	
4	5788.5	25.80	271.19	5343.3	41.9	-2008.3	0.00	0.00	2008.8	
5	7078.3	0.00	0.00	6590.0	47.8	-2293.8	2.00	180.00	2294.3	Benjamin Federal 28-12C1 TOG
6	9103.3	0.00	0.00	8615.0	47.8	-2293.8	0.00	0.00	2294.3	Benjamin Federal 28-12C1 BHL
7	9403.3	0.00	0.00	8915.0	47.8	-2293.8	0.00	0.00	2294.3	





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2211.0	2309.5	G Sand
4355.0	4690.8	Ohio Creek
4827.0	5215.0	Mesa Verde
5409.0	5861.0	Williams Fork
6590.0	7078.3	Top of Gas
7799.0	8287.3	Coal Ridge
8465.0	8953.3	Base Cameo A Coal
8560.0	9048.3	Rollins



Azimuths to True North
Magnetic North: 10.30°

Magnetic Field
Strength: 52364.6snT
Dip Angle: 65.81°
Date: 11/24/2010
Model: IGRF200510

Plan #2
Benjamin Federal 28-12C1
BHL = (1670 FSL - 240 FWL) Job #10xxx: KR

WELL @ 5965.0ft (Original Well Elev)
North American Datum 1983
Well Benjamin Federal 28-12C1, True North

Target	Azimuth	Origin Type	N/S	E/W
Benjamin Federal 28-12C1 BHL	271.19	Slot	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Benjamin Federal 28-12C1 BHL	8615.0	47.8	-2293.8	39.494409	-107.788566

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
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 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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 28-12C1				
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,612,999.74 ft	**Latitude:**	39.494278
	+E/-W	0.0 ft	**Easting:**	2,356,515.87 ft	**Longitude:**	-107.780438
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	11/24/2010	10.30	65.81	52,365

Design	Plan #2				
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	271.19

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	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,609.9	25.80	271.19	1,581.1	4.0	-190.3	3.00	3.00	0.00	271.19	
5,788.5	25.80	271.19	5,343.3	41.9	-2,008.3	0.00	0.00	0.00	0.00	
7,078.3	0.00	0.00	6,590.0	47.8	-2,293.8	2.00	-2.00	0.00	180.00	Benjamin Federal 28-
9,103.3	0.00	0.00	8,615.0	47.8	-2,293.8	0.00	0.00	0.00	0.00	Benjamin Federal 28-
9,403.3	0.00	0.00	8,915.0	47.8	-2,293.8	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
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 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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	Benjamin Federal 28-12C1 Hardline
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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
750.0	0.00	0.00	750.0	0.0	0.0	0.0	0.00	0.00	KOP = 750' MD
800.0	1.50	271.19	800.0	0.0	-0.7	0.7	3.00	3.00	
900.0	4.50	271.19	899.8	0.1	-5.9	5.9	3.00	3.00	
1,000.0	7.50	271.19	999.3	0.3	-16.3	16.3	3.00	3.00	
1,100.0	10.50	271.19	1,098.0	0.7	-32.0	32.0	3.00	3.00	
1,200.0	13.50	271.19	1,195.8	1.1	-52.8	52.8	3.00	3.00	
1,300.0	16.50	271.19	1,292.4	1.6	-78.6	78.6	3.00	3.00	
1,400.0	19.50	271.19	1,387.5	2.3	-109.5	109.5	3.00	3.00	
1,403.0	19.59	271.19	1,390.4	2.3	-110.5	110.6	3.00	3.00	Surface Casing
1,500.0	22.50	271.19	1,480.9	3.0	-145.3	145.4	3.00	3.00	
1,600.0	25.50	271.19	1,572.2	3.9	-186.0	186.0	3.00	3.00	
1,609.9	25.80	271.19	1,581.1	4.0	-190.3	190.3	3.00	3.00	EOB at Inc. = 25.80°
1,700.0	25.80	271.19	1,662.3	4.8	-229.5	229.5	0.00	0.00	
1,800.0	25.80	271.19	1,752.3	5.7	-273.0	273.1	0.00	0.00	
1,900.0	25.80	271.19	1,842.3	6.6	-316.5	316.6	0.00	0.00	
2,000.0	25.80	271.19	1,932.4	7.5	-360.0	360.1	0.00	0.00	
2,100.0	25.80	271.19	2,022.4	8.4	-403.5	403.6	0.00	0.00	
2,200.0	25.80	271.19	2,112.4	9.3	-447.0	447.1	0.00	0.00	
2,300.0	25.80	271.19	2,202.5	10.2	-490.5	490.7	0.00	0.00	
2,309.5	25.80	271.19	2,211.0	10.3	-494.7	494.8	0.00	0.00	G Sand
2,400.0	25.80	271.19	2,292.5	11.1	-534.1	534.2	0.00	0.00	
2,500.0	25.80	271.19	2,382.5	12.0	-577.6	577.7	0.00	0.00	
2,600.0	25.80	271.19	2,472.6	12.9	-621.1	621.2	0.00	0.00	
2,700.0	25.80	271.19	2,562.6	13.9	-664.6	664.7	0.00	0.00	
2,800.0	25.80	271.19	2,652.6	14.8	-708.1	708.2	0.00	0.00	
2,900.0	25.80	271.19	2,742.7	15.7	-751.6	751.8	0.00	0.00	
3,000.0	25.80	271.19	2,832.7	16.6	-795.1	795.3	0.00	0.00	
3,100.0	25.80	271.19	2,922.7	17.5	-838.6	838.8	0.00	0.00	
3,200.0	25.80	271.19	3,012.8	18.4	-882.1	882.3	0.00	0.00	
3,300.0	25.80	271.19	3,102.8	19.3	-925.6	925.8	0.00	0.00	
3,400.0	25.80	271.19	3,192.8	20.2	-969.1	969.4	0.00	0.00	
3,500.0	25.80	271.19	3,282.9	21.1	-1,012.7	1,012.9	0.00	0.00	
3,600.0	25.80	271.19	3,372.9	22.0	-1,056.2	1,056.4	0.00	0.00	
3,700.0	25.80	271.19	3,462.9	22.9	-1,099.7	1,099.9	0.00	0.00	
3,800.0	25.80	271.19	3,553.0	23.8	-1,143.2	1,143.4	0.00	0.00	
3,900.0	25.80	271.19	3,643.0	24.7	-1,186.7	1,186.9	0.00	0.00	
4,000.0	25.80	271.19	3,733.0	25.7	-1,230.2	1,230.5	0.00	0.00	
4,100.0	25.80	271.19	3,823.1	26.6	-1,273.7	1,274.0	0.00	0.00	
4,200.0	25.80	271.19	3,913.1	27.5	-1,317.2	1,317.5	0.00	0.00	
4,300.0	25.80	271.19	4,003.2	28.4	-1,360.7	1,361.0	0.00	0.00	
4,400.0	25.80	271.19	4,093.2	29.3	-1,404.2	1,404.5	0.00	0.00	
4,500.0	25.80	271.19	4,183.2	30.2	-1,447.7	1,448.1	0.00	0.00	
4,600.0	25.80	271.19	4,273.3	31.1	-1,491.3	1,491.6	0.00	0.00	
4,690.8	25.80	271.19	4,355.0	31.9	-1,530.8	1,531.1	0.00	0.00	Ohio Creek

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Project:	Mamm Creek	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site:	K28NW Pad	**North Reference:**	True
Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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
4,700.0	25.80	271.19	4,363.3	32.0	-1,534.8	1,535.1	0.00	0.00	
4,800.0	25.80	271.19	4,453.3	32.9	-1,578.3	1,578.6	0.00	0.00	
4,900.0	25.80	271.19	4,543.4	33.8	-1,621.8	1,622.1	0.00	0.00	
5,000.0	25.80	271.19	4,633.4	34.7	-1,665.3	1,665.6	0.00	0.00	
5,100.0	25.80	271.19	4,723.4	35.6	-1,708.8	1,709.2	0.00	0.00	
5,200.0	25.80	271.19	4,813.5	36.5	-1,752.3	1,752.7	0.00	0.00	
5,215.0	25.80	271.19	4,827.0	36.7	-1,758.8	1,759.2	0.00	0.00	Mesa Verde
5,300.0	25.80	271.19	4,903.5	37.4	-1,795.8	1,796.2	0.00	0.00	
5,400.0	25.80	271.19	4,993.5	38.4	-1,839.3	1,839.7	0.00	0.00	
5,500.0	25.80	271.19	5,083.6	39.3	-1,882.8	1,883.2	0.00	0.00	
5,600.0	25.80	271.19	5,173.6	40.2	-1,926.3	1,926.8	0.00	0.00	
5,700.0	25.80	271.19	5,263.6	41.1	-1,969.8	1,970.3	0.00	0.00	
5,788.5	25.80	271.19	5,343.3	41.9	-2,008.3	2,008.8	0.00	0.00	Start Drop -2.00
5,800.0	25.57	271.19	5,353.7	42.0	-2,013.3	2,013.8	2.00	-2.00	
5,861.0	24.35	271.19	5,409.0	42.5	-2,039.1	2,039.5	2.00	-2.00	Williams Fork
5,900.0	23.57	271.19	5,444.6	42.8	-2,054.9	2,055.3	2.00	-2.00	
6,000.0	21.57	271.19	5,537.0	43.6	-2,093.3	2,093.7	2.00	-2.00	
6,100.0	19.57	271.19	5,630.6	44.4	-2,128.4	2,128.8	2.00	-2.00	
6,200.0	17.57	271.19	5,725.4	45.0	-2,160.2	2,160.7	2.00	-2.00	
6,300.0	15.57	271.19	5,821.2	45.6	-2,188.7	2,189.2	2.00	-2.00	
6,400.0	13.57	271.19	5,918.0	46.2	-2,213.9	2,214.3	2.00	-2.00	
6,500.0	11.57	271.19	6,015.6	46.6	-2,235.6	2,236.1	2.00	-2.00	
6,600.0	9.57	271.19	6,113.9	47.0	-2,254.0	2,254.4	2.00	-2.00	
6,700.0	7.57	271.19	6,212.8	47.3	-2,268.8	2,269.3	2.00	-2.00	
6,800.0	5.57	271.19	6,312.1	47.5	-2,280.3	2,280.8	2.00	-2.00	
6,900.0	3.57	271.19	6,411.8	47.7	-2,288.2	2,288.7	2.00	-2.00	
7,000.0	1.57	271.19	6,511.7	47.8	-2,292.7	2,293.2	2.00	-2.00	
7,078.3	0.00	0.00	6,590.0	47.8	-2,293.8	2,294.3	2.00	-2.00	EOD at Inc. = 0° - Top of Gas - Benjamin Feder
7,100.0	0.00	0.00	6,611.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,200.0	0.00	0.00	6,711.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,300.0	0.00	0.00	6,811.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,400.0	0.00	0.00	6,911.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,500.0	0.00	0.00	7,011.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,600.0	0.00	0.00	7,111.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,700.0	0.00	0.00	7,211.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,800.0	0.00	0.00	7,311.7	47.8	-2,293.8	2,294.3	0.00	0.00	
7,900.0	0.00	0.00	7,411.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,000.0	0.00	0.00	7,511.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,100.0	0.00	0.00	7,611.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,200.0	0.00	0.00	7,711.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,287.3	0.00	0.00	7,799.0	47.8	-2,293.8	2,294.3	0.00	0.00	Coal Ridge
8,300.0	0.00	0.00	7,811.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,400.0	0.00	0.00	7,911.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,500.0	0.00	0.00	8,011.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,600.0	0.00	0.00	8,111.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,700.0	0.00	0.00	8,211.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,800.0	0.00	0.00	8,311.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,900.0	0.00	0.00	8,411.7	47.8	-2,293.8	2,294.3	0.00	0.00	
8,953.3	0.00	0.00	8,465.0	47.8	-2,293.8	2,294.3	0.00	0.00	Base Cameo A Coal
9,000.0	0.00	0.00	8,511.7	47.8	-2,293.8	2,294.3	0.00	0.00	
9,048.3	0.00	0.00	8,560.0	47.8	-2,293.8	2,294.3	0.00	0.00	Rollins
9,100.0	0.00	0.00	8,611.7	47.8	-2,293.8	2,294.3	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
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 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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
9,103.3	0.00	0.00	8,615.0	47.8	-2,293.8	2,294.3	0.00	0.00	TD at 9103' MD - Benjamin Federal 28-12C1 BH
9,200.0	0.00	0.00	8,711.7	47.8	-2,293.8	2,294.3	0.00	0.00	
9,300.0	0.00	0.00	8,811.7	47.8	-2,293.8	2,294.3	0.00	0.00	
9,400.0	0.00	0.00	8,911.7	47.8	-2,293.8	2,294.3	0.00	0.00	
9,403.3	0.00	0.00	8,915.0	47.8	-2,293.8	2,294.3	0.00	0.00	Permit TD at 9403' MD

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Benjamin Federal 28-12	0.00	0.00	8,615.0	47.8	-2,293.8	1,613,105.13	2,354,224.02	39.494409	-107.788566
- plan hits target center									
- Circle (radius 25.0)									
Benjamin Federal 28-12	0.00	0.00	6,590.0	47.8	-2,293.8	1,613,105.13	2,354,224.02	39.494409	-107.788566
- plan hits target center									
- Point									
Benjamin Federal 28-12	0.00	0.00	-8,615.0	47.8	-2,293.8	1,613,105.13	2,354,224.02	39.494409	-107.788566
- plan misses target center by 8915.3ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Polygon									
Point 1			-8,615.0	100.0	-40.0	1,613,206.10	2,354,186.54		
Point 2			-8,615.0	-100.0	-40.0	1,613,006.16	2,354,181.52		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,403.0	1,390.4	Surface Casing		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,309.5	2,211.0	G Sand			
4,690.8	4,355.0	Ohio Creek			
5,215.0	4,827.0	Mesa Verde			
5,861.0	5,409.0	Williams Fork			
7,078.3	6,590.0	Top of Gas			
8,287.3	7,799.0	Coal Ridge			
8,953.3	8,465.0	Base Cameo A Coal			
9,048.3	8,560.0	Rollins			

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
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 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
750.0	750.0	0.0	0.0	KOP = 750' MD
1,609.9	1,581.1	4.0	-190.3	EOB at Inc. = 25.80°
5,788.5	5,343.3	41.9	-2,008.3	Start Drop -2.00
7,078.3	6,590.0	47.8	-2,293.8	EOD at Inc. = 0°
9,103.3	8,615.0	47.8	-2,293.8	TD at 9103' MD
9,403.3	8,915.0	47.8	-2,293.8	Permit TD at 9403' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek
K28NW Pad
Benjamin Federal 28-12C1
DD
Plan #2

Anticollision Report

23 November, 2010

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference	Plan #2

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	Systematic Ellipse
Depth Range:	0.0 to 99,999.0ft	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 828.6ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 11/23/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,403.3	Plan #2 (DD)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
K28NW Pad						
Benjamin 28-11 Existing - Existing - Existing	1,386.0	1,370.1	100.7	95.2	18.113	CC
Benjamin 28-11 Existing - Existing - Existing	1,400.0	1,383.4	100.8	95.1	17.785	ES
Benjamin 28-11 Existing - Existing - Existing	1,500.0	1,477.3	107.1	100.7	16.573	SF
Benjamin Federal 28-12B2 - DD - Plan #2	200.0	200.0	17.1	16.5	27.552	CC, ES
Benjamin Federal 28-12B2 - DD - Plan #2	9,403.3	9,368.8	330.2	238.4	3.597	SF
Benjamin Federal 28-12C2 - DD - Plan #2	200.0	200.0	123.1	122.4	198.074	CC, ES
Benjamin Federal 28-12C2 - DD - Plan #2	5,700.0	5,603.9	258.3	183.2	3.442	SF
Benjamin Federal 28-13B1 - DD - Plan #2	200.0	200.0	112.2	111.5	180.520	CC, ES
Benjamin Federal 28-13B1 - DD - Plan #2	9,351.2	9,294.5	649.9	560.1	7.238	SF
Benjamin Federal 28-13B2 - DD - Plan #2	200.0	200.0	115.9	115.3	186.567	CC, ES
Benjamin Federal 28-13B2 - DD - Plan #2	5,700.0	5,543.5	815.5	741.5	11.010	SF
Benjamin Federal 28-13C1 - DD - Plan #2	200.0	200.0	105.4	104.8	169.633	CC, ES
Benjamin Federal 28-13C1 - DD - Plan #2	4,300.0	4,124.3	810.6	760.6	16.216	SF
Benjamin Federal 28-13C2 - DD - Plan #2	200.0	200.0	110.8	110.2	178.289	CC, ES
Benjamin Federal 28-13C2 - DD - Plan #2	3,600.0	3,398.4	813.7	776.1	21.663	SF
Benjamin Federal 28-14B1 - DD - Plan #2	200.0	200.0	17.1	16.5	27.552	CC, ES
Benjamin Federal 28-14B1 - DD - Plan #2	1,500.0	1,483.3	127.8	120.6	17.695	SF
Benjamin Federal 28-14B2 - DD - Plan #2	200.0	200.0	108.1	107.5	174.025	CC, ES
Benjamin Federal 28-14B2 - DD - Plan #2	1,800.0	1,743.1	226.3	216.3	22.636	SF
Benjamin Federal 28-14C - DD - Plan #2	200.0	200.0	99.8	99.2	160.633	CC, ES
Benjamin Federal 28-14C - DD - Plan #2	1,900.0	1,821.6	318.4	307.2	28.524	SF
Benjamin Federal 28-16C - DD - Plan #2	200.0	200.0	11.7	11.1	18.849	CC, ES
Benjamin Federal 28-16C - DD - Plan #2	300.0	299.3	14.3	13.3	14.636	SF
Benjamin Federal 33-3B - DD - Plan #2	200.0	200.0	101.3	100.6	162.979	CC
Benjamin Federal 33-3B - DD - Plan #2	300.0	299.4	101.6	100.6	104.771	ES
Benjamin Federal 33-3B - DD - Plan #2	2,500.0	2,303.8	698.0	680.2	39.066	SF
Benjamin Federal 33-4B - DD - Plan #2	200.0	200.0	108.1	107.5	174.025	CC, ES
Benjamin Federal 33-4B - DD - Plan #2	3,100.0	2,868.7	817.3	788.4	28.338	SF
Benjamin Fee 28-10D2 - DD - Plan #2	200.0	200.0	26.8	26.2	43.097	CC, ES
Benjamin Fee 28-10D2 - DD - Plan #2	500.0	496.1	41.2	39.4	23.362	SF
Benjamin Fee 28-11A - DD - Plan #2	200.0	200.0	33.9	33.3	54.518	CC, ES
Benjamin Fee 28-11A - DD - Plan #2	1,500.0	1,485.5	103.2	95.9	14.157	SF
Benjamin Fee 28-11B - DD - Plan #2	200.0	200.0	51.0	50.4	82.071	CC, ES
Benjamin Fee 28-11B - DD - Plan #2	1,700.0	1,664.5	218.0	208.6	23.168	SF
Benjamin Fee 28-15A - DD - Plan #2	200.0	200.0	11.7	11.1	18.849	CC, ES
Benjamin Fee 28-15A - DD - Plan #2	300.0	299.7	12.7	11.7	13.037	SF
Benjamin Fee 28-6C - DD - Plan #2	200.0	200.0	59.9	59.3	96.457	CC, ES
Benjamin Fee 28-6C - DD - Plan #2	1,900.0	1,837.9	343.0	331.2	29.176	SF
Benjamin Fee 28-9B - DD - Plan #2	200.0	200.0	43.4	42.8	69.841	CC, ES
Benjamin Fee 28-9B - DD - Plan #2	600.0	589.6	74.1	71.9	32.878	SF
Benjamin Fee 33-1B - DD - Plan #2	992.5	997.8	28.3	24.2	6.901	CC, ES
Benjamin Fee 33-1B - DD - Plan #2	1,000.0	1,004.7	28.4	24.3	6.858	SF
GMR 28-7D Existing - DD - Schlumberger Surveys	869.9	875.9	42.2	38.3	10.813	CC, ES
GMR 28-7D Existing - DD - Schlumberger Surveys	900.0	904.5	43.0	39.0	10.686	SF
GMU 28-14D Existing - Schlumberger Surveys - Schlumb	328.6	328.5	138.2	137.1	129.103	CC
GMU 28-14D Existing - Schlumberger Surveys - Schlumb	400.0	398.7	138.4	137.1	105.038	ES
GMU 28-14D Existing - Schlumberger Surveys - Schlumb	2,700.0	2,587.3	484.4	462.8	22.438	SF
SWSE Sec 29-T6S-R93W						
Federal 29-09D - DD - Plan #1						Out of range

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin 28-11 Existing - Existing - Existing

Offset Site Error: 0.0 ft

Survey Program: 100-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-116.95	-54.7	-107.6	120.8				
100.0	100.0	99.4	99.4	0.1	0.1	-116.98	-54.9	-107.8	121.0	120.7	0.27	445.358	
200.0	200.0	199.4	199.4	0.3	0.3	-117.13	-55.4	-108.1	121.4	120.8	0.62	195.661	
300.0	300.0	299.8	299.7	0.5	0.5	-117.52	-56.3	-108.0	121.8	120.8	0.97	125.504	
400.0	400.0	400.0	400.0	0.7	0.7	-118.29	-57.7	-107.2	121.8	120.5	1.32	92.279	
401.5	401.5	401.8	401.7	0.7	0.7	-118.31	-57.7	-107.2	121.8	120.4	1.33	91.878	
500.0	500.0	498.9	498.9	0.8	0.8	-119.41	-60.0	-106.4	122.1	120.5	1.67	73.250	
600.0	600.0	597.8	597.7	1.0	1.0	-120.61	-62.9	-106.3	123.5	121.5	2.02	61.277	
700.0	700.0	696.4	696.2	1.2	1.2	-121.82	-66.4	-107.0	126.0	123.6	2.37	53.219	
750.0	750.0	746.1	745.9	1.3	1.3	-122.45	-68.4	-107.6	127.5	125.0	2.54	50.135	
800.0	800.0	795.9	795.6	1.4	1.4	-34.41	-70.5	-108.2	128.6	125.9	2.73	47.100	
900.0	899.8	894.9	894.6	1.5	1.6	-36.96	-74.8	-109.7	128.1	125.1	3.08	41.571	
1,000.0	999.3	993.7	993.2	1.8	1.8	-41.04	-79.3	-111.8	124.5	121.1	3.44	36.191	
1,100.0	1,098.0	1,092.5	1,091.9	2.0	2.0	-47.06	-83.9	-114.3	118.2	114.4	3.83	30.882	
1,200.0	1,195.8	1,190.7	1,189.9	2.3	2.1	-55.69	-88.5	-117.0	110.4	106.1	4.29	25.717	
1,300.0	1,292.4	1,287.7	1,286.8	2.8	2.3	-67.68	-93.0	-119.8	103.3	98.4	4.90	21.087	
1,386.0	1,374.4	1,370.1	1,369.1	3.2	2.5	-80.80	-96.9	-122.2	100.7	95.2	5.56	18.113	CC
1,400.0	1,387.5	1,383.4	1,382.3	3.3	2.5	-83.11	-97.5	-122.6	100.8	95.1	5.67	17.785	ES
1,500.0	1,480.9	1,477.3	1,476.1	3.9	2.7	-100.13	-102.1	-125.3	107.1	100.7	6.47	16.573	SF
1,609.9	1,581.1	1,577.8	1,576.4	4.8	2.9	-117.24	-107.3	-127.5	127.9	120.7	7.17	17.847	
1,700.0	1,662.3	1,659.2	1,657.7	5.5	3.1	-128.47	-111.6	-128.8	154.0	146.4	7.54	20.432	
1,800.0	1,752.3	1,749.3	1,747.7	6.3	3.2	-137.32	-116.3	-130.0	188.0	180.1	7.86	23.927	
1,900.0	1,842.3	1,839.1	1,837.4	7.1	3.4	-143.57	-120.8	-130.9	225.2	217.1	8.15	27.635	
2,000.0	1,932.4	1,928.8	1,926.9	7.9	3.6	-148.10	-125.4	-131.5	264.4	255.9	8.44	31.313	
2,100.0	2,022.4	2,017.9	2,016.0	8.7	3.8	-151.49	-130.0	-131.9	304.9	296.2	8.74	34.874	
2,200.0	2,112.4	2,107.2	2,105.1	9.5	3.9	-154.13	-134.5	-132.0	346.4	337.3	9.05	38.280	
2,300.0	2,202.5	2,196.1	2,193.8	10.4	4.1	-156.23	-139.1	-131.9	388.6	379.2	9.36	41.508	
2,400.0	2,292.5	2,284.4	2,282.0	11.2	4.3	-157.94	-143.5	-131.5	431.4	421.7	9.68	44.581	
2,500.0	2,382.5	2,373.0	2,370.6	12.0	4.4	-159.38	-147.8	-130.7	474.7	464.7	9.99	47.499	
2,600.0	2,472.6	2,462.0	2,459.4	12.9	4.6	-160.60	-152.1	-129.8	518.4	508.1	10.31	50.261	
2,700.0	2,562.6	2,550.9	2,548.3	13.7	4.8	-161.68	-156.1	-128.8	562.3	551.7	10.63	52.887	
2,800.0	2,652.6	2,639.8	2,637.0	14.5	5.0	-162.60	-160.0	-127.6	606.4	595.5	10.95	55.364	
2,900.0	2,742.7	2,728.6	2,725.8	15.4	5.1	-163.40	-164.0	-126.4	650.7	639.5	11.28	57.692	
3,000.0	2,832.7	2,817.7	2,814.7	16.2	5.3	-164.09	-168.1	-125.1	695.2	683.6	11.61	59.877	
3,100.0	2,922.7	2,906.6	2,903.6	17.1	5.5	-164.69	-172.3	-123.9	739.7	727.8	11.95	61.923	
3,200.0	3,012.8	2,993.8	2,990.6	17.9	5.6	-165.21	-176.5	-122.6	784.5	772.2	12.28	63.865	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-12B2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	17.1	0.0	17.1				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	17.1	0.0	17.1	16.8	0.27	62.876	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	17.1	0.0	17.1	16.5	0.62	27.552	CC, ES
300.0	300.0	299.8	299.7	0.5	0.5	-8.36	17.5	-2.6	17.7	16.7	0.97	18.243	
400.0	400.0	399.0	398.6	0.7	0.7	-28.66	18.7	-10.2	21.4	20.0	1.34	15.958	
500.0	500.0	497.2	496.0	0.8	1.0	-47.78	20.7	-22.8	31.0	29.3	1.78	17.414	
600.0	600.0	593.8	591.0	1.0	1.3	-59.68	23.4	-40.0	47.2	44.9	2.32	20.373	
700.0	700.0	688.4	683.1	1.2	1.8	-66.47	26.7	-61.4	69.0	66.1	2.92	23.602	
750.0	750.0	734.8	727.8	1.3	2.0	-68.73	28.6	-73.5	81.9	78.7	3.26	25.125	
800.0	800.0	780.8	771.9	1.4	2.3	18.30	30.7	-86.6	95.5	92.7	2.72	35.032	
900.0	899.8	871.9	858.1	1.5	2.8	16.13	35.2	-115.6	122.5	119.4	3.06	40.034	
1,000.0	999.3	961.8	941.8	1.8	3.5	14.98	40.3	-148.1	149.2	145.9	3.40	43.956	
1,100.0	1,098.0	1,057.5	1,029.7	2.0	4.2	14.43	46.1	-185.5	174.1	170.3	3.75	46.457	
1,200.0	1,195.8	1,155.5	1,119.7	2.3	4.9	14.38	52.1	-223.8	194.0	189.9	4.11	47.177	
1,300.0	1,292.4	1,254.4	1,210.5	2.8	5.6	14.72	58.2	-262.4	209.0	204.5	4.50	46.473	
1,400.0	1,387.5	1,353.8	1,301.9	3.3	6.4	15.39	64.2	-301.2	218.9	214.0	4.91	44.580	
1,500.0	1,480.9	1,453.6	1,393.5	3.9	7.1	16.41	70.3	-340.2	223.9	218.5	5.38	41.656	
1,609.9	1,581.1	1,563.3	1,494.3	4.8	8.0	17.98	77.0	-383.1	223.7	217.7	5.98	37.387	
1,700.0	1,662.3	1,653.2	1,576.8	5.5	8.7	19.49	82.5	-418.2	221.2	214.7	6.59	33.556	
1,800.0	1,752.3	1,752.9	1,668.4	6.3	9.4	21.21	88.6	-457.2	218.7	211.3	7.35	29.746	
1,900.0	1,842.3	1,852.7	1,760.1	7.1	10.2	22.96	94.7	-496.1	216.3	208.1	8.20	26.373	
2,000.0	1,932.4	1,952.4	1,851.7	7.9	10.9	24.75	100.8	-535.1	214.2	205.0	9.15	23.408	
2,100.0	2,022.4	2,052.2	1,943.3	8.7	11.7	26.58	106.9	-574.1	212.2	202.0	10.19	20.818	
2,200.0	2,112.4	2,151.9	2,034.9	9.5	12.4	28.43	113.0	-613.0	210.5	199.2	11.34	18.566	
2,300.0	2,202.5	2,251.7	2,126.5	10.4	13.2	30.32	119.1	-652.0	209.0	196.4	12.58	16.614	
2,400.0	2,292.5	2,351.4	2,218.2	11.2	14.0	32.23	125.2	-691.0	207.8	193.8	13.92	14.926	
2,500.0	2,382.5	2,451.2	2,309.8	12.0	14.7	34.16	131.3	-729.9	206.7	191.4	15.35	13.467	
2,600.0	2,472.6	2,550.9	2,401.4	12.9	15.5	36.11	137.4	-768.9	205.9	189.1	16.87	12.207	
2,700.0	2,562.6	2,650.7	2,493.0	13.7	16.2	38.07	143.5	-807.9	205.4	186.9	18.47	11.117	
2,800.0	2,652.6	2,750.4	2,584.6	14.5	17.0	40.03	149.6	-846.8	205.1	184.9	20.16	10.174	
2,875.9	2,721.0	2,826.2	2,654.2	15.2	17.6	41.53	154.2	-876.4	205.0	183.5	21.48	9.543	
2,900.0	2,742.7	2,850.2	2,676.3	15.4	17.7	42.01	155.7	-885.8	205.0	183.1	21.91	9.356	
3,000.0	2,832.7	2,949.9	2,767.9	16.2	18.5	43.98	161.8	-924.8	205.2	181.5	23.73	8.646	
3,100.0	2,922.7	3,049.7	2,859.5	17.1	19.3	45.94	167.9	-963.8	205.6	180.0	25.61	8.028	
3,200.0	3,012.8	3,149.4	2,951.1	17.9	20.0	47.90	174.0	-1,002.7	206.3	178.7	27.54	7.490	
3,300.0	3,102.8	3,249.2	3,042.7	18.7	20.8	49.84	180.1	-1,041.7	207.2	177.7	29.52	7.019	
3,400.0	3,192.8	3,348.9	3,134.4	19.6	21.5	51.76	186.2	-1,080.7	208.3	176.8	31.53	6.607	
3,500.0	3,282.9	3,448.7	3,226.0	20.4	22.3	53.66	192.3	-1,119.6	209.7	176.1	33.57	6.246	
3,600.0	3,372.9	3,548.4	3,317.6	21.3	23.0	55.53	198.4	-1,158.6	211.3	175.7	35.64	5.929	
3,700.0	3,462.9	3,648.2	3,409.2	22.1	23.8	57.37	204.5	-1,197.6	213.1	175.4	37.72	5.650	
3,800.0	3,553.0	3,747.9	3,500.8	23.0	24.6	59.18	210.6	-1,236.5	215.2	175.4	39.81	5.405	
3,900.0	3,643.0	3,847.7	3,592.5	23.8	25.3	60.95	216.7	-1,275.5	217.4	175.5	41.91	5.188	
4,000.0	3,733.0	3,947.4	3,684.1	24.6	26.1	62.69	222.8	-1,314.5	219.9	175.9	44.01	4.996	
4,100.0	3,823.1	4,047.2	3,775.7	25.5	26.8	64.38	228.9	-1,353.4	222.5	176.4	46.10	4.827	
4,200.0	3,913.1	4,146.9	3,867.3	26.3	27.6	66.03	235.0	-1,392.4	225.4	177.2	48.19	4.677	
4,300.0	4,003.2	4,246.7	3,958.9	27.2	28.4	67.65	241.0	-1,431.4	228.4	178.2	50.26	4.545	
4,400.0	4,093.2	4,346.4	4,050.6	28.0	29.1	69.21	247.1	-1,470.4	231.6	179.3	52.32	4.427	
4,500.0	4,183.2	4,446.2	4,142.2	28.9	29.9	70.74	253.2	-1,509.3	235.0	180.6	54.36	4.323	
4,600.0	4,273.3	4,545.9	4,233.8	29.7	30.6	72.22	259.3	-1,548.3	238.5	182.2	56.39	4.231	
4,700.0	4,363.3	4,645.7	4,325.4	30.6	31.4	73.66	265.4	-1,587.3	242.2	183.9	58.39	4.149	
4,800.0	4,453.3	4,745.4	4,417.0	31.4	32.2	75.05	271.5	-1,626.2	246.1	185.7	60.37	4.076	
4,900.0	4,543.4	4,845.2	4,508.7	32.2	32.9	76.40	277.6	-1,665.2	250.1	187.7	62.32	4.012	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-12B2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,633.4	4,944.9	4,600.3	33.1	33.7	77.71	283.7	-1,704.2	254.2	189.9	64.26	3.956	
5,100.0	4,723.4	5,044.7	4,691.9	33.9	34.4	78.97	289.8	-1,743.1	258.4	192.3	66.17	3.906	
5,200.0	4,813.5	5,144.4	4,783.5	34.8	35.2	80.19	295.9	-1,782.1	262.8	194.7	68.05	3.862	
5,300.0	4,903.5	5,244.2	4,875.1	35.6	36.0	81.37	302.0	-1,821.1	267.3	197.4	69.92	3.823	
5,400.0	4,993.5	5,343.9	4,966.8	36.5	36.7	82.52	308.1	-1,860.0	271.9	200.1	71.75	3.789	
5,500.0	5,083.6	5,443.7	5,058.4	37.3	37.5	83.62	314.2	-1,899.0	276.6	203.0	73.57	3.759	
5,600.0	5,173.6	5,543.4	5,150.0	38.2	38.2	84.69	320.3	-1,938.0	281.4	206.0	75.36	3.734	
5,700.0	5,263.6	5,643.2	5,241.6	39.0	39.0	85.72	326.4	-1,977.0	286.3	209.1	77.13	3.711	
5,788.5	5,343.3	5,731.4	5,322.7	39.8	39.7	86.61	331.8	-2,011.4	290.7	212.0	78.68	3.694	
5,800.0	5,353.7	5,742.9	5,333.2	39.9	39.7	86.73	332.5	-2,015.9	291.2	212.4	78.88	3.692	
5,900.0	5,444.6	5,842.7	5,424.9	40.6	40.5	87.38	338.6	-2,054.9	296.4	215.9	80.49	3.682	
6,000.0	5,537.0	5,943.5	5,517.6	41.3	41.2	87.43	344.7	-2,093.9	301.7	219.7	81.93	3.682	
6,100.0	5,630.6	6,045.2	5,612.4	42.0	41.9	87.38	350.4	-2,130.4	306.6	223.3	83.22	3.684	
6,200.0	5,725.4	6,147.0	5,708.5	42.5	42.5	87.34	355.6	-2,163.5	311.0	226.6	84.38	3.686	
6,300.0	5,821.2	6,248.8	5,805.8	43.0	43.1	87.29	360.2	-2,193.3	315.0	229.6	85.41	3.688	
6,400.0	5,918.0	6,350.8	5,904.1	43.5	43.5	87.24	364.4	-2,219.7	318.6	232.3	86.32	3.691	
6,500.0	6,015.6	6,452.8	6,003.4	43.9	44.0	87.18	368.0	-2,242.6	321.6	234.6	87.09	3.693	
6,600.0	6,113.9	6,554.8	6,103.6	44.2	44.3	87.11	371.0	-2,262.0	324.3	236.5	87.74	3.696	
6,700.0	6,212.8	6,656.9	6,204.4	44.5	44.6	87.05	373.5	-2,277.9	326.4	238.1	88.27	3.698	
6,800.0	6,312.1	6,759.0	6,305.8	44.7	44.8	86.98	375.4	-2,290.2	328.1	239.4	88.68	3.699	
6,900.0	6,411.8	6,861.2	6,407.5	44.8	45.0	86.90	376.8	-2,299.0	329.3	240.3	88.97	3.701	
7,000.0	6,511.7	6,963.4	6,509.6	44.9	45.1	86.81	377.6	-2,304.1	330.0	240.8	89.15	3.701	
7,078.3	6,590.0	7,043.5	6,589.7	44.9	45.1	-2.06	377.8	-2,305.7	330.2	241.0	89.23	3.701	
7,100.0	6,611.7	7,065.5	6,611.7	44.9	45.1	-2.07	377.8	-2,305.7	330.2	241.0	89.25	3.700	
7,200.0	6,711.7	7,165.5	6,711.7	45.0	45.2	-2.07	377.8	-2,305.7	330.2	240.9	89.34	3.696	
7,300.0	6,811.7	7,265.5	6,811.7	45.0	45.2	-2.07	377.8	-2,305.7	330.2	240.8	89.44	3.692	
7,400.0	6,911.7	7,365.5	6,911.7	45.1	45.3	-2.07	377.8	-2,305.7	330.2	240.7	89.54	3.688	
7,500.0	7,011.7	7,465.5	7,011.7	45.1	45.3	-2.07	377.8	-2,305.7	330.2	240.6	89.64	3.684	
7,600.0	7,111.7	7,565.5	7,111.7	45.2	45.4	-2.07	377.8	-2,305.7	330.2	240.5	89.74	3.680	
7,700.0	7,211.7	7,665.5	7,211.7	45.2	45.4	-2.07	377.8	-2,305.7	330.2	240.4	89.85	3.675	
7,800.0	7,311.7	7,765.5	7,311.7	45.3	45.5	-2.07	377.8	-2,305.7	330.2	240.3	89.95	3.671	
7,900.0	7,411.7	7,865.5	7,411.7	45.4	45.5	-2.07	377.8	-2,305.7	330.2	240.2	90.06	3.667	
8,000.0	7,511.7	7,965.5	7,511.7	45.4	45.6	-2.07	377.8	-2,305.7	330.2	240.1	90.16	3.662	
8,100.0	7,611.7	8,065.5	7,611.7	45.5	45.6	-2.07	377.8	-2,305.7	330.2	239.9	90.27	3.658	
8,200.0	7,711.7	8,165.5	7,711.7	45.5	45.7	-2.07	377.8	-2,305.7	330.2	239.8	90.38	3.654	
8,300.0	7,811.7	8,265.5	7,811.7	45.6	45.7	-2.07	377.8	-2,305.7	330.2	239.7	90.49	3.649	
8,400.0	7,911.7	8,365.5	7,911.7	45.6	45.8	-2.07	377.8	-2,305.7	330.2	239.6	90.60	3.645	
8,500.0	8,011.7	8,465.5	8,011.7	45.7	45.9	-2.07	377.8	-2,305.7	330.2	239.5	90.72	3.640	
8,600.0	8,111.7	8,565.5	8,111.7	45.7	45.9	-2.07	377.8	-2,305.7	330.2	239.4	90.83	3.636	
8,700.0	8,211.7	8,665.5	8,211.7	45.8	46.0	-2.07	377.8	-2,305.7	330.2	239.3	90.95	3.631	
8,800.0	8,311.7	8,765.5	8,311.7	45.9	46.0	-2.07	377.8	-2,305.7	330.2	239.2	91.06	3.626	
8,900.0	8,411.7	8,865.5	8,411.7	45.9	46.1	-2.07	377.8	-2,305.7	330.2	239.0	91.18	3.622	
9,000.0	8,511.7	8,965.5	8,511.7	46.0	46.1	-2.07	377.8	-2,305.7	330.2	238.9	91.30	3.617	
9,103.3	8,615.0	9,068.8	8,615.0	46.0	46.2	-2.07	377.8	-2,305.7	330.2	238.8	91.42	3.612	
9,200.0	8,711.7	9,165.5	8,711.7	46.1	46.3	-2.07	377.8	-2,305.7	330.2	238.7	91.54	3.607	
9,300.0	8,811.7	9,265.5	8,811.7	46.2	46.3	-2.07	377.8	-2,305.7	330.2	238.6	91.66	3.602	
9,403.3	8,915.0	9,368.8	8,915.0	46.2	46.4	-2.07	377.8	-2,305.7	330.2	238.4	91.79	3.597	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-12C2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-61.16	59.4	-107.8	123.1				
100.0	100.0	100.0	100.0	0.1	0.1	-61.16	59.4	-107.8	123.1	122.8	0.27	452.016	
200.0	200.0	200.0	200.0	0.3	0.3	-61.16	59.4	-107.8	123.1	122.4	0.62	198.074	CC, ES
300.0	300.0	295.0	295.0	0.5	0.5	-61.81	59.0	-110.1	125.1	124.1	0.97	129.302	
400.0	400.0	389.6	389.3	0.7	0.7	-63.65	58.0	-117.1	131.1	129.8	1.34	98.092	
500.0	500.0	483.3	482.2	0.8	1.0	-66.34	56.3	-128.5	141.5	139.7	1.75	80.830	
600.0	600.0	575.6	573.1	1.0	1.3	-69.47	54.0	-144.2	156.3	154.1	2.22	70.260	
700.0	700.0	666.1	661.5	1.2	1.7	-72.67	51.1	-163.8	175.8	173.1	2.77	63.472	
750.0	750.0	710.6	704.6	1.3	1.9	-74.21	49.5	-174.9	187.4	184.3	3.06	61.150	
800.0	800.0	754.8	747.0	1.4	2.1	13.07	47.7	-186.9	199.5	196.7	2.79	71.396	
900.0	899.8	842.3	830.2	1.5	2.6	10.43	43.7	-213.6	223.4	220.2	3.15	70.828	
1,000.0	999.3	928.9	911.3	1.8	3.2	8.19	39.3	-243.7	246.9	243.4	3.50	70.485	
1,100.0	1,098.0	1,025.7	1,001.0	2.0	3.9	6.14	34.0	-279.6	268.0	264.2	3.86	69.445	
1,200.0	1,195.8	1,124.0	1,092.2	2.3	4.6	4.49	28.6	-316.0	284.3	280.1	4.20	67.606	
1,300.0	1,292.4	1,223.1	1,184.1	2.8	5.3	3.08	23.2	-352.8	295.5	291.0	4.54	65.139	
1,400.0	1,387.5	1,322.7	1,276.5	3.3	6.0	1.83	17.8	-389.7	301.8	296.9	4.85	62.157	
1,500.0	1,480.9	1,422.5	1,369.0	3.9	6.7	0.64	12.3	-426.6	302.9	297.7	5.16	58.738	
1,609.9	1,581.1	1,532.1	1,470.6	4.8	7.5	-0.66	6.3	-467.3	298.2	292.8	5.47	54.532	
1,700.0	1,662.3	1,621.8	1,553.7	5.5	8.1	-1.78	1.4	-500.5	291.9	286.2	5.77	50.611	
1,800.0	1,752.3	1,721.3	1,646.1	6.3	8.8	-3.08	-4.1	-537.4	285.1	279.0	6.10	46.724	
1,900.0	1,842.3	1,820.9	1,738.4	7.1	9.5	-4.43	-9.5	-574.3	278.4	272.0	6.44	43.198	
2,000.0	1,932.4	1,920.4	1,830.7	7.9	10.3	-5.86	-15.0	-611.2	271.9	265.1	6.81	39.930	
2,100.0	2,022.4	2,020.0	1,923.0	8.7	11.0	-7.35	-20.4	-648.1	265.5	258.3	7.21	36.842	
2,200.0	2,112.4	2,119.5	2,015.3	9.5	11.7	-8.92	-25.8	-684.9	259.4	251.7	7.66	33.883	
2,300.0	2,202.5	2,219.1	2,107.6	10.4	12.4	-10.55	-31.3	-721.8	253.4	245.3	8.17	31.021	
2,400.0	2,292.5	2,318.6	2,199.9	11.2	13.1	-12.27	-36.7	-758.7	247.7	238.9	8.77	28.251	
2,500.0	2,382.5	2,418.2	2,292.2	12.0	13.8	-14.06	-42.2	-795.6	242.2	232.7	9.47	25.584	
2,600.0	2,472.6	2,517.7	2,384.5	12.9	14.5	-15.94	-47.6	-832.5	236.9	226.7	10.28	23.043	
2,700.0	2,562.6	2,617.3	2,476.8	13.7	15.3	-17.90	-53.1	-869.4	231.9	220.7	11.23	20.656	
2,800.0	2,652.6	2,716.8	2,569.1	14.5	16.0	-19.94	-58.5	-906.3	227.2	214.9	12.32	18.448	
2,900.0	2,742.7	2,816.4	2,661.4	15.4	16.7	-22.06	-64.0	-943.2	222.8	209.3	13.56	16.438	
3,000.0	2,832.7	2,915.9	2,753.7	16.2	17.4	-24.27	-69.4	-980.1	218.8	203.8	14.95	14.634	
3,100.0	2,922.7	3,015.5	2,846.0	17.1	18.1	-26.55	-74.9	-1,017.0	215.0	198.5	16.50	13.033	
3,200.0	3,012.8	3,115.0	2,938.3	17.9	18.8	-28.92	-80.3	-1,053.9	211.6	193.4	18.20	11.628	
3,300.0	3,102.8	3,214.6	3,030.6	18.7	19.5	-31.35	-85.8	-1,090.8	208.6	188.6	20.05	10.404	
3,400.0	3,192.8	3,314.2	3,122.9	19.6	20.3	-33.85	-91.2	-1,127.6	206.0	183.9	22.04	9.344	
3,500.0	3,282.9	3,413.7	3,215.2	20.4	21.0	-36.41	-96.7	-1,164.5	203.8	179.6	24.17	8.431	
3,600.0	3,372.9	3,513.3	3,307.5	21.3	21.7	-39.02	-102.1	-1,201.4	202.0	175.5	26.41	7.647	
3,700.0	3,462.9	3,612.8	3,399.8	22.1	22.4	-41.67	-107.6	-1,238.3	200.6	171.8	28.76	6.975	
3,800.0	3,553.0	3,712.4	3,492.1	23.0	23.1	-44.35	-113.0	-1,275.2	199.7	168.5	31.19	6.400	
3,900.0	3,643.0	3,811.9	3,584.4	23.8	23.8	-47.05	-118.5	-1,312.1	199.2	165.5	33.70	5.910	
3,959.3	3,696.4	3,870.9	3,639.1	24.3	24.3	-48.66	-121.7	-1,334.0	199.1	163.9	35.21	5.654	
4,000.0	3,733.0	3,911.5	3,676.7	24.6	24.5	-49.76	-123.9	-1,349.0	199.1	162.9	36.26	5.492	
4,100.0	3,823.1	4,011.0	3,769.0	25.5	25.3	-52.46	-129.3	-1,385.9	199.5	160.7	38.85	5.136	
4,200.0	3,913.1	4,110.6	3,861.3	26.3	26.0	-55.15	-134.8	-1,422.8	200.4	158.9	41.46	4.833	
4,300.0	4,003.2	4,210.1	3,953.7	27.2	26.7	-57.80	-140.2	-1,459.7	201.7	157.6	44.06	4.577	
4,400.0	4,093.2	4,309.7	4,046.0	28.0	27.4	-60.42	-145.7	-1,496.6	203.4	156.7	46.65	4.360	
4,500.0	4,183.2	4,409.2	4,138.3	28.9	28.1	-62.99	-151.1	-1,533.5	205.5	156.3	49.20	4.177	
4,600.0	4,273.3	4,508.8	4,230.6	29.7	28.8	-65.50	-156.6	-1,570.3	208.1	156.4	51.72	4.024	
4,700.0	4,363.3	4,608.3	4,322.9	30.6	29.6	-67.95	-162.0	-1,607.2	211.0	156.9	54.17	3.895	
4,800.0	4,453.3	4,707.9	4,415.2	31.4	30.3	-70.33	-167.5	-1,644.1	214.4	157.8	56.57	3.789	
4,900.0	4,543.4	4,807.4	4,507.5	32.2	31.0	-72.63	-172.9	-1,681.0	218.0	159.1	58.90	3.702	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-12C2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,633.4	4,907.0	4,599.8	33.1	31.7	-74.85	-178.4	-1,717.9	222.1	160.9	61.16	3.631	
5,100.0	4,723.4	5,006.5	4,692.1	33.9	32.4	-76.99	-183.8	-1,754.8	226.4	163.1	63.35	3.574	
5,200.0	4,813.5	5,106.1	4,784.4	34.8	33.1	-79.04	-189.3	-1,791.7	231.1	165.6	65.47	3.529	
5,300.0	4,903.5	5,205.6	4,876.7	35.6	33.8	-81.02	-194.7	-1,828.6	236.0	168.5	67.51	3.496	
5,400.0	4,993.5	5,305.2	4,969.0	36.5	34.6	-82.91	-200.2	-1,865.5	241.2	171.7	69.49	3.471	
5,500.0	5,083.6	5,404.8	5,061.3	37.3	35.3	-84.72	-205.6	-1,902.4	246.7	175.3	71.40	3.455	
5,600.0	5,173.6	5,504.3	5,153.6	38.2	36.0	-86.45	-211.1	-1,939.3	252.4	179.1	73.24	3.445	
5,700.0	5,263.6	5,603.9	5,245.9	39.0	36.7	-88.10	-216.5	-1,976.1	258.3	183.2	75.03	3.442 SF	
5,788.5	5,343.3	5,691.9	5,327.6	39.8	37.3	-89.50	-221.3	-2,008.8	263.7	187.1	76.56	3.444	
5,800.0	5,353.7	5,703.4	5,338.2	39.9	37.4	-89.69	-222.0	-2,013.0	264.4	187.6	76.75	3.445	
5,900.0	5,444.6	5,803.1	5,430.6	40.6	38.1	-90.87	-227.4	-2,050.0	270.7	192.3	78.34	3.455	
6,000.0	5,537.0	5,903.2	5,523.6	41.3	38.9	-91.30	-232.9	-2,087.0	276.9	197.1	79.78	3.471	
6,100.0	5,630.6	6,004.4	5,618.3	42.0	39.5	-91.54	-238.0	-2,121.9	282.7	201.7	81.07	3.488	
6,200.0	5,725.4	6,105.5	5,714.3	42.5	40.1	-91.76	-242.7	-2,153.4	288.0	205.8	82.23	3.503	
6,300.0	5,821.2	6,206.7	5,811.4	43.0	40.6	-91.97	-246.8	-2,181.6	292.7	209.5	83.26	3.516	
6,400.0	5,918.0	6,307.9	5,909.5	43.5	41.0	-92.17	-250.5	-2,206.4	296.9	212.7	84.16	3.527	
6,500.0	6,015.6	6,409.2	6,008.4	43.9	41.4	-92.35	-253.7	-2,227.8	300.5	215.5	84.94	3.537	
6,600.0	6,113.9	6,510.4	6,108.0	44.2	41.7	-92.53	-256.3	-2,245.7	303.5	217.9	85.59	3.546	
6,700.0	6,212.8	6,611.7	6,208.2	44.5	42.0	-92.69	-258.4	-2,260.1	305.9	219.8	86.12	3.552	
6,800.0	6,312.1	6,713.0	6,308.8	44.7	42.2	-92.85	-260.0	-2,271.0	307.7	221.2	86.53	3.556	
6,900.0	6,411.8	6,814.2	6,409.8	44.8	42.3	-93.00	-261.1	-2,278.4	309.0	222.2	86.82	3.559	
7,000.0	6,511.7	6,915.4	6,511.0	44.9	42.4	-93.13	-261.7	-2,282.2	309.7	222.7	87.01	3.559	
7,078.3	6,590.0	6,994.5	6,590.0	44.9	42.5	177.97	-261.8	-2,282.8	309.8	222.7	87.09	3.557	
7,100.0	6,611.7	7,016.2	6,611.7	44.9	42.5	177.97	-261.8	-2,282.8	309.8	222.7	87.11	3.557	
7,200.0	6,711.7	7,116.2	6,711.7	45.0	42.5	177.97	-261.8	-2,282.8	309.8	222.6	87.21	3.553	
7,300.0	6,811.7	7,216.2	6,811.7	45.0	42.6	177.97	-261.8	-2,282.8	309.8	222.5	87.31	3.548	
7,400.0	6,911.7	7,316.2	6,911.7	45.1	42.6	177.97	-261.8	-2,282.8	309.8	222.4	87.41	3.544	
7,500.0	7,011.7	7,416.2	7,011.7	45.1	42.7	177.97	-261.8	-2,282.8	309.8	222.3	87.51	3.540	
7,600.0	7,111.7	7,516.2	7,111.7	45.2	42.7	177.97	-261.8	-2,282.8	309.8	222.2	87.62	3.536	
7,700.0	7,211.7	7,616.2	7,211.7	45.2	42.8	177.97	-261.8	-2,282.8	309.8	222.1	87.72	3.532	
7,800.0	7,311.7	7,716.2	7,311.7	45.3	42.8	177.97	-261.8	-2,282.8	309.8	222.0	87.83	3.527	
7,900.0	7,411.7	7,816.2	7,411.7	45.4	42.9	177.97	-261.8	-2,282.8	309.8	221.9	87.94	3.523	
8,000.0	7,511.7	7,916.2	7,511.7	45.4	42.9	177.97	-261.8	-2,282.8	309.8	221.8	88.05	3.519	
8,100.0	7,611.7	8,016.2	7,611.7	45.5	43.0	177.97	-261.8	-2,282.8	309.8	221.7	88.16	3.514	
8,200.0	7,711.7	8,116.2	7,711.7	45.5	43.1	177.97	-261.8	-2,282.8	309.8	221.5	88.27	3.510	
8,300.0	7,811.7	8,216.2	7,811.7	45.6	43.1	177.97	-261.8	-2,282.8	309.8	221.4	88.38	3.505	
8,400.0	7,911.7	8,316.2	7,911.7	45.6	43.2	177.97	-261.8	-2,282.8	309.8	221.3	88.50	3.501	
8,500.0	8,011.7	8,416.2	8,011.7	45.7	43.2	177.97	-261.8	-2,282.8	309.8	221.2	88.61	3.496	
8,600.0	8,111.7	8,516.2	8,111.7	45.7	43.3	177.97	-261.8	-2,282.8	309.8	221.1	88.73	3.492	
8,700.0	8,211.7	8,616.2	8,211.7	45.8	43.4	177.97	-261.8	-2,282.8	309.8	221.0	88.85	3.487	
8,800.0	8,311.7	8,716.2	8,311.7	45.9	43.4	177.97	-261.8	-2,282.8	309.8	220.8	88.96	3.482	
8,900.0	8,411.7	8,816.2	8,411.7	45.9	43.5	177.97	-261.8	-2,282.8	309.8	220.7	89.08	3.478	
9,000.0	8,511.7	8,916.2	8,511.7	46.0	43.5	177.97	-261.8	-2,282.8	309.8	220.6	89.21	3.473	
9,103.3	8,615.0	9,019.5	8,615.0	46.0	43.6	177.97	-261.8	-2,282.8	309.8	220.5	89.33	3.468	
9,200.0	8,711.7	9,116.2	8,711.7	46.1	43.7	177.97	-261.8	-2,282.8	309.8	220.4	89.45	3.463	
9,300.0	8,811.7	9,216.2	8,811.7	46.2	43.7	177.97	-261.8	-2,282.8	309.8	220.2	89.58	3.459	
9,360.6	8,872.3	9,276.8	8,872.3	46.2	43.8	177.97	-261.8	-2,282.8	309.8	220.2	89.65	3.456	
9,403.3	8,915.0	9,299.5	8,895.0	46.2	43.8	177.97	-261.8	-2,282.8	310.5	220.8	89.70	3.461	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-13B1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-62.96	51.0	-99.9	112.2				
100.0	100.0	100.0	100.0	0.1	0.1	-62.96	51.0	-99.9	112.2	111.9	0.27	411.954	
200.0	200.0	200.0	200.0	0.3	0.3	-62.96	51.0	-99.9	112.2	111.5	0.62	180.520	CC, ES
300.0	300.0	295.9	295.8	0.5	0.5	-63.80	50.3	-102.2	114.0	113.0	0.97	117.782	
400.0	400.0	391.2	390.9	0.7	0.7	-66.14	48.2	-109.1	119.6	118.3	1.34	89.576	
500.0	500.0	485.6	484.6	0.8	1.0	-69.55	44.9	-120.3	129.3	127.6	1.74	74.139	
600.0	600.0	578.7	576.2	1.0	1.3	-73.49	40.2	-135.7	143.6	141.3	2.22	64.784	
700.0	700.0	669.9	665.2	1.2	1.7	-77.47	34.4	-155.0	162.5	159.8	2.76	58.851	
750.0	750.0	714.8	708.6	1.3	1.9	-79.37	31.1	-165.9	173.8	170.8	3.06	56.827	
800.0	800.0	759.2	751.3	1.4	2.1	7.61	27.6	-177.7	185.7	182.9	2.84	65.342	
900.0	899.8	847.3	835.0	1.5	2.7	4.36	19.7	-203.9	209.3	206.1	3.21	65.274	
1,000.0	999.3	934.3	916.4	1.8	3.3	1.51	10.8	-233.4	232.6	229.1	3.55	65.469	
1,100.0	1,098.0	1,028.2	1,002.9	2.0	3.9	-1.19	0.4	-268.1	254.6	250.7	3.89	65.408	
1,200.0	1,195.8	1,126.0	1,093.1	2.3	4.6	-3.59	-10.5	-304.4	272.1	267.8	4.22	64.540	
1,300.0	1,292.4	1,224.6	1,184.0	2.8	5.4	-5.79	-21.5	-341.0	284.8	280.3	4.52	63.005	
1,400.0	1,387.5	1,323.6	1,275.3	3.3	6.1	-7.94	-32.5	-377.8	292.8	288.0	4.81	60.825	
1,500.0	1,480.9	1,422.9	1,366.8	3.9	6.8	-10.16	-43.6	-414.6	296.1	291.0	5.11	57.939	
1,609.9	1,581.1	1,531.9	1,467.3	4.8	7.6	-12.82	-55.8	-455.1	294.3	288.9	5.47	53.763	
1,700.0	1,662.3	1,621.1	1,549.6	5.5	8.3	-15.14	-65.7	-488.2	290.8	285.0	5.88	49.446	
1,800.0	1,752.3	1,720.2	1,640.9	6.3	9.0	-17.77	-76.8	-524.9	287.5	281.1	6.43	44.724	
1,900.0	1,842.3	1,819.2	1,732.2	7.1	9.7	-20.45	-87.8	-561.7	284.9	277.8	7.10	40.104	
2,000.0	1,932.4	1,918.3	1,823.5	7.9	10.5	-23.18	-98.9	-598.5	282.9	275.0	7.93	35.690	
2,100.0	2,022.4	2,017.3	1,914.8	8.7	11.2	-25.94	-109.9	-635.2	281.5	272.6	8.91	31.605	
2,200.0	2,112.4	2,116.4	2,006.1	9.5	11.9	-28.72	-121.0	-672.0	280.9	270.8	10.05	27.943	
2,250.2	2,157.6	2,166.1	2,051.9	10.0	12.3	-30.12	-126.5	-690.4	280.8	270.1	10.68	26.278	
2,300.0	2,202.5	2,215.4	2,097.4	10.4	12.7	-31.51	-132.0	-708.7	280.9	269.5	11.35	24.744	
2,400.0	2,292.5	2,314.5	2,188.7	11.2	13.4	-34.29	-143.1	-745.5	281.5	268.7	12.79	22.004	
2,500.0	2,382.5	2,413.5	2,280.0	12.0	14.1	-37.05	-154.1	-782.2	282.9	268.5	14.37	19.687	
2,600.0	2,472.6	2,512.5	2,371.3	12.9	14.9	-39.78	-165.2	-819.0	284.9	268.8	16.06	17.742	
2,700.0	2,562.6	2,611.6	2,462.6	13.7	15.6	-42.47	-176.2	-855.8	287.5	269.7	17.84	16.116	
2,800.0	2,652.6	2,710.6	2,553.9	14.5	16.3	-45.10	-187.3	-892.5	290.8	271.1	19.71	14.757	
2,900.0	2,742.7	2,809.7	2,645.2	15.4	17.1	-47.67	-198.3	-929.3	294.7	273.1	21.64	13.621	
3,000.0	2,832.7	2,908.7	2,736.5	16.2	17.8	-50.16	-209.4	-966.0	299.2	275.6	23.62	12.668	
3,100.0	2,922.7	3,007.8	2,827.9	17.1	18.5	-52.58	-220.4	-1,002.8	304.2	278.6	25.64	11.868	
3,200.0	3,012.8	3,106.8	2,919.2	17.9	19.3	-54.92	-231.5	-1,039.5	309.8	282.1	27.68	11.194	
3,300.0	3,102.8	3,205.9	3,010.5	18.7	20.0	-57.18	-242.5	-1,076.3	315.9	286.2	29.74	10.624	
3,400.0	3,192.8	3,304.9	3,101.8	19.6	20.7	-59.34	-253.6	-1,113.1	322.4	290.6	31.80	10.140	
3,500.0	3,282.9	3,403.9	3,193.1	20.4	21.5	-61.42	-264.6	-1,149.8	329.4	295.6	33.86	9.729	
3,600.0	3,372.9	3,503.0	3,284.4	21.3	22.2	-63.41	-275.7	-1,186.6	336.9	301.0	35.92	9.379	
3,700.0	3,462.9	3,602.0	3,375.7	22.1	22.9	-65.32	-286.7	-1,223.3	344.7	306.7	37.96	9.080	
3,800.0	3,553.0	3,701.1	3,467.0	23.0	23.7	-67.14	-297.8	-1,260.1	352.9	312.9	39.99	8.824	
3,900.0	3,643.0	3,800.1	3,558.3	23.8	24.4	-68.87	-308.8	-1,296.8	361.4	319.4	42.00	8.604	
4,000.0	3,733.0	3,899.2	3,649.6	24.6	25.2	-70.53	-319.9	-1,333.6	370.2	326.2	43.99	8.415	
4,100.0	3,823.1	3,998.2	3,740.9	25.5	25.9	-72.11	-330.9	-1,370.4	379.3	333.4	45.96	8.253	
4,200.0	3,913.1	4,097.3	3,832.2	26.3	26.6	-73.61	-342.0	-1,407.1	388.8	340.8	47.91	8.114	
4,300.0	4,003.2	4,196.3	3,923.5	27.2	27.4	-75.04	-353.1	-1,443.9	398.4	348.6	49.84	7.994	
4,400.0	4,093.2	4,295.4	4,014.8	28.0	28.1	-76.41	-364.1	-1,480.6	408.3	356.6	51.75	7.891	
4,500.0	4,183.2	4,394.4	4,106.1	28.9	28.8	-77.71	-375.2	-1,517.4	418.4	364.8	53.63	7.802	
4,600.0	4,273.3	4,493.4	4,197.4	29.7	29.6	-78.94	-386.2	-1,554.1	428.8	373.3	55.50	7.726	
4,700.0	4,363.3	4,592.5	4,288.7	30.6	30.3	-80.12	-397.3	-1,590.9	439.3	381.9	57.34	7.661	
4,800.0	4,453.3	4,691.5	4,380.0	31.4	31.0	-81.25	-408.3	-1,627.7	450.0	390.8	59.16	7.606	
4,900.0	4,543.4	4,790.6	4,471.3	32.2	31.8	-82.32	-419.4	-1,664.4	460.8	399.9	60.97	7.559	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-13B1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,000.0	4,633.4	4,889.6	4,562.6	33.1	32.5	-83.34	-430.4	-1,701.2	471.8	409.1	62.75	7.519	
5,100.0	4,723.4	4,988.7	4,654.0	33.9	33.2	-84.32	-441.5	-1,737.9	483.0	418.5	64.52	7.486	
5,200.0	4,813.5	5,087.7	4,745.3	34.8	34.0	-85.25	-452.5	-1,774.7	494.3	428.0	66.27	7.458	
5,300.0	4,903.5	5,186.8	4,836.6	35.6	34.7	-86.14	-463.6	-1,811.4	505.7	437.7	68.01	7.435	
5,400.0	4,993.5	5,285.8	4,927.9	36.5	35.4	-86.99	-474.6	-1,848.2	517.2	447.5	69.73	7.417	
5,500.0	5,083.6	5,384.8	5,019.2	37.3	36.2	-87.81	-485.7	-1,885.0	528.9	457.4	71.44	7.402	
5,600.0	5,173.6	5,483.9	5,110.5	38.2	36.9	-88.59	-496.7	-1,921.7	540.6	467.5	73.14	7.391	
5,700.0	5,263.6	5,582.9	5,201.8	39.0	37.6	-89.33	-507.8	-1,958.5	552.4	477.6	74.82	7.383	
5,788.5	5,343.3	5,670.6	5,282.6	39.8	38.3	-89.97	-517.5	-1,991.0	563.0	486.7	76.30	7.378	
5,800.0	5,353.7	5,682.0	5,293.1	39.9	38.4	-90.07	-518.8	-1,995.2	564.3	487.8	76.50	7.377	
5,900.0	5,444.6	5,781.1	5,384.5	40.6	39.1	-90.79	-529.9	-2,032.0	576.3	498.2	78.09	7.380	
6,000.0	5,537.0	5,882.4	5,477.9	41.3	39.9	-91.16	-541.1	-2,069.4	588.2	508.6	79.57	7.393	
6,100.0	5,630.6	5,987.6	5,576.1	42.0	40.5	-91.44	-552.0	-2,105.6	599.3	518.4	80.91	7.406	
6,200.0	5,725.4	6,093.0	5,675.8	42.5	41.2	-91.70	-561.8	-2,138.3	609.3	527.2	82.13	7.419	
6,300.0	5,821.2	6,198.6	5,776.9	43.0	41.7	-91.94	-570.6	-2,167.6	618.2	535.0	83.21	7.430	
6,400.0	5,918.0	6,304.3	5,879.1	43.5	42.2	-92.16	-578.3	-2,193.3	626.0	541.9	84.15	7.440	
6,500.0	6,015.6	6,410.2	5,982.5	43.9	42.6	-92.37	-585.0	-2,215.3	632.8	547.8	84.96	7.448	
6,600.0	6,113.9	6,516.2	6,086.7	44.2	42.9	-92.56	-590.5	-2,233.8	638.4	552.8	85.65	7.454	
6,700.0	6,212.8	6,622.2	6,191.6	44.5	43.2	-92.73	-595.0	-2,248.5	642.9	556.7	86.20	7.458	
6,800.0	6,312.1	6,728.3	6,297.1	44.7	43.4	-92.89	-598.3	-2,259.6	646.3	559.7	86.64	7.460	
6,900.0	6,411.8	6,834.5	6,403.0	44.8	43.6	-93.03	-600.5	-2,266.8	648.6	561.6	86.95	7.460	
7,000.0	6,511.7	6,940.6	6,509.0	44.9	43.6	-93.16	-601.5	-2,270.3	649.7	562.6	87.14	7.456	
7,078.3	6,590.0	7,021.6	6,590.0	44.9	43.7	177.96	-601.6	-2,270.7	649.9	562.6	87.23	7.450	
7,100.0	6,611.7	7,043.3	6,611.7	44.9	43.7	177.96	-601.6	-2,270.7	649.9	562.6	87.25	7.449	
7,200.0	6,711.7	7,143.3	6,711.7	45.0	43.7	177.96	-601.6	-2,270.7	649.9	562.5	87.35	7.440	
7,300.0	6,811.7	7,243.3	6,811.7	45.0	43.8	177.96	-601.6	-2,270.7	649.9	562.4	87.45	7.431	
7,400.0	6,911.7	7,343.3	6,911.7	45.1	43.8	177.96	-601.6	-2,270.7	649.9	562.3	87.55	7.423	
7,500.0	7,011.7	7,443.3	7,011.7	45.1	43.9	177.96	-601.6	-2,270.7	649.9	562.2	87.65	7.414	
7,600.0	7,111.7	7,543.3	7,111.7	45.2	43.9	177.96	-601.6	-2,270.7	649.9	562.1	87.76	7.405	
7,700.0	7,211.7	7,643.3	7,211.7	45.2	44.0	177.96	-601.6	-2,270.7	649.9	562.0	87.86	7.396	
7,800.0	7,311.7	7,743.3	7,311.7	45.3	44.0	177.96	-601.6	-2,270.7	649.9	561.9	87.97	7.387	
7,900.0	7,411.7	7,843.3	7,411.7	45.4	44.1	177.96	-601.6	-2,270.7	649.9	561.8	88.08	7.378	
8,000.0	7,511.7	7,943.3	7,511.7	45.4	44.2	177.96	-601.6	-2,270.7	649.9	561.7	88.19	7.369	
8,100.0	7,611.7	8,043.3	7,611.7	45.5	44.2	177.96	-601.6	-2,270.7	649.9	561.6	88.30	7.360	
8,200.0	7,711.7	8,143.3	7,711.7	45.5	44.3	177.96	-601.6	-2,270.7	649.9	561.5	88.41	7.351	
8,300.0	7,811.7	8,243.3	7,811.7	45.6	44.3	177.96	-601.6	-2,270.7	649.9	561.3	88.52	7.341	
8,400.0	7,911.7	8,343.3	7,911.7	45.6	44.4	177.96	-601.6	-2,270.7	649.9	561.2	88.64	7.332	
8,500.0	8,011.7	8,443.3	8,011.7	45.7	44.4	177.96	-601.6	-2,270.7	649.9	561.1	88.75	7.322	
8,600.0	8,111.7	8,543.3	8,111.7	45.7	44.5	177.96	-601.6	-2,270.7	649.9	561.0	88.87	7.313	
8,700.0	8,211.7	8,643.3	8,211.7	45.8	44.5	177.96	-601.6	-2,270.7	649.9	560.9	88.99	7.303	
8,800.0	8,311.7	8,743.3	8,311.7	45.9	44.6	177.96	-601.6	-2,270.7	649.9	560.8	89.10	7.293	
8,900.0	8,411.7	8,843.3	8,411.7	45.9	44.7	177.96	-601.6	-2,270.7	649.9	560.6	89.22	7.283	
9,000.0	8,511.7	8,943.3	8,511.7	46.0	44.7	177.96	-601.6	-2,270.7	649.9	560.5	89.35	7.274	
9,103.3	8,615.0	9,046.6	8,615.0	46.0	44.8	177.96	-601.6	-2,270.7	649.9	560.4	89.47	7.263	
9,200.0	8,711.7	9,143.3	8,711.7	46.1	44.9	177.96	-601.6	-2,270.7	649.9	560.3	89.59	7.253	
9,300.0	8,811.7	9,243.3	8,811.7	46.2	44.9	177.96	-601.6	-2,270.7	649.9	560.1	89.72	7.243	
9,351.2	8,862.9	9,294.5	8,862.9	46.2	44.9	177.96	-601.6	-2,270.7	649.9	560.1	89.78	7.238	SF
9,403.3	8,915.0	9,311.6	8,880.0	46.2	45.0	177.96	-601.6	-2,270.7	650.8	561.0	89.83	7.245	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-13B2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-68.43	42.6	-107.8	115.9				
100.0	100.0	100.0	100.0	0.1	0.1	-68.43	42.6	-107.8	115.9	115.6	0.27	425.755	
200.0	200.0	200.0	200.0	0.3	0.3	-68.43	42.6	-107.8	115.9	115.3	0.62	186.567	CC, ES
300.0	300.0	295.8	295.8	0.5	0.5	-69.26	41.6	-110.0	117.7	116.7	0.97	121.647	
400.0	400.0	391.2	390.9	0.7	0.7	-71.61	38.8	-116.6	123.2	121.8	1.33	92.349	
500.0	500.0	485.6	484.5	0.8	1.0	-75.04	34.0	-127.3	132.7	130.9	1.74	76.236	
600.0	600.0	578.6	576.1	1.0	1.3	-79.03	27.5	-142.0	146.6	144.4	2.21	66.404	
700.0	700.0	669.8	665.1	1.2	1.7	-83.10	19.4	-160.4	165.3	162.6	2.75	60.115	
750.0	750.0	714.7	708.5	1.3	1.9	-85.05	14.8	-170.9	176.5	173.4	3.05	57.947	
800.0	800.0	759.1	751.1	1.4	2.1	1.89	9.8	-182.1	188.2	185.4	2.86	65.806	
900.0	899.8	847.1	834.8	1.5	2.7	-1.53	-1.2	-207.1	211.5	208.3	3.23	65.545	
1,000.0	999.3	933.9	916.0	1.8	3.3	-4.64	-13.6	-235.3	234.6	231.1	3.57	65.650	
1,100.0	1,098.0	1,023.1	998.0	2.0	3.9	-7.62	-27.7	-267.4	257.4	253.5	3.90	65.980	
1,200.0	1,195.8	1,120.2	1,086.8	2.3	4.7	-10.54	-43.6	-303.3	276.8	272.6	4.22	65.654	
1,300.0	1,292.4	1,218.1	1,176.3	2.8	5.4	-13.29	-59.5	-339.4	291.9	287.4	4.52	64.603	
1,400.0	1,387.5	1,316.4	1,266.3	3.3	6.1	-16.04	-75.5	-375.7	302.6	297.8	4.83	62.701	
1,500.0	1,480.9	1,414.9	1,356.4	3.9	6.9	-18.91	-91.5	-412.1	309.1	303.9	5.18	59.705	
1,609.9	1,581.1	1,523.1	1,455.4	4.8	7.7	-22.36	-109.1	-452.0	311.6	305.9	5.69	54.786	
1,700.0	1,662.3	1,611.6	1,536.5	5.5	8.4	-25.35	-123.5	-484.7	312.1	305.8	6.28	49.728	
1,800.0	1,752.3	1,709.9	1,626.4	6.3	9.1	-28.64	-139.5	-521.0	313.7	306.6	7.09	44.241	
1,900.0	1,842.3	1,808.2	1,716.4	7.1	9.9	-31.90	-155.5	-557.3	316.4	308.3	8.08	39.136	
2,000.0	1,932.4	1,906.5	1,806.3	7.9	10.7	-35.09	-171.5	-593.6	320.1	310.9	9.25	34.603	
2,100.0	2,022.4	2,004.8	1,896.2	8.7	11.4	-38.20	-187.5	-629.8	324.8	314.3	10.57	30.719	
2,200.0	2,112.4	2,103.1	1,986.2	9.5	12.2	-41.21	-203.5	-666.1	330.5	318.5	12.03	27.468	
2,300.0	2,202.5	2,201.4	2,076.1	10.4	12.9	-44.12	-219.5	-702.4	337.1	323.5	13.60	24.779	
2,400.0	2,292.5	2,299.7	2,166.1	11.2	13.7	-46.92	-235.5	-738.7	344.5	329.3	15.27	22.569	
2,500.0	2,382.5	2,398.0	2,256.0	12.0	14.4	-49.59	-251.5	-775.0	352.8	335.8	17.00	20.752	
2,600.0	2,472.6	2,496.3	2,345.9	12.9	15.2	-52.14	-267.5	-811.3	361.8	343.0	18.79	19.256	
2,700.0	2,562.6	2,594.6	2,435.9	13.7	15.9	-54.56	-283.5	-847.6	371.4	350.8	20.62	18.018	
2,800.0	2,652.6	2,692.9	2,525.8	14.5	16.7	-56.86	-299.5	-883.9	381.8	359.3	22.47	16.989	
2,900.0	2,742.7	2,791.2	2,615.8	15.4	17.5	-59.04	-315.5	-920.2	392.7	368.3	24.35	16.129	
3,000.0	2,832.7	2,889.5	2,705.7	16.2	18.2	-61.10	-331.5	-956.5	404.1	377.9	26.23	15.407	
3,100.0	2,922.7	2,987.8	2,795.6	17.1	19.0	-63.04	-347.5	-992.7	416.1	388.0	28.12	14.797	
3,200.0	3,012.8	3,086.1	2,885.6	17.9	19.7	-64.88	-363.5	-1,029.0	428.5	398.5	30.01	14.279	
3,300.0	3,102.8	3,184.4	2,975.5	18.7	20.5	-66.62	-379.5	-1,065.3	441.3	409.4	31.89	13.838	
3,400.0	3,192.8	3,282.7	3,065.5	19.6	21.2	-68.25	-395.5	-1,101.6	454.5	420.7	33.77	13.460	
3,500.0	3,282.9	3,381.0	3,155.4	20.4	22.0	-69.80	-411.5	-1,137.9	468.1	432.4	35.64	13.135	
3,600.0	3,372.9	3,479.3	3,245.3	21.3	22.8	-71.26	-427.5	-1,174.2	481.9	444.4	37.49	12.854	
3,700.0	3,462.9	3,577.6	3,335.3	22.1	23.5	-72.63	-443.5	-1,210.5	496.1	456.8	39.34	12.611	
3,800.0	3,553.0	3,675.9	3,425.2	23.0	24.3	-73.93	-459.5	-1,246.8	510.5	469.4	41.17	12.399	
3,900.0	3,643.0	3,774.2	3,515.2	23.8	25.0	-75.16	-475.5	-1,283.1	525.2	482.2	43.00	12.215	
4,000.0	3,733.0	3,872.5	3,605.1	24.6	25.8	-76.33	-491.5	-1,319.3	540.1	495.3	44.81	12.055	
4,100.0	3,823.1	3,970.8	3,695.0	25.5	26.5	-77.43	-507.5	-1,355.6	555.2	508.6	46.60	11.914	
4,200.0	3,913.1	4,069.0	3,785.0	26.3	27.3	-78.47	-523.5	-1,391.9	570.5	522.2	48.39	11.790	
4,300.0	4,003.2	4,167.3	3,874.9	27.2	28.1	-79.46	-539.5	-1,428.2	586.0	535.9	50.17	11.682	
4,400.0	4,093.2	4,265.6	3,964.9	28.0	28.8	-80.40	-555.5	-1,464.5	601.7	549.7	51.93	11.586	
4,500.0	4,183.2	4,363.9	4,054.8	28.9	29.6	-81.29	-571.5	-1,500.8	617.5	563.8	53.68	11.502	
4,600.0	4,273.3	4,462.2	4,144.7	29.7	30.3	-82.13	-587.4	-1,537.1	633.4	578.0	55.43	11.428	
4,700.0	4,363.3	4,560.5	4,234.7	30.6	31.1	-82.94	-603.4	-1,573.4	649.5	592.3	57.16	11.362	
4,800.0	4,453.3	4,658.8	4,324.6	31.4	31.8	-83.70	-619.4	-1,609.7	665.7	606.8	58.89	11.304	
4,900.0	4,543.4	4,757.1	4,414.6	32.2	32.6	-84.43	-635.4	-1,646.0	682.0	621.4	60.60	11.253	
5,000.0	4,633.4	4,855.4	4,504.5	33.1	33.4	-85.13	-651.4	-1,682.2	698.4	636.1	62.31	11.208	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-13B2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	4,723.4	4,953.7	4,594.4	33.9	34.1	-85.79	-667.4	-1,718.5	714.9	650.9	64.01	11.168	
5,200.0	4,813.5	5,052.0	4,684.4	34.8	34.9	-86.43	-683.4	-1,754.8	731.5	665.7	65.70	11.132	
5,300.0	4,903.5	5,150.3	4,774.3	35.6	35.6	-87.04	-699.4	-1,791.1	748.1	680.7	67.39	11.101	
5,400.0	4,993.5	5,248.6	4,864.3	36.5	36.4	-87.62	-715.4	-1,827.4	764.9	695.8	69.07	11.074	
5,500.0	5,083.6	5,346.9	4,954.2	37.3	37.1	-88.17	-731.4	-1,863.7	781.7	711.0	70.74	11.050	
5,600.0	5,173.6	5,445.2	5,044.1	38.2	37.9	-88.70	-747.4	-1,900.0	798.6	726.2	72.41	11.029	
5,700.0	5,263.6	5,543.5	5,134.1	39.0	38.7	-89.21	-763.4	-1,936.3	815.5	741.5	74.07	11.010 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-13C1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-71.25	33.9	-99.8	105.4				
100.0	100.0	100.0	100.0	0.1	0.1	-71.25	33.9	-99.8	105.4	105.1	0.27	387.111	
200.0	200.0	200.0	200.0	0.3	0.3	-71.25	33.9	-99.8	105.4	104.8	0.62	169.633	CC, ES
300.0	300.0	296.5	296.5	0.5	0.5	-72.25	32.6	-101.9	107.0	106.1	0.97	110.570	
400.0	400.0	392.5	392.2	0.7	0.7	-75.06	28.8	-108.1	112.1	110.8	1.33	84.147	
500.0	500.0	487.5	486.5	0.8	1.0	-79.16	22.7	-118.3	121.2	119.4	1.74	69.786	
600.0	600.0	581.2	578.6	1.0	1.3	-83.88	14.2	-132.2	134.7	132.5	2.20	61.144	
700.0	700.0	673.0	668.2	1.2	1.7	-88.62	3.6	-149.6	153.0	150.2	2.75	55.719	
750.0	750.0	718.1	711.7	1.3	1.9	-90.86	-2.4	-159.5	164.0	161.0	3.04	53.871	
800.0	800.0	762.7	754.6	1.4	2.2	-4.17	-8.9	-170.1	175.7	172.8	2.89	60.788	
900.0	899.8	851.1	838.6	1.5	2.7	-8.10	-23.2	-193.7	199.0	195.7	3.26	61.113	
1,000.0	999.3	938.2	920.0	1.8	3.3	-11.72	-39.3	-220.2	222.3	218.7	3.60	61.819	
1,100.0	1,098.0	1,024.0	998.7	2.0	3.9	-15.10	-57.0	-249.4	245.9	242.0	3.91	62.894	
1,200.0	1,195.8	1,116.0	1,081.7	2.3	4.7	-18.53	-77.6	-283.2	268.9	264.7	4.21	63.808	
1,300.0	1,292.4	1,212.5	1,168.7	2.8	5.5	-21.90	-99.3	-318.9	288.5	284.0	4.53	63.723	
1,400.0	1,387.5	1,309.5	1,256.1	3.3	6.2	-25.23	-121.1	-354.8	304.3	299.5	4.88	62.359	
1,500.0	1,480.9	1,406.7	1,343.8	3.9	7.0	-28.66	-142.9	-390.7	316.7	311.4	5.34	59.356	
1,609.9	1,581.1	1,513.5	1,440.1	4.8	7.9	-32.68	-166.9	-430.2	326.6	320.6	6.06	53.915	
1,700.0	1,662.3	1,601.0	1,518.9	5.5	8.6	-36.15	-186.6	-462.6	333.9	327.1	6.87	48.642	
1,800.0	1,752.3	1,698.0	1,606.4	6.3	9.4	-39.81	-208.4	-498.5	343.5	335.5	7.95	43.222	
1,900.0	1,842.3	1,795.1	1,693.9	7.1	10.2	-43.28	-230.2	-534.4	354.4	345.2	9.20	38.518	
2,000.0	1,932.4	1,892.1	1,781.4	7.9	11.0	-46.54	-252.1	-570.3	366.6	356.0	10.60	34.596	
2,100.0	2,022.4	1,989.2	1,868.9	8.7	11.8	-49.58	-273.9	-606.2	379.9	367.8	12.10	31.393	
2,200.0	2,112.4	2,086.2	1,956.3	9.5	12.6	-52.42	-295.7	-642.1	394.3	380.6	13.69	28.798	
2,300.0	2,202.5	2,183.3	2,043.8	10.4	13.4	-55.07	-317.5	-678.0	409.5	394.2	15.34	26.696	
2,400.0	2,292.5	2,280.3	2,131.3	11.2	14.2	-57.52	-339.3	-713.9	425.6	408.6	17.03	24.986	
2,500.0	2,382.5	2,377.4	2,218.8	12.0	15.0	-59.80	-361.1	-749.8	442.4	423.7	18.76	23.587	
2,600.0	2,472.6	2,474.4	2,306.3	12.9	15.8	-61.91	-383.0	-785.7	459.9	439.4	20.50	22.433	
2,700.0	2,562.6	2,571.5	2,393.8	13.7	16.6	-63.87	-404.8	-821.6	477.9	455.7	22.26	21.473	
2,800.0	2,652.6	2,668.5	2,481.3	14.5	17.4	-65.69	-426.6	-857.5	496.5	472.4	24.02	20.670	
2,900.0	2,742.7	2,765.6	2,568.8	15.4	18.2	-67.38	-448.4	-893.4	515.5	489.7	25.78	19.993	
3,000.0	2,832.7	2,862.6	2,656.3	16.2	19.0	-68.95	-470.2	-929.3	534.9	507.3	27.55	19.418	
3,100.0	2,922.7	2,959.7	2,743.8	17.1	19.8	-70.41	-492.0	-965.2	554.7	525.4	29.31	18.926	
3,200.0	3,012.8	3,056.8	2,831.2	17.9	20.6	-71.77	-513.9	-1,001.1	574.8	543.7	31.06	18.503	
3,300.0	3,102.8	3,153.8	2,918.7	18.7	21.4	-73.04	-535.7	-1,037.0	595.2	562.4	32.82	18.138	
3,400.0	3,192.8	3,250.9	3,006.2	19.6	22.2	-74.23	-557.5	-1,072.9	615.9	581.3	34.56	17.820	
3,500.0	3,282.9	3,347.9	3,093.7	20.4	23.0	-75.34	-579.3	-1,108.8	636.8	600.5	36.30	17.543	
3,600.0	3,372.9	3,445.0	3,181.2	21.3	23.8	-76.38	-601.1	-1,144.7	658.0	619.9	38.03	17.299	
3,700.0	3,462.9	3,542.0	3,268.7	22.1	24.6	-77.36	-622.9	-1,180.6	679.3	639.5	39.76	17.085	
3,800.0	3,553.0	3,639.1	3,356.2	23.0	25.4	-78.27	-644.8	-1,216.5	700.8	659.3	41.48	16.896	
3,900.0	3,643.0	3,736.1	3,443.7	23.8	26.2	-79.14	-666.6	-1,252.4	722.5	679.3	43.19	16.727	
4,000.0	3,733.0	3,833.2	3,531.2	24.6	27.0	-79.95	-688.4	-1,288.3	744.3	699.4	44.90	16.578	
4,100.0	3,823.1	3,930.2	3,618.7	25.5	27.8	-80.72	-710.2	-1,324.2	766.3	719.7	46.60	16.444	
4,200.0	3,913.1	4,027.3	3,706.1	26.3	28.6	-81.44	-732.0	-1,360.1	788.4	740.1	48.29	16.324	
4,300.0	4,003.2	4,124.3	3,793.6	27.2	29.4	-82.13	-753.9	-1,396.0	810.6	760.6	49.98	16.216	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-13C2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-76.69	25.5	-107.8	110.8				
100.0	100.0	100.0	100.0	0.1	0.1	-76.69	25.5	-107.8	110.8	110.5	0.27	406.864	
200.0	200.0	200.0	200.0	0.3	0.3	-76.69	25.5	-107.8	110.8	110.2	0.62	178.289	CC, ES
300.0	300.0	296.4	296.3	0.5	0.5	-77.65	24.0	-109.7	112.4	111.4	0.97	116.141	
400.0	400.0	392.2	391.9	0.7	0.7	-80.35	19.6	-115.5	117.4	116.1	1.33	88.192	
500.0	500.0	487.2	486.1	0.8	1.0	-84.32	12.4	-124.9	126.3	124.6	1.73	72.891	
600.0	600.0	580.7	578.2	1.0	1.3	-88.93	2.6	-137.9	139.6	137.4	2.20	63.594	
700.0	700.0	672.4	667.6	1.2	1.7	-93.61	-9.7	-154.0	157.7	155.0	2.73	57.683	
750.0	750.0	717.4	711.1	1.3	1.9	-95.85	-16.7	-163.2	168.6	165.6	3.03	55.641	
800.0	800.0	762.0	754.0	1.4	2.2	-9.15	-24.3	-173.1	180.1	177.2	2.90	62.072	
900.0	899.8	850.2	837.7	1.5	2.7	-13.16	-40.9	-195.0	203.2	200.0	3.27	62.142	
1,000.0	999.3	937.0	918.9	1.8	3.3	-16.94	-59.6	-219.5	226.6	223.0	3.61	62.733	
1,100.0	1,098.0	1,022.4	997.2	2.0	3.9	-20.54	-80.2	-246.5	250.4	246.5	3.93	63.746	
1,200.0	1,195.8	1,106.2	1,072.6	2.3	4.6	-23.95	-102.4	-275.6	274.9	270.7	4.23	64.975	
1,300.0	1,292.4	1,199.7	1,155.5	2.8	5.4	-27.61	-128.5	-310.0	298.7	294.1	4.56	65.527	
1,400.0	1,387.5	1,295.2	1,240.2	3.3	6.2	-31.21	-155.3	-345.1	319.4	314.4	4.95	64.579	
1,500.0	1,480.9	1,391.0	1,325.2	3.9	7.1	-34.83	-182.1	-380.2	337.2	331.7	5.46	61.771	
1,609.9	1,581.1	1,496.1	1,418.4	4.8	8.0	-38.94	-211.5	-418.9	353.8	347.5	6.27	56.415	
1,700.0	1,662.3	1,582.3	1,494.8	5.5	8.7	-42.50	-235.6	-450.5	367.0	359.8	7.15	51.292	
1,800.0	1,752.3	1,677.8	1,579.6	6.3	9.6	-46.17	-262.4	-485.6	383.3	375.0	8.31	46.112	
1,900.0	1,842.3	1,773.4	1,664.4	7.1	10.4	-49.55	-289.1	-520.8	401.0	391.4	9.62	41.684	
2,000.0	1,932.4	1,869.0	1,749.2	7.9	11.2	-52.64	-315.9	-555.9	420.1	409.1	11.05	38.031	
2,100.0	2,022.4	1,964.6	1,833.9	8.7	12.1	-55.47	-342.6	-591.0	440.3	427.8	12.56	35.064	
2,200.0	2,112.4	2,060.2	1,918.7	9.5	12.9	-58.06	-369.4	-626.1	461.5	447.4	14.13	32.661	
2,300.0	2,202.5	2,155.8	2,003.5	10.4	13.7	-60.42	-396.2	-661.2	483.6	467.9	15.75	30.710	
2,400.0	2,292.5	2,251.4	2,088.3	11.2	14.6	-62.59	-422.9	-696.4	506.4	489.0	17.39	29.116	
2,500.0	2,382.5	2,347.0	2,173.1	12.0	15.4	-64.57	-449.7	-731.5	529.9	510.8	19.06	27.802	
2,600.0	2,472.6	2,442.5	2,257.8	12.9	16.2	-66.38	-476.4	-766.6	553.9	533.1	20.74	26.711	
2,700.0	2,562.6	2,538.1	2,342.6	13.7	17.1	-68.05	-503.2	-801.7	578.4	556.0	22.42	25.797	
2,800.0	2,652.6	2,633.7	2,427.4	14.5	17.9	-69.58	-529.9	-836.8	603.3	579.2	24.11	25.025	
2,900.0	2,742.7	2,729.3	2,512.2	15.4	18.7	-71.00	-556.7	-872.0	628.7	602.9	25.80	24.368	
3,000.0	2,832.7	2,824.9	2,596.9	16.2	19.6	-72.31	-583.5	-907.1	654.3	626.9	27.49	23.804	
3,100.0	2,922.7	2,920.5	2,681.7	17.1	20.4	-73.52	-610.2	-942.2	680.3	651.1	29.18	23.318	
3,200.0	3,012.8	3,016.1	2,766.5	17.9	21.3	-74.64	-637.0	-977.3	706.6	675.7	30.86	22.896	
3,300.0	3,102.8	3,111.6	2,851.3	18.7	22.1	-75.68	-663.7	-1,012.4	733.0	700.5	32.54	22.527	
3,400.0	3,192.8	3,207.2	2,936.1	19.6	22.9	-76.65	-690.5	-1,047.6	759.7	725.5	34.22	22.203	
3,500.0	3,282.9	3,302.8	3,020.8	20.4	23.8	-77.56	-717.2	-1,082.7	786.6	750.7	35.89	21.917	
3,600.0	3,372.9	3,398.4	3,105.6	21.3	24.6	-78.40	-744.0	-1,117.8	813.7	776.1	37.56	21.663	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-14B1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-180.00	-17.1	0.0	17.1				
100.0	100.0	100.0	100.0	0.1	0.1	-180.00	-17.1	0.0	17.1	16.8	0.27	62.876	
200.0	200.0	200.0	200.0	0.3	0.3	-180.00	-17.1	0.0	17.1	16.5	0.62	27.552	CC, ES
300.0	300.0	298.9	298.8	0.5	0.5	-178.97	-20.8	-0.4	20.9	19.9	0.98	21.368	
400.0	400.0	398.0	397.6	0.7	0.7	-170.26	-27.5	-4.7	28.0	26.7	1.36	20.604	
500.0	500.0	496.9	495.8	0.8	1.0	-159.56	-35.6	-13.2	38.2	36.4	1.78	21.507	
600.0	600.0	596.1	594.2	1.0	1.2	-152.95	-43.8	-22.4	49.5	47.3	2.21	22.428	
700.0	700.0	695.4	692.7	1.2	1.5	-148.84	-52.1	-31.5	61.3	58.7	2.65	23.137	
750.0	750.0	745.0	741.9	1.3	1.6	-147.32	-56.2	-36.1	67.3	64.4	2.87	23.427	
800.0	800.0	794.6	791.2	1.4	1.7	-57.54	-60.4	-40.6	72.9	70.2	2.72	26.809	
900.0	899.8	894.2	890.0	1.5	2.0	-58.26	-68.6	-49.8	82.2	79.1	3.08	26.644	
1,000.0	999.3	993.8	988.9	1.8	2.3	-61.75	-76.9	-58.9	88.9	85.4	3.49	25.479	
1,100.0	1,098.0	1,093.2	1,087.5	2.0	2.6	-67.63	-85.2	-68.1	93.8	89.8	3.98	23.582	
1,200.0	1,195.8	1,192.1	1,185.6	2.3	2.8	-75.72	-93.5	-77.2	98.2	93.6	4.60	21.328	
1,300.0	1,292.4	1,290.3	1,283.1	2.8	3.1	-85.66	-101.6	-86.2	104.0	98.6	5.40	19.264	
1,400.0	1,387.5	1,387.5	1,379.5	3.3	3.4	-96.68	-109.7	-95.1	113.2	106.9	6.31	17.949	
1,500.0	1,480.9	1,483.3	1,474.6	3.9	3.6	-107.66	-117.7	-103.9	127.8	120.6	7.22	17.695	SF
1,609.9	1,581.1	1,586.9	1,577.3	4.8	3.9	-118.53	-126.3	-113.5	151.3	143.2	8.12	18.630	
1,700.0	1,662.3	1,670.9	1,660.7	5.5	4.2	-126.20	-133.3	-121.2	175.5	166.8	8.72	20.128	
1,800.0	1,752.3	1,764.2	1,753.2	6.3	4.4	-132.58	-141.1	-129.8	205.1	195.8	9.29	22.066	
1,900.0	1,842.3	1,857.4	1,845.8	7.1	4.7	-137.37	-148.9	-138.3	236.5	226.7	9.82	24.088	
2,000.0	1,932.4	1,950.7	1,938.3	7.9	4.9	-141.05	-156.6	-146.9	269.1	258.7	10.31	26.085	
2,100.0	2,022.4	2,043.9	2,030.9	8.7	5.2	-143.94	-164.4	-155.5	302.4	291.6	10.80	28.007	
2,200.0	2,112.4	2,137.2	2,123.4	9.5	5.5	-146.27	-172.2	-164.1	336.4	325.1	11.28	29.831	
2,300.0	2,202.5	2,230.5	2,216.0	10.4	5.7	-148.17	-179.9	-172.6	370.7	358.9	11.75	31.549	
2,400.0	2,292.5	2,323.7	2,308.5	11.2	6.0	-149.75	-187.7	-181.2	405.3	393.1	12.22	33.162	
2,500.0	2,382.5	2,417.0	2,401.0	12.0	6.2	-151.09	-195.5	-189.8	440.2	427.5	12.70	34.673	
2,600.0	2,472.6	2,510.3	2,493.6	12.9	6.5	-152.23	-203.2	-198.4	475.2	462.1	13.17	36.089	
2,700.0	2,562.6	2,603.5	2,586.1	13.7	6.8	-153.21	-211.0	-206.9	510.4	496.8	13.64	37.416	
2,800.0	2,652.6	2,696.8	2,678.7	14.5	7.0	-154.07	-218.8	-215.5	545.8	531.6	14.12	38.660	
2,900.0	2,742.7	2,790.1	2,771.2	15.4	7.3	-154.83	-226.5	-224.1	581.2	566.6	14.59	39.827	
3,000.0	2,832.7	2,883.3	2,863.8	16.2	7.5	-155.49	-234.3	-232.7	616.6	601.6	15.07	40.925	
3,100.0	2,922.7	2,976.6	2,956.3	17.1	7.8	-156.09	-242.1	-241.2	652.2	636.7	15.54	41.957	
3,200.0	3,012.8	3,069.8	3,048.9	17.9	8.1	-156.62	-249.8	-249.8	687.8	671.8	16.02	42.930	
3,300.0	3,102.8	3,163.1	3,141.4	18.7	8.3	-157.11	-257.6	-258.4	723.5	707.0	16.50	43.848	
3,400.0	3,192.8	3,256.4	3,233.9	19.6	8.6	-157.54	-265.4	-267.0	759.1	742.2	16.98	44.715	
3,500.0	3,282.9	3,349.6	3,326.5	20.4	8.8	-157.94	-273.1	-275.5	794.9	777.4	17.46	45.536	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-14B2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-94.44	-8.4	-107.8	108.1				
100.0	100.0	100.0	100.0	0.1	0.1	-94.44	-8.4	-107.8	108.1	107.9	0.27	397.134	
200.0	200.0	200.0	200.0	0.3	0.3	-94.44	-8.4	-107.8	108.1	107.5	0.62	174.025	CC, ES
300.0	300.0	297.1	297.0	0.5	0.5	-95.55	-10.6	-108.9	109.5	108.5	0.97	113.109	
400.0	400.0	393.6	393.3	0.7	0.7	-98.68	-17.1	-112.2	113.7	112.4	1.33	85.688	
500.0	500.0	489.2	488.1	0.8	1.0	-103.33	-27.9	-117.7	121.5	119.8	1.72	70.686	
600.0	600.0	586.9	584.5	1.0	1.3	-108.58	-41.9	-124.8	132.6	130.4	2.15	61.606	
700.0	700.0	685.6	681.9	1.2	1.6	-113.09	-56.3	-132.0	144.7	142.1	2.61	55.376	
750.0	750.0	734.9	730.5	1.3	1.7	-115.07	-63.5	-135.7	151.0	148.2	2.85	52.993	
800.0	800.0	784.3	779.3	1.4	1.9	-28.11	-70.6	-139.3	157.0	154.1	2.91	53.914	
900.0	899.8	883.2	876.8	1.5	2.2	-32.11	-85.0	-146.6	166.0	162.8	3.27	50.755	
1,000.0	999.3	982.0	974.4	1.8	2.5	-36.72	-99.4	-153.8	171.7	168.1	3.61	47.525	
1,100.0	1,098.0	1,080.6	1,071.6	2.0	2.9	-42.12	-113.7	-161.1	174.5	170.5	3.95	44.152	
1,200.0	1,195.8	1,178.5	1,168.2	2.3	3.2	-48.52	-127.9	-168.3	175.4	171.0	4.33	40.484	
1,300.0	1,292.4	1,275.6	1,264.1	2.8	3.5	-56.07	-142.0	-175.4	175.5	170.7	4.82	36.407	
1,400.0	1,387.5	1,371.6	1,358.8	3.3	3.8	-64.78	-156.0	-182.5	176.6	171.1	5.51	32.066	
1,500.0	1,480.9	1,466.3	1,452.1	3.9	4.2	-74.43	-169.7	-189.4	180.6	174.1	6.45	27.997	
1,609.9	1,581.1	1,568.4	1,552.9	4.8	4.5	-85.53	-184.6	-196.9	190.7	183.0	7.75	24.601	
1,700.0	1,662.3	1,651.2	1,634.6	5.5	4.8	-94.43	-196.6	-203.0	205.0	196.1	8.85	23.153	
1,800.0	1,752.3	1,743.1	1,725.3	6.3	5.1	-102.93	-209.9	-209.8	226.3	216.3	10.00	22.636	SF
1,900.0	1,842.3	1,835.0	1,815.9	7.1	5.4	-109.98	-223.3	-216.5	252.1	241.0	11.03	22.843	
2,000.0	1,932.4	1,926.9	1,906.6	7.9	5.7	-115.76	-236.6	-223.3	281.0	269.0	11.97	23.475	
2,100.0	2,022.4	2,018.8	1,997.3	8.7	6.0	-120.50	-250.0	-230.1	312.2	299.4	12.83	24.344	
2,200.0	2,112.4	2,110.7	2,087.9	9.5	6.3	-124.40	-263.3	-236.8	345.2	331.5	13.62	25.338	
2,300.0	2,202.5	2,202.6	2,178.6	10.4	6.6	-127.65	-276.7	-243.6	379.3	365.0	14.38	26.385	
2,400.0	2,292.5	2,294.5	2,269.3	11.2	6.9	-130.37	-290.0	-250.3	414.4	399.3	15.10	27.446	
2,500.0	2,382.5	2,386.4	2,360.0	12.0	7.2	-132.67	-303.4	-257.1	450.2	434.4	15.80	28.494	
2,600.0	2,472.6	2,478.3	2,450.6	12.9	7.5	-134.64	-316.8	-263.8	486.6	470.1	16.49	29.515	
2,700.0	2,562.6	2,570.2	2,541.3	13.7	7.8	-136.35	-330.1	-270.6	523.4	506.3	17.16	30.501	
2,800.0	2,652.6	2,662.1	2,632.0	14.5	8.1	-137.83	-343.5	-277.4	560.6	542.8	17.83	31.447	
2,900.0	2,742.7	2,754.0	2,722.7	15.4	8.4	-139.13	-356.8	-284.1	598.1	579.6	18.49	32.352	
3,000.0	2,832.7	2,845.9	2,813.3	16.2	8.8	-140.28	-370.2	-290.9	635.8	616.6	19.14	33.215	
3,100.0	2,922.7	2,937.8	2,904.0	17.1	9.1	-141.30	-383.5	-297.6	673.7	653.9	19.79	34.037	
3,200.0	3,012.8	3,029.7	2,994.7	17.9	9.4	-142.21	-396.9	-304.4	711.7	691.3	20.44	34.820	
3,300.0	3,102.8	3,121.6	3,085.3	18.7	9.7	-143.04	-410.2	-311.1	749.9	728.8	21.09	35.564	
3,400.0	3,192.8	3,213.5	3,176.0	19.6	10.0	-143.78	-423.6	-317.9	788.3	766.5	21.73	36.273	
3,500.0	3,282.9	3,305.4	3,266.7	20.4	10.3	-144.45	-436.9	-324.7	826.7	804.3	22.37	36.948	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-14C - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-90.00	0.0	-99.8	99.8				
100.0	100.0	100.0	100.0	0.1	0.1	-90.00	0.0	-99.8	99.8	99.5	0.27	366.573	
200.0	200.0	200.0	200.0	0.3	0.3	-90.00	0.0	-99.8	99.8	99.2	0.62	160.633	CC, ES
300.0	300.0	298.2	298.1	0.5	0.5	-91.35	-2.4	-100.7	100.7	99.7	0.97	104.000	
400.0	400.0	395.8	395.4	0.7	0.7	-95.21	-9.4	-103.2	103.8	102.5	1.32	78.443	
500.0	500.0	492.4	491.3	0.8	1.0	-101.05	-21.0	-107.5	109.8	108.1	1.70	64.527	
600.0	600.0	587.5	584.9	1.0	1.3	-108.00	-36.8	-113.2	120.0	117.9	2.14	56.144	
700.0	700.0	684.1	679.2	1.2	1.7	-115.03	-56.2	-120.3	134.4	131.8	2.64	50.905	
750.0	750.0	732.9	726.9	1.3	1.9	-118.07	-66.1	-123.9	142.4	139.4	2.91	48.919	
800.0	800.0	781.8	774.6	1.4	2.1	-31.99	-76.0	-127.6	150.1	147.1	3.02	49.634	
900.0	899.8	879.6	870.2	1.5	2.5	-37.43	-95.8	-134.8	163.4	160.0	3.39	48.277	
1,000.0	999.3	977.5	965.7	1.8	2.9	-43.13	-115.7	-142.0	174.3	170.6	3.71	46.926	
1,100.0	1,098.0	1,075.0	1,060.9	2.0	3.3	-49.27	-135.4	-149.3	183.5	179.4	4.04	45.438	
1,200.0	1,195.8	1,171.9	1,155.6	2.3	3.7	-55.94	-155.1	-156.4	191.7	187.3	4.40	43.546	
1,300.0	1,292.4	1,268.1	1,249.4	2.8	4.1	-63.14	-174.6	-163.6	200.3	195.4	4.88	41.010	
1,400.0	1,387.5	1,363.1	1,342.2	3.3	4.5	-70.77	-193.8	-170.6	210.3	204.8	5.55	37.865	
1,500.0	1,480.9	1,456.7	1,433.6	3.9	4.8	-78.60	-212.8	-177.5	223.3	216.8	6.46	34.552	
1,609.9	1,581.1	1,557.8	1,532.3	4.8	5.3	-87.09	-233.3	-185.0	242.3	234.6	7.71	31.413	
1,700.0	1,662.3	1,639.7	1,612.3	5.5	5.6	-93.97	-249.9	-191.1	262.4	253.6	8.81	29.787	
1,800.0	1,752.3	1,730.7	1,701.1	6.3	6.0	-100.52	-268.3	-197.8	288.7	278.7	10.01	28.848	
1,900.0	1,842.3	1,821.6	1,789.9	7.1	6.4	-106.01	-286.8	-204.5	318.4	307.2	11.16	28.524	SF
2,000.0	1,932.4	1,912.6	1,878.7	7.9	6.7	-110.61	-305.2	-211.3	350.4	338.2	12.26	28.590	
2,100.0	2,022.4	2,003.5	1,967.5	8.7	7.1	-114.48	-323.6	-218.0	384.3	371.0	13.30	28.897	
2,200.0	2,112.4	2,094.5	2,056.3	9.5	7.5	-117.74	-342.1	-224.7	419.6	405.3	14.30	29.348	
2,300.0	2,202.5	2,185.4	2,145.1	10.4	7.9	-120.51	-360.5	-231.5	455.9	440.7	15.26	29.883	
2,400.0	2,292.5	2,276.4	2,234.0	11.2	8.2	-122.88	-378.9	-238.2	493.1	476.9	16.19	30.461	
2,500.0	2,382.5	2,367.3	2,322.8	12.0	8.6	-124.94	-397.4	-244.9	530.9	513.8	17.09	31.058	
2,600.0	2,472.6	2,458.3	2,411.6	12.9	9.0	-126.72	-415.8	-251.7	569.2	551.2	17.98	31.657	
2,700.0	2,562.6	2,549.2	2,500.4	13.7	9.4	-128.29	-434.2	-258.4	608.0	589.1	18.85	32.249	
2,800.0	2,652.6	2,640.2	2,589.2	14.5	9.8	-129.67	-452.7	-265.1	647.1	627.4	19.71	32.827	
2,900.0	2,742.7	2,731.1	2,678.0	15.4	10.1	-130.89	-471.1	-271.9	686.5	665.9	20.56	33.387	
3,000.0	2,832.7	2,822.1	2,766.8	16.2	10.5	-131.99	-489.6	-278.6	726.2	704.8	21.40	33.927	
3,100.0	2,922.7	2,913.0	2,855.6	17.1	10.9	-132.97	-508.0	-285.3	766.0	743.8	22.24	34.446	
3,200.0	3,012.8	3,004.0	2,944.4	17.9	11.3	-133.86	-526.4	-292.1	806.0	783.0	23.07	34.943	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 28-16C - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	135.67	-8.4	8.2	11.7				
100.0	100.0	100.0	100.0	0.1	0.1	135.67	-8.4	8.2	11.7	11.4	0.27	43.014	
200.0	200.0	200.0	200.0	0.3	0.3	135.67	-8.4	8.2	11.7	11.1	0.62	18.849	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	135.13	-10.1	10.1	14.3	13.3	0.98	14.636	SF
400.0	400.0	398.1	397.7	0.7	0.7	134.28	-15.3	15.7	22.1	20.7	1.37	16.121	
500.0	500.0	495.8	494.6	0.8	1.0	133.71	-23.9	25.0	35.0	33.2	1.82	19.211	
600.0	600.0	592.0	589.2	1.0	1.3	133.37	-35.6	37.6	52.9	50.5	2.34	22.587	
700.0	700.0	686.2	680.9	1.2	1.8	133.18	-50.1	53.4	75.7	72.8	2.93	25.793	
750.0	750.0	732.4	725.5	1.3	2.0	133.11	-58.4	62.4	88.9	85.6	3.26	27.260	
800.0	800.0	777.9	769.1	1.4	2.2	-138.07	-67.2	71.9	103.7	101.0	2.68	38.750	
900.0	899.8	865.7	852.3	1.5	2.8	-138.77	-86.3	92.6	139.4	136.4	3.00	46.515	
1,000.0	999.3	954.1	935.1	1.8	3.3	-139.87	-107.4	115.5	181.9	178.6	3.32	54.744	
1,100.0	1,098.0	1,042.4	1,017.6	2.0	3.9	-141.06	-128.5	138.4	228.4	224.8	3.66	62.358	
1,200.0	1,195.8	1,128.4	1,098.1	2.3	4.5	-142.18	-149.1	160.7	278.8	274.7	4.02	69.323	
1,300.0	1,292.4	1,211.9	1,176.2	2.8	5.0	-143.16	-169.2	182.4	332.9	328.5	4.40	75.630	
1,400.0	1,387.5	1,292.6	1,251.7	3.3	5.5	-143.97	-188.5	203.4	390.8	386.0	4.81	81.271	
1,500.0	1,480.9	1,370.5	1,324.5	3.9	6.0	-144.61	-207.2	223.6	452.5	447.3	5.25	86.244	
1,609.9	1,581.1	1,452.4	1,401.1	4.8	6.6	-145.10	-226.8	244.9	524.4	518.7	5.77	90.898	
1,700.0	1,662.3	1,517.9	1,462.4	5.5	7.0	-146.64	-242.5	261.9	585.3	579.1	6.23	93.973	
1,800.0	1,752.3	1,590.6	1,530.4	6.3	7.5	-148.02	-259.9	280.8	653.1	646.3	6.74	96.834	
1,900.0	1,842.3	1,663.3	1,598.4	7.1	8.0	-149.15	-277.4	299.7	721.0	713.7	7.26	99.265	
2,000.0	1,932.4	1,736.0	1,666.4	7.9	8.4	-150.09	-294.8	318.6	789.0	781.3	7.78	101.370	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 33-3B - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-99.73	-17.1	-99.8	101.3				
100.0	100.0	100.0	100.0	0.1	0.1	-99.73	-17.1	-99.8	101.3	101.0	0.27	371.927	
200.0	200.0	200.0	200.0	0.3	0.3	-99.73	-17.1	-99.8	101.3	100.6	0.62	162.979	CC
300.0	300.0	299.4	299.3	0.5	0.5	-100.69	-18.8	-99.8	101.6	100.6	0.97	104.771	ES
400.0	400.0	398.5	398.3	0.7	0.7	-103.52	-24.0	-99.8	102.7	101.3	1.32	77.866	
500.0	500.0	496.2	495.6	0.8	0.9	-108.04	-32.6	-100.0	105.2	103.6	1.67	62.998	
600.0	600.0	591.8	590.4	1.0	1.2	-114.07	-45.3	-101.5	111.6	109.5	2.05	54.448	
700.0	700.0	685.9	682.9	1.2	1.5	-120.81	-62.3	-104.4	122.8	120.3	2.49	49.339	
750.0	750.0	732.3	728.2	1.3	1.7	-124.16	-72.2	-106.4	130.4	127.7	2.74	47.565	
800.0	800.0	778.2	772.7	1.4	1.9	-38.56	-83.1	-108.7	139.0	136.0	2.99	46.519	
900.0	899.8	868.3	859.3	1.5	2.4	-45.18	-107.3	-114.3	157.9	154.5	3.37	46.816	
1,000.0	999.3	957.9	944.2	1.8	2.9	-51.81	-135.1	-121.1	179.8	176.1	3.71	48.411	
1,100.0	1,098.0	1,052.2	1,033.2	2.0	3.4	-58.40	-165.4	-128.6	202.8	198.8	4.05	50.023	
1,200.0	1,195.8	1,146.0	1,121.6	2.3	4.0	-64.57	-195.6	-136.1	226.2	221.7	4.43	51.014	
1,300.0	1,292.4	1,239.0	1,209.4	2.8	4.5	-70.43	-225.6	-143.5	250.5	245.6	4.91	50.992	
1,400.0	1,387.5	1,331.0	1,296.1	3.3	5.1	-76.00	-255.2	-150.8	276.3	270.8	5.54	49.853	
1,500.0	1,480.9	1,421.6	1,381.7	3.9	5.6	-81.27	-284.4	-158.1	304.3	298.0	6.36	47.858	
1,609.9	1,581.1	1,519.5	1,474.0	4.8	6.2	-86.66	-315.9	-165.9	338.2	330.7	7.48	45.226	
1,700.0	1,662.3	1,598.9	1,548.9	5.5	6.7	-91.45	-341.5	-172.2	368.8	360.3	8.50	43.399	
1,800.0	1,752.3	1,687.0	1,632.0	6.3	7.2	-95.97	-369.9	-179.3	405.3	395.6	9.68	41.883	
1,900.0	1,842.3	1,775.1	1,715.2	7.1	7.7	-99.80	-398.2	-186.3	443.9	433.0	10.87	40.818	
2,000.0	1,932.4	1,863.3	1,798.3	7.9	8.3	-103.06	-426.6	-193.3	484.0	471.9	12.07	40.095	
2,100.0	2,022.4	1,951.4	1,881.4	8.7	8.8	-105.84	-455.0	-200.4	525.2	512.0	13.26	39.621	
2,200.0	2,112.4	2,039.5	1,964.5	9.5	9.3	-108.23	-483.4	-207.4	567.5	553.0	14.43	39.326	
2,300.0	2,202.5	2,127.6	2,047.7	10.4	9.9	-110.31	-511.7	-214.4	610.4	594.8	15.59	39.158	
2,400.0	2,292.5	2,215.7	2,130.8	11.2	10.4	-112.12	-540.1	-221.5	654.0	637.3	16.74	39.080	
2,500.0	2,382.5	2,303.8	2,213.9	12.0	10.9	-113.71	-568.5	-228.5	698.0	680.2	17.87	39.066	SF
2,600.0	2,472.6	2,392.0	2,297.0	12.9	11.5	-115.12	-596.8	-235.5	742.5	723.5	18.99	39.097	
2,700.0	2,562.6	2,480.1	2,380.2	13.7	12.0	-116.38	-625.2	-242.6	787.3	767.2	20.10	39.161	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Federal 33-4B - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-85.56	8.4	-107.8	108.1				
100.0	100.0	100.0	100.0	0.1	0.1	-85.56	8.4	-107.8	108.1	107.9	0.27	397.134	
200.0	200.0	200.0	200.0	0.3	0.3	-85.56	8.4	-107.8	108.1	107.5	0.62	174.025	CC, ES
300.0	300.0	296.2	296.2	0.5	0.5	-86.48	6.7	-109.6	109.9	108.9	0.97	113.500	
400.0	400.0	391.9	391.6	0.7	0.7	-89.07	1.9	-114.9	115.2	113.9	1.33	86.384	
500.0	500.0	486.7	485.6	0.8	1.0	-92.85	-6.2	-123.6	124.6	122.9	1.74	71.615	
600.0	600.0	580.0	577.5	1.0	1.3	-97.20	-17.1	-135.5	138.5	136.3	2.21	62.716	
700.0	700.0	671.6	666.8	1.2	1.7	-101.58	-30.8	-150.4	157.1	154.4	2.75	57.125	
750.0	750.0	716.6	710.3	1.3	1.9	-103.66	-38.6	-158.9	168.3	165.2	3.05	55.225	
800.0	800.0	761.1	753.1	1.4	2.1	-16.77	-47.0	-168.0	180.1	177.2	2.87	62.835	
900.0	899.8	849.1	836.7	1.5	2.7	-20.55	-65.6	-188.2	203.8	200.6	3.23	63.177	
1,000.0	999.3	935.5	917.5	1.8	3.3	-24.21	-86.3	-210.8	228.1	224.5	3.56	64.019	
1,100.0	1,098.0	1,020.4	995.4	2.0	3.9	-27.75	-109.1	-235.5	253.0	249.1	3.88	65.210	
1,200.0	1,195.8	1,100.0	1,067.1	2.3	4.5	-30.97	-132.5	-261.0	279.0	274.8	4.19	66.533	
1,300.0	1,292.4	1,185.1	1,142.0	2.8	5.3	-34.33	-159.8	-290.7	306.1	301.5	4.55	67.265	
1,400.0	1,387.5	1,276.1	1,220.8	3.3	6.2	-37.82	-190.6	-324.2	333.3	328.3	4.99	66.775	
1,500.0	1,480.9	1,369.9	1,302.0	3.9	7.0	-41.33	-222.3	-358.7	358.2	352.6	5.58	64.191	
1,609.9	1,581.1	1,472.9	1,391.2	4.8	8.0	-45.21	-257.2	-396.7	383.2	376.7	6.48	59.098	
1,700.0	1,662.3	1,557.3	1,464.3	5.5	8.8	-48.67	-285.8	-427.8	403.6	396.2	7.43	54.312	
1,800.0	1,752.3	1,651.0	1,545.4	6.3	9.7	-52.13	-317.5	-462.3	427.9	419.2	8.64	49.544	
1,900.0	1,842.3	1,744.7	1,626.5	7.1	10.6	-55.24	-349.2	-496.7	453.5	443.5	9.97	45.509	
2,000.0	1,932.4	1,838.3	1,707.6	7.9	11.4	-58.03	-380.9	-531.2	480.3	468.9	11.39	42.187	
2,100.0	2,022.4	1,932.0	1,788.7	8.7	12.3	-60.53	-412.7	-565.7	508.1	495.3	12.87	39.480	
2,200.0	2,112.4	2,025.7	1,869.9	9.5	13.2	-62.78	-444.4	-600.2	536.8	522.4	14.40	37.274	
2,300.0	2,202.5	2,119.3	1,951.0	10.4	14.1	-64.81	-476.1	-634.7	566.2	550.2	15.96	35.467	
2,400.0	2,292.5	2,213.0	2,032.1	11.2	15.0	-66.64	-507.8	-669.2	596.2	578.6	17.55	33.975	
2,500.0	2,382.5	2,306.7	2,113.2	12.0	15.9	-68.30	-539.5	-703.7	626.7	607.5	19.15	32.732	
2,600.0	2,472.6	2,400.4	2,194.3	12.9	16.7	-69.82	-571.2	-738.2	657.6	636.9	20.75	31.688	
2,700.0	2,562.6	2,494.0	2,275.4	13.7	17.6	-71.19	-603.0	-772.7	688.9	666.6	22.37	30.803	
2,800.0	2,652.6	2,587.7	2,356.5	14.5	18.5	-72.46	-634.7	-807.2	720.6	696.6	23.98	30.047	
2,900.0	2,742.7	2,681.4	2,437.6	15.4	19.4	-73.61	-666.4	-841.7	752.6	727.0	25.60	29.396	
3,000.0	2,832.7	2,775.1	2,518.7	16.2	20.3	-74.68	-698.1	-876.2	784.8	757.6	27.22	28.831	
3,100.0	2,922.7	2,868.7	2,599.8	17.1	21.2	-75.66	-729.8	-910.7	817.3	788.4	28.84	28.338	SF

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 28-10D2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	17.80	25.5	8.2	26.8				
100.0	100.0	100.0	100.0	0.1	0.1	17.80	25.5	8.2	26.8	26.5	0.27	98.351	
200.0	200.0	200.0	200.0	0.3	0.3	17.80	25.5	8.2	26.8	26.2	0.62	43.097	CC, ES
300.0	300.0	299.4	299.4	0.5	0.5	22.80	25.6	10.8	27.8	26.8	0.97	28.626	
400.0	400.0	398.3	398.0	0.7	0.7	35.42	26.0	18.5	31.9	30.6	1.34	23.884	
500.0	500.0	496.1	495.0	0.8	1.0	49.51	26.5	31.1	41.2	39.4	1.76	23.362	SF
600.0	600.0	593.2	590.4	1.0	1.3	60.50	27.3	48.3	56.3	54.0	2.26	24.855	
700.0	700.0	691.3	686.8	1.2	1.7	67.18	28.1	66.9	73.8	71.0	2.80	26.370	
750.0	750.0	740.4	735.0	1.3	1.9	69.45	28.6	76.2	82.8	79.7	3.07	26.981	
800.0	800.0	789.4	783.1	1.4	2.0	160.12	29.0	85.5	92.5	89.7	2.76	33.519	
900.0	899.8	886.4	878.4	1.5	2.4	163.38	29.8	103.9	115.8	112.7	3.08	37.566	
1,000.0	999.3	982.1	972.3	1.8	2.7	166.00	30.6	122.1	144.2	140.8	3.39	42.496	
1,100.0	1,098.0	1,076.1	1,064.6	2.0	3.1	168.04	31.4	139.9	177.8	174.1	3.70	48.090	
1,200.0	1,195.8	1,168.2	1,155.0	2.3	3.4	169.63	32.2	157.4	216.3	212.3	3.99	54.218	
1,300.0	1,292.4	1,258.1	1,243.2	2.8	3.8	170.87	33.0	174.4	259.7	255.4	4.27	60.797	
1,400.0	1,387.5	1,345.6	1,329.1	3.3	4.1	171.84	33.8	191.1	307.8	303.3	4.54	67.779	
1,500.0	1,480.9	1,430.4	1,412.5	3.9	4.4	172.60	34.5	207.2	360.5	355.7	4.80	75.133	
1,609.9	1,581.1	1,520.4	1,500.7	4.8	4.8	173.26	35.3	224.2	423.4	418.3	5.06	83.615	
1,700.0	1,662.3	1,592.6	1,571.6	5.5	5.0	173.88	35.9	237.9	477.1	471.8	5.34	89.374	
1,800.0	1,752.3	1,672.7	1,650.3	6.3	5.3	174.43	36.6	253.1	536.8	531.2	5.64	95.114	
1,900.0	1,842.3	1,752.9	1,729.0	7.1	5.7	174.86	37.2	268.3	596.5	590.6	5.95	100.271	
2,000.0	1,932.4	1,833.0	1,807.7	7.9	6.0	175.22	37.9	283.6	656.2	650.0	6.25	104.931	
2,100.0	2,022.4	1,913.2	1,886.4	8.7	6.3	175.52	38.6	298.8	716.0	709.4	6.56	109.163	
2,200.0	2,112.4	1,993.3	1,965.1	9.5	6.6	175.77	39.3	314.0	775.7	768.9	6.86	113.025	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 28-11A - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	33.9	0.0	33.9				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	33.9	0.0	33.9	33.6	0.27	124.414	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	33.9	0.0	33.9	33.3	0.62	54.518	CC, ES
300.0	300.0	299.0	299.0	0.5	0.5	-3.59	35.2	-2.2	35.3	34.3	0.97	36.298	
400.0	400.0	397.5	397.2	0.7	0.7	-12.67	39.1	-8.8	40.1	38.8	1.34	29.916	
500.0	500.0	496.6	495.6	0.8	0.9	-22.26	44.7	-18.3	48.5	46.8	1.74	27.805	
600.0	600.0	596.0	594.4	1.0	1.2	-28.98	50.4	-27.9	57.9	55.7	2.16	26.735	
700.0	700.0	695.3	693.1	1.2	1.5	-33.78	56.1	-37.5	67.8	65.2	2.59	26.147	
750.0	750.0	745.0	742.5	1.3	1.6	-35.69	58.9	-42.3	72.9	70.1	2.81	25.953	
800.0	800.0	794.8	791.9	1.4	1.7	51.73	61.8	-47.1	77.7	74.9	2.76	28.110	
900.0	899.8	894.5	891.0	1.5	2.0	51.45	67.5	-56.8	84.9	81.7	3.13	27.109	
1,000.0	999.3	994.3	990.2	1.8	2.2	53.90	73.2	-66.4	88.9	85.3	3.54	25.140	
1,100.0	1,098.0	1,094.0	1,089.2	2.0	2.5	58.94	78.9	-76.1	90.2	86.2	4.02	22.465	
1,200.0	1,195.8	1,193.2	1,187.8	2.3	2.7	66.75	84.6	-85.7	90.1	85.4	4.63	19.441	
1,239.5	1,234.1	1,232.2	1,226.6	2.5	2.9	70.65	86.8	-89.4	90.0	85.1	4.94	18.227	
1,300.0	1,292.4	1,291.7	1,285.7	2.8	3.0	77.50	90.2	-95.2	90.3	84.9	5.43	16.625	
1,400.0	1,387.5	1,389.2	1,382.6	3.3	3.3	90.70	95.8	-104.6	93.8	87.4	6.38	14.703	
1,500.0	1,480.9	1,485.5	1,478.3	3.9	3.5	104.80	101.3	-113.9	103.2	95.9	7.29	14.157	SF
1,609.9	1,581.1	1,589.5	1,581.6	4.8	3.8	118.98	107.2	-124.0	122.7	114.7	8.07	15.202	
1,700.0	1,662.3	1,674.0	1,665.6	5.5	4.0	128.53	112.1	-132.2	144.9	136.4	8.50	17.042	
1,800.0	1,752.3	1,767.7	1,758.7	6.3	4.3	136.18	117.4	-141.2	172.9	164.0	8.88	19.463	
1,900.0	1,842.3	1,861.4	1,851.8	7.1	4.5	141.71	122.8	-150.3	203.0	193.8	9.23	21.997	
2,000.0	1,932.4	1,955.2	1,944.9	7.9	4.7	145.82	128.2	-159.4	234.5	224.9	9.57	24.500	
2,100.0	2,022.4	2,048.9	2,038.1	8.7	5.0	148.97	133.5	-168.4	266.8	256.9	9.92	26.906	
2,200.0	2,112.4	2,142.6	2,131.2	9.5	5.2	151.44	138.9	-177.5	299.7	289.4	10.27	29.186	
2,300.0	2,202.5	2,236.3	2,224.3	10.4	5.5	153.43	144.3	-186.5	333.0	322.3	10.63	31.332	
2,400.0	2,292.5	2,330.0	2,317.5	11.2	5.7	155.06	149.6	-195.6	366.5	355.5	10.99	33.344	
2,500.0	2,382.5	2,423.8	2,410.6	12.0	6.0	156.42	155.0	-204.7	400.3	389.0	11.36	35.228	
2,600.0	2,472.6	2,517.5	2,503.7	12.9	6.2	157.56	160.4	-213.7	434.3	422.6	11.74	36.992	
2,700.0	2,562.6	2,611.2	2,596.9	13.7	6.5	158.54	165.7	-222.8	468.4	456.3	12.12	38.644	
2,800.0	2,652.6	2,704.9	2,690.0	14.5	6.7	159.39	171.1	-231.9	502.6	490.1	12.51	40.192	
2,900.0	2,742.7	2,798.7	2,783.1	15.4	7.0	160.13	176.4	-240.9	536.9	524.0	12.89	41.646	
3,000.0	2,832.7	2,892.4	2,876.2	16.2	7.2	160.78	181.8	-250.0	571.3	558.0	13.28	43.011	
3,100.0	2,922.7	2,986.1	2,969.4	17.1	7.5	161.36	187.2	-259.1	605.7	592.0	13.67	44.297	
3,200.0	3,012.8	3,079.8	3,062.5	17.9	7.7	161.88	192.5	-268.1	640.2	626.1	14.07	45.508	
3,300.0	3,102.8	3,173.6	3,155.6	18.7	7.9	162.34	197.9	-277.2	674.7	660.2	14.46	46.650	
3,400.0	3,192.8	3,267.3	3,248.8	19.6	8.2	162.76	203.3	-286.2	709.2	694.4	14.86	47.730	
3,500.0	3,282.9	3,361.0	3,341.9	20.4	8.4	163.14	208.6	-295.3	743.8	728.5	15.26	48.752	
3,600.0	3,372.9	3,454.7	3,435.0	21.3	8.7	163.48	214.0	-304.4	778.4	762.7	15.66	49.719	
3,700.0	3,462.9	3,548.5	3,528.2	22.1	8.9	163.80	219.4	-313.4	813.0	797.0	16.06	50.638	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 28-11B - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	0.00	51.0	0.0	51.0				
100.0	100.0	100.0	100.0	0.1	0.1	0.00	51.0	0.0	51.0	50.7	0.27	187.290	
200.0	200.0	200.0	200.0	0.3	0.3	0.00	51.0	0.0	51.0	50.4	0.62	82.071	CC, ES
300.0	300.0	298.0	297.9	0.5	0.5	-1.81	52.9	-1.7	52.9	52.0	0.97	54.467	
400.0	400.0	395.4	395.1	0.7	0.7	-6.47	58.5	-6.6	59.0	57.7	1.35	43.801	
500.0	500.0	492.0	490.8	0.8	1.0	-12.32	67.7	-14.8	69.9	68.1	1.77	39.410	
600.0	600.0	590.8	588.6	1.0	1.3	-17.36	78.7	-24.6	83.3	81.0	2.23	37.312	
700.0	700.0	689.7	686.4	1.2	1.6	-20.98	89.8	-34.4	97.2	94.5	2.70	35.932	
750.0	750.0	739.2	735.2	1.3	1.7	-22.43	95.4	-39.4	104.2	101.3	2.94	35.413	
800.0	800.0	788.7	784.2	1.4	1.9	65.23	100.9	-44.3	111.1	108.3	2.75	40.322	
900.0	899.8	887.9	882.3	1.5	2.2	64.95	112.0	-54.2	123.1	120.0	3.12	39.421	
1,000.0	999.3	987.3	980.6	1.8	2.5	66.78	123.2	-64.0	133.1	129.6	3.54	37.630	
1,100.0	1,098.0	1,086.5	1,078.7	2.0	2.8	70.31	134.3	-73.9	141.4	137.4	4.03	35.085	
1,200.0	1,195.8	1,185.3	1,176.4	2.3	3.1	75.33	145.4	-83.7	148.8	144.2	4.64	32.047	
1,300.0	1,292.4	1,283.5	1,273.4	2.8	3.4	81.62	156.4	-93.5	156.6	151.2	5.41	28.937	
1,400.0	1,387.5	1,380.6	1,369.5	3.3	3.7	88.86	167.3	-103.2	166.1	159.8	6.33	26.234	
1,500.0	1,480.9	1,476.6	1,464.3	3.9	4.0	96.64	178.0	-112.7	178.8	171.4	7.36	24.297	
1,609.9	1,581.1	1,580.3	1,566.9	4.8	4.3	105.21	189.6	-123.0	198.0	189.5	8.53	23.217	
1,700.0	1,662.3	1,664.5	1,650.1	5.5	4.6	112.02	199.1	-131.4	218.0	208.6	9.41	23.168	SF
1,800.0	1,752.3	1,757.9	1,742.5	6.3	4.9	118.25	209.6	-140.7	243.2	233.0	10.29	23.646	
1,900.0	1,842.3	1,851.4	1,834.9	7.1	5.2	123.34	220.0	-150.0	270.8	259.7	11.08	24.444	
2,000.0	1,932.4	1,944.8	1,927.3	7.9	5.5	127.50	230.5	-159.3	300.1	288.3	11.81	25.412	
2,100.0	2,022.4	2,038.3	2,019.7	8.7	5.8	130.94	241.0	-168.6	330.6	318.1	12.49	26.460	
2,200.0	2,112.4	2,131.7	2,112.1	9.5	6.1	133.81	251.5	-177.9	362.1	348.9	13.15	27.536	
2,300.0	2,202.5	2,225.2	2,204.4	10.4	6.4	136.23	261.9	-187.1	394.2	380.4	13.78	28.607	
2,400.0	2,292.5	2,318.6	2,296.8	11.2	6.7	138.28	272.4	-196.4	426.9	412.5	14.40	29.654	
2,500.0	2,382.5	2,412.0	2,389.2	12.0	7.0	140.05	282.9	-205.7	460.1	445.1	15.00	30.669	
2,600.0	2,472.6	2,505.5	2,481.6	12.9	7.2	141.58	293.3	-215.0	493.5	477.9	15.60	31.643	
2,700.0	2,562.6	2,598.9	2,574.0	13.7	7.5	142.93	303.8	-224.3	527.3	511.1	16.19	32.576	
2,800.0	2,652.6	2,692.4	2,666.4	14.5	7.8	144.11	314.3	-233.6	561.3	544.5	16.77	33.466	
2,900.0	2,742.7	2,785.8	2,758.8	15.4	8.1	145.15	324.8	-242.9	595.5	578.1	17.35	34.314	
3,000.0	2,832.7	2,879.3	2,851.2	16.2	8.4	146.09	335.2	-252.2	629.8	611.9	17.93	35.122	
3,100.0	2,922.7	2,972.7	2,943.6	17.1	8.7	146.93	345.7	-261.5	664.3	645.8	18.51	35.890	
3,200.0	3,012.8	3,066.2	3,036.0	17.9	9.0	147.68	356.2	-270.8	698.8	679.8	19.08	36.620	
3,300.0	3,102.8	3,159.6	3,128.4	18.7	9.3	148.37	366.7	-280.1	733.5	713.9	19.66	37.315	
3,400.0	3,192.8	3,253.1	3,220.8	19.6	9.6	148.99	377.1	-289.4	768.3	748.1	20.23	37.977	
3,500.0	3,282.9	3,346.5	3,313.1	20.4	9.9	149.56	387.6	-298.7	803.1	782.3	20.80	38.608	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 28-15A - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	44.33	8.4	8.2	11.7				
100.0	100.0	100.0	100.0	0.1	0.1	44.33	8.4	8.2	11.7	11.4	0.27	43.014	
200.0	200.0	200.0	200.0	0.3	0.3	44.33	8.4	8.2	11.7	11.1	0.62	18.849	CC, ES
300.0	300.0	299.7	299.7	0.5	0.5	55.75	7.1	10.5	12.7	11.7	0.97	13.037	SF
400.0	400.0	398.9	398.6	0.7	0.7	78.84	3.4	17.3	17.7	16.3	1.35	13.085	
500.0	500.0	497.1	495.9	0.8	1.0	95.42	-2.7	28.4	28.8	27.0	1.80	16.024	
600.0	600.0	593.7	590.9	1.0	1.3	104.19	-11.0	43.6	45.9	43.6	2.33	19.734	
700.0	700.0	689.6	684.4	1.2	1.7	108.88	-21.4	62.6	68.0	65.1	2.90	23.398	
750.0	750.0	738.2	731.6	1.3	1.9	110.32	-26.8	72.5	79.5	76.3	3.20	24.823	
800.0	800.0	786.7	778.8	1.4	2.2	-159.83	-32.3	82.4	91.6	88.9	2.71	33.872	
900.0	899.8	882.7	872.2	1.5	2.6	-158.96	-43.0	102.1	119.5	116.5	3.04	39.359	
1,000.0	999.3	977.3	964.1	1.8	3.0	-159.00	-53.6	121.4	152.1	148.7	3.37	45.192	
1,100.0	1,098.0	1,070.1	1,054.3	2.0	3.4	-159.44	-64.0	140.4	189.2	185.5	3.69	51.269	
1,200.0	1,195.8	1,160.9	1,142.6	2.3	3.8	-160.02	-74.2	159.0	230.9	226.9	4.01	57.523	
1,300.0	1,292.4	1,249.4	1,228.7	2.8	4.2	-160.64	-84.1	177.1	277.1	272.8	4.34	63.911	
1,400.0	1,387.5	1,335.5	1,312.5	3.3	4.6	-161.21	-93.8	194.7	327.8	323.1	4.66	70.396	
1,500.0	1,480.9	1,418.9	1,393.5	3.9	5.0	-161.71	-103.1	211.8	382.7	377.7	4.97	76.946	
1,609.9	1,581.1	1,507.1	1,479.3	4.8	5.4	-162.16	-113.0	229.8	447.8	442.5	5.32	84.156	
1,700.0	1,662.3	1,577.8	1,548.1	5.5	5.7	-163.02	-120.9	244.3	503.3	497.6	5.67	88.803	
1,800.0	1,752.3	1,656.4	1,624.5	6.3	6.0	-163.78	-129.7	260.4	564.9	558.9	6.05	93.357	
1,900.0	1,842.3	1,734.9	1,700.9	7.1	6.4	-164.39	-138.5	276.4	626.6	620.2	6.43	97.387	
2,000.0	1,932.4	1,813.5	1,777.2	7.9	6.7	-164.89	-147.3	292.5	688.3	681.5	6.82	100.984	
2,100.0	2,022.4	1,892.0	1,853.6	8.7	7.1	-165.31	-156.1	308.6	750.1	742.9	7.20	104.213	
2,200.0	2,112.4	1,970.6	1,930.0	9.5	7.4	-165.66	-164.9	324.6	811.9	804.3	7.58	107.130	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 28-6C - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	7.85	59.4	8.2	59.9				
100.0	100.0	100.0	100.0	0.1	0.1	7.85	59.4	8.2	59.9	59.7	0.27	220.120	
200.0	200.0	200.0	200.0	0.3	0.3	7.85	59.4	8.2	59.9	59.3	0.62	96.457	CC, ES
300.0	300.0	297.6	297.5	0.5	0.5	6.37	61.5	6.9	61.9	60.9	0.97	63.735	
400.0	400.0	394.6	394.3	0.7	0.7	2.48	67.8	2.9	68.1	66.7	1.35	50.542	
500.0	500.0	490.7	489.6	0.8	1.0	-2.57	78.1	-3.5	78.9	77.1	1.77	44.468	
600.0	600.0	585.7	583.1	1.0	1.3	-7.62	92.3	-12.3	94.6	92.4	2.26	41.857	
700.0	700.0	683.7	679.2	1.2	1.7	-11.71	108.6	-22.5	112.8	110.0	2.79	40.451	
750.0	750.0	732.8	727.3	1.3	1.8	-13.29	116.7	-27.6	122.0	119.0	3.06	39.922	
800.0	800.0	781.9	775.5	1.4	2.0	74.16	124.9	-32.7	131.2	128.4	2.76	47.572	
900.0	899.8	880.4	872.0	1.5	2.4	73.35	141.2	-42.9	148.5	145.4	3.13	47.474	
1,000.0	999.3	979.0	968.8	1.8	2.8	74.41	157.6	-53.1	164.3	160.8	3.55	46.357	
1,100.0	1,098.0	1,077.5	1,065.4	2.0	3.1	76.86	174.0	-63.3	179.1	175.1	4.04	44.287	
1,200.0	1,195.8	1,175.7	1,161.6	2.3	3.5	80.39	190.3	-73.4	193.3	188.7	4.66	41.491	
1,300.0	1,292.4	1,273.1	1,257.2	2.8	3.9	84.75	206.4	-83.5	207.9	202.4	5.42	38.361	
1,400.0	1,387.5	1,369.7	1,351.9	3.3	4.2	89.70	222.5	-93.5	223.6	217.3	6.33	35.346	
1,500.0	1,480.9	1,465.1	1,445.5	3.9	4.6	95.00	238.3	-103.4	241.6	234.2	7.37	32.802	
1,609.9	1,581.1	1,568.2	1,546.6	4.8	5.0	100.92	255.4	-114.1	265.0	256.4	8.62	30.756	
1,700.0	1,662.3	1,652.0	1,628.7	5.5	5.3	106.00	269.4	-122.8	287.2	277.6	9.64	29.795	
1,800.0	1,752.3	1,744.9	1,719.9	6.3	5.7	110.82	284.8	-132.4	314.2	303.5	10.73	29.294	
1,900.0	1,842.3	1,837.9	1,811.0	7.1	6.0	114.90	300.2	-142.0	343.0	331.2	11.76	29.176	SF
2,000.0	1,932.4	1,930.8	1,902.2	7.9	6.4	118.36	315.7	-151.7	373.2	360.5	12.74	29.299	
2,100.0	2,022.4	2,023.8	1,993.3	8.7	6.8	121.32	331.1	-161.3	404.5	390.9	13.68	29.572	
2,200.0	2,112.4	2,116.7	2,084.5	9.5	7.1	123.86	346.5	-170.9	436.7	422.1	14.59	29.937	
2,300.0	2,202.5	2,209.7	2,175.6	10.4	7.5	126.06	362.0	-180.5	469.6	454.1	15.47	30.357	
2,400.0	2,292.5	2,302.6	2,266.8	11.2	7.8	127.98	377.4	-190.2	503.1	486.7	16.33	30.806	
2,500.0	2,382.5	2,395.6	2,357.9	12.0	8.2	129.66	392.8	-199.8	537.0	519.8	17.17	31.269	
2,600.0	2,472.6	2,488.5	2,449.1	12.9	8.5	131.15	408.3	-209.4	571.2	553.2	18.00	31.735	
2,700.0	2,562.6	2,581.5	2,540.3	13.7	8.9	132.47	423.7	-219.1	605.8	587.0	18.82	32.197	
2,800.0	2,652.6	2,674.4	2,631.4	14.5	9.3	133.65	439.1	-228.7	640.6	621.0	19.62	32.650	
2,900.0	2,742.7	2,767.4	2,722.6	15.4	9.6	134.71	454.6	-238.3	675.7	655.2	20.42	33.091	
3,000.0	2,832.7	2,860.3	2,813.7	16.2	10.0	135.67	470.0	-247.9	710.9	689.7	21.21	33.518	
3,100.0	2,922.7	2,953.3	2,904.9	17.1	10.3	136.54	485.5	-257.6	746.3	724.3	21.99	33.931	
3,200.0	3,012.8	3,046.2	2,996.0	17.9	10.7	137.33	500.9	-267.2	781.8	759.0	22.77	34.329	
3,300.0	3,102.8	3,139.2	3,087.2	18.7	11.0	138.05	516.3	-276.8	817.5	793.9	23.55	34.712	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 28-9B - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	10.87	42.6	8.2	43.4				
100.0	100.0	100.0	100.0	0.1	0.1	10.87	42.6	8.2	43.4	43.1	0.27	159.381	
200.0	200.0	200.0	200.0	0.3	0.3	10.87	42.6	8.2	43.4	42.8	0.62	69.841	CC, ES
300.0	300.0	298.7	298.6	0.5	0.5	13.61	43.6	10.5	44.9	43.9	0.97	46.200	
400.0	400.0	396.9	396.5	0.7	0.7	20.73	46.4	17.6	49.8	48.4	1.34	37.194	
500.0	500.0	494.0	492.8	0.8	1.0	29.66	51.1	29.1	59.3	57.5	1.76	33.750	
600.0	600.0	589.6	586.9	1.0	1.3	37.96	57.5	44.9	74.1	71.9	2.25	32.878	SF
700.0	700.0	683.4	678.3	1.2	1.7	44.59	65.5	64.6	94.5	91.7	2.83	33.400	
750.0	750.0	731.9	725.2	1.3	2.0	47.24	70.0	75.7	106.1	103.0	3.14	33.803	
800.0	800.0	780.1	772.0	1.4	2.2	138.13	74.6	86.9	118.3	115.5	2.79	42.456	
900.0	899.8	875.7	864.5	1.5	2.6	142.03	83.5	108.9	146.2	143.1	3.11	47.022	
1,000.0	999.3	969.6	955.4	1.8	3.1	145.45	92.3	130.5	178.7	175.3	3.42	52.254	
1,100.0	1,098.0	1,061.7	1,044.6	2.0	3.5	148.35	100.9	151.8	216.0	212.3	3.73	57.904	
1,200.0	1,195.8	1,151.6	1,131.8	2.3	3.9	150.78	109.3	172.5	258.0	254.0	4.04	63.799	
1,300.0	1,292.4	1,239.3	1,216.7	2.8	4.3	152.78	117.5	192.7	304.6	300.3	4.36	69.825	
1,400.0	1,387.5	1,324.3	1,299.0	3.3	4.7	154.42	125.5	212.3	355.8	351.1	4.69	75.900	
1,500.0	1,480.9	1,406.5	1,378.7	3.9	5.1	155.74	133.2	231.3	411.4	406.3	5.02	81.956	
1,609.9	1,581.1	1,493.4	1,462.8	4.8	5.5	156.89	141.3	251.3	477.3	472.0	5.39	88.488	
1,700.0	1,662.3	1,563.0	1,530.2	5.5	5.9	158.38	147.8	267.3	533.6	527.9	5.72	93.270	
1,800.0	1,752.3	1,640.3	1,605.0	6.3	6.2	159.71	155.1	285.1	596.3	590.2	6.09	97.971	
1,900.0	1,842.3	1,717.5	1,679.8	7.1	6.6	160.80	162.3	302.9	659.1	652.6	6.45	102.149	
2,000.0	1,932.4	1,794.8	1,754.7	7.9	7.0	161.69	169.5	320.8	722.0	715.2	6.82	105.896	
2,100.0	2,022.4	1,872.0	1,829.5	8.7	7.3	162.44	176.8	338.6	785.0	777.8	7.18	109.277	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - Benjamin Fee 33-1B - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-80.26	17.1	-99.8	101.3				
100.0	100.0	100.0	100.0	0.1	0.1	-80.26	17.1	-99.8	101.3	101.0	0.27	371.929	
200.0	200.0	200.0	200.0	0.3	0.3	-80.26	17.1	-99.8	101.3	100.6	0.62	162.980	
300.0	300.0	300.0	300.0	0.5	0.5	-80.26	17.1	-99.8	101.3	100.3	0.97	104.354	
400.0	400.0	400.0	400.0	0.7	0.7	-80.26	17.1	-99.8	101.3	99.9	1.32	76.747	
500.0	500.0	505.4	505.4	0.8	0.8	-79.98	17.1	-96.9	98.5	96.9	1.68	58.519	
600.0	600.0	609.5	609.1	1.0	1.1	-79.31	16.7	-88.6	90.6	88.5	2.07	43.759	
700.0	700.0	711.8	710.7	1.2	1.3	-80.82	12.4	-77.0	78.7	76.2	2.49	31.577	
750.0	750.0	762.5	760.8	1.3	1.5	-83.01	8.6	-70.2	71.5	68.8	2.72	26.295	
800.0	800.0	812.7	810.2	1.4	1.6	2.21	3.7	-62.8	63.1	60.3	2.77	22.805	
900.0	899.8	910.7	905.9	1.5	2.0	-14.21	-9.1	-46.4	42.0	38.7	3.28	12.805	
992.5	991.8	997.8	990.0	1.7	2.4	-60.42	-24.0	-29.7	28.3	24.2	4.10	6.901	CC, ES
1,000.0	999.3	1,004.7	996.7	1.8	2.4	-65.72	-25.3	-28.3	28.4	24.3	4.14	6.858	SF
1,100.0	1,098.0	1,093.8	1,081.6	2.0	2.9	-114.76	-44.2	-9.0	53.0	48.8	4.17	12.720	
1,200.0	1,195.8	1,177.3	1,160.0	2.3	3.4	-130.25	-65.0	10.8	98.5	94.2	4.30	22.897	
1,300.0	1,292.4	1,254.8	1,231.5	2.8	4.0	-136.05	-86.9	30.9	153.4	148.8	4.60	33.318	
1,400.0	1,387.5	1,327.9	1,298.0	3.3	4.5	-138.68	-109.8	51.0	215.3	210.3	4.98	43.194	
1,500.0	1,480.9	1,402.1	1,365.1	3.9	5.1	-140.28	-133.6	71.8	281.5	276.0	5.42	51.892	
1,609.9	1,581.1	1,479.9	1,435.5	4.8	5.7	-141.28	-158.5	93.6	358.1	352.1	5.97	59.936	
1,700.0	1,662.3	1,542.1	1,491.8	5.5	6.1	-143.24	-178.5	111.0	422.6	416.2	6.42	65.866	
1,800.0	1,752.3	1,611.0	1,554.2	6.3	6.7	-144.83	-200.6	130.4	494.5	487.6	6.93	71.363	
1,900.0	1,842.3	1,680.0	1,616.5	7.1	7.2	-146.01	-222.7	149.7	566.5	559.0	7.46	75.943	
2,000.0	1,932.4	1,749.0	1,678.9	7.9	7.7	-146.94	-244.9	169.0	638.6	630.6	8.00	79.815	
2,100.0	2,022.4	1,817.9	1,741.3	8.7	8.3	-147.68	-267.0	188.4	710.8	702.2	8.55	83.128	
2,200.0	2,112.4	1,886.9	1,803.7	9.5	8.8	-148.28	-289.1	207.7	783.0	773.9	9.11	85.983	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - GMR 28-7D Existing - DD - Schlumberger Surveys

Offset Site Error: 0.0 ft

Survey Program: 140-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-110.09	-36.5	-99.8	106.3				
100.0	100.0	101.6	101.6	0.1	0.2	-109.70	-35.6	-99.3	105.5	105.2	0.29	364.941	
200.0	200.0	203.6	203.5	0.3	0.3	-108.65	-33.0	-97.6	103.1	102.5	0.64	161.120	
300.0	300.0	307.5	307.2	0.5	0.6	-107.29	-29.0	-93.3	98.0	96.9	1.03	95.349	
400.0	400.0	409.6	408.9	0.7	0.8	-105.22	-23.3	-85.6	89.2	87.7	1.44	61.944	
500.0	500.0	509.5	508.2	0.8	1.1	-101.57	-15.7	-76.8	78.9	77.0	1.85	42.593	
600.0	600.0	611.0	608.5	1.0	1.4	-94.68	-5.4	-66.5	67.3	65.0	2.28	29.547	
700.0	700.0	710.3	706.4	1.2	1.7	-83.16	6.5	-54.1	54.9	52.2	2.64	20.806	
750.0	750.0	759.5	754.6	1.3	1.9	-74.21	13.4	-47.5	49.6	46.8	2.76	17.983	
800.0	800.0	808.3	802.4	1.4	2.1	26.70	21.1	-40.6	45.3	41.9	3.43	13.192	
869.9	869.8	875.9	868.1	1.5	2.4	49.59	32.8	-30.4	42.2	38.3	3.90	10.813	CC, ES
900.0	899.8	904.5	895.8	1.5	2.6	60.81	38.0	-25.8	43.0	39.0	4.03	10.686	SF
1,000.0	999.3	997.6	985.7	1.8	3.0	93.05	56.7	-10.3	58.3	54.2	4.07	14.315	
1,100.0	1,098.0	1,087.3	1,071.5	2.0	3.5	112.31	76.6	6.5	89.2	85.1	4.09	21.792	
1,200.0	1,195.8	1,173.4	1,153.2	2.3	4.0	122.83	97.3	24.4	130.4	126.1	4.31	30.293	
1,300.0	1,292.4	1,256.1	1,231.2	2.8	4.6	129.12	118.0	42.8	179.0	174.3	4.66	38.448	
1,400.0	1,387.5	1,334.5	1,304.6	3.3	5.1	133.20	138.1	61.5	233.6	228.6	5.07	46.060	
1,500.0	1,480.9	1,416.7	1,381.5	3.9	5.6	136.29	159.4	81.5	292.9	287.3	5.55	52.761	
1,609.9	1,581.1	1,503.2	1,462.7	4.8	6.1	138.51	181.4	101.1	361.1	355.0	6.13	58.872	
1,700.0	1,662.3	1,566.5	1,522.1	5.5	6.6	140.93	197.5	115.8	419.5	412.9	6.62	63.361	
1,800.0	1,752.3	1,636.7	1,587.8	6.3	7.0	143.03	215.4	132.9	485.6	478.5	7.17	67.715	
1,900.0	1,842.3	1,716.4	1,662.4	7.1	7.5	144.86	235.7	152.2	551.8	544.1	7.74	71.275	
2,000.0	1,932.4	1,795.6	1,736.9	7.9	8.0	146.25	255.7	170.6	617.5	609.2	8.32	74.216	
2,100.0	2,022.4	1,874.1	1,810.7	8.7	8.5	147.33	275.5	188.3	682.9	674.0	8.90	76.709	
2,200.0	2,112.4	1,937.3	1,870.1	9.5	8.9	148.05	291.5	202.8	748.8	739.4	9.46	79.189	
2,300.0	2,202.5	1,998.9	1,927.7	10.4	9.3	148.67	307.5	217.9	816.0	806.0	10.00	81.562	

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design K28NW Pad - GMU 28-14D Existing - Schlumberger Surveys - Schlumberger Surveys

Offset Site Error: 0.0 ft

Survey Program: 270-MWD

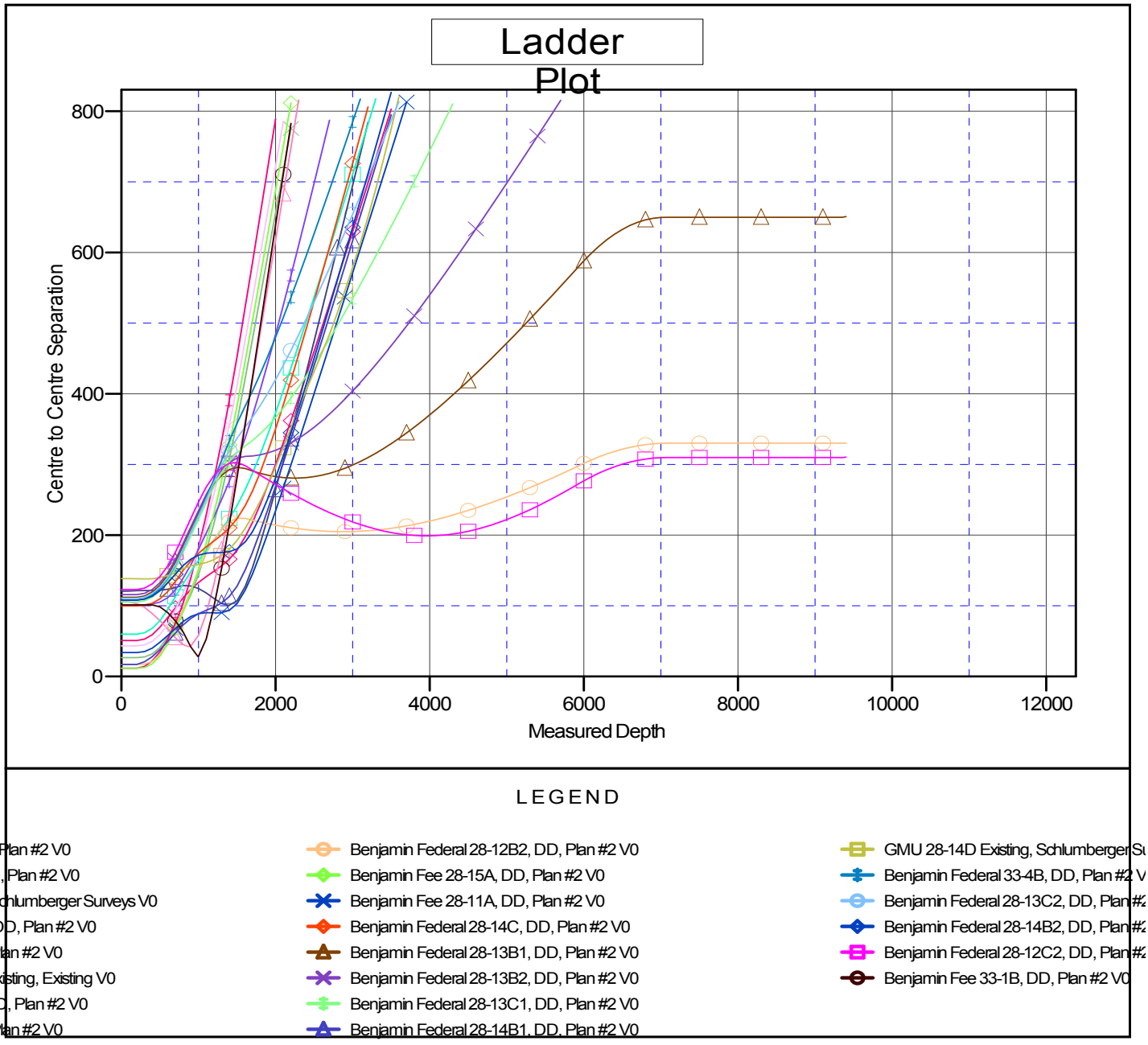
Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	-122.28	-73.9	-117.1	138.5				
100.0	100.0	100.1	100.1	0.1	0.2	-122.26	-73.9	-117.1	138.4	138.1	0.30	466.640	
200.0	200.0	200.2	200.2	0.3	0.3	-122.20	-73.7	-117.0	138.3	137.7	0.63	218.971	
300.0	300.0	300.1	300.1	0.5	0.5	-122.11	-73.4	-117.0	138.2	137.2	0.97	142.339	
328.6	328.6	328.5	328.5	0.5	0.5	-122.12	-73.5	-117.0	138.2	137.1	1.07	129.103	CC
400.0	400.0	398.7	398.7	0.7	0.7	-122.23	-73.8	-117.1	138.4	137.1	1.32	105.038	ES
500.0	500.0	496.8	496.8	0.8	0.8	-122.33	-74.9	-118.4	140.2	138.5	1.66	84.221	
600.0	600.0	595.5	595.5	1.0	1.0	-122.72	-77.2	-120.1	142.9	140.8	2.02	70.894	
700.0	700.0	692.5	692.3	1.2	1.2	-123.73	-81.4	-122.0	146.9	144.5	2.37	61.984	
750.0	750.0	740.5	740.2	1.3	1.3	-124.36	-84.4	-123.4	149.8	147.3	2.55	58.776	
800.0	800.0	789.4	789.0	1.4	1.4	-36.32	-87.8	-125.2	152.7	150.0	2.71	56.455	
900.0	899.8	887.2	886.4	1.5	1.6	-38.62	-95.0	-129.5	156.5	153.4	3.05	51.243	
1,000.0	999.3	981.7	980.4	1.8	1.8	-41.66	-102.6	-135.5	158.6	155.2	3.41	46.554	
1,100.0	1,098.0	1,074.6	1,072.3	2.0	2.1	-45.74	-112.4	-144.0	161.2	157.4	3.78	42.626	
1,200.0	1,195.8	1,166.9	1,163.2	2.3	2.4	-50.71	-124.6	-155.1	165.4	161.2	4.22	39.188	
1,300.0	1,292.4	1,260.0	1,254.1	2.8	2.7	-56.60	-139.3	-168.5	171.5	166.7	4.77	35.949	
1,400.0	1,387.5	1,351.6	1,343.1	3.3	3.1	-63.37	-156.3	-182.2	180.0	174.5	5.49	32.813	
1,500.0	1,480.9	1,443.4	1,431.6	3.9	3.5	-70.68	-175.7	-196.9	192.4	186.0	6.42	29.970	
1,609.9	1,581.1	1,545.4	1,529.4	4.8	4.0	-78.44	-198.0	-215.5	210.0	202.3	7.70	27.279	
1,700.0	1,662.3	1,632.6	1,612.8	5.5	4.5	-84.83	-216.8	-232.5	227.1	218.2	8.86	25.619	
1,800.0	1,752.3	1,729.0	1,705.2	6.3	5.0	-90.83	-236.7	-251.4	247.8	237.7	10.17	24.376	
1,900.0	1,842.3	1,821.9	1,794.2	7.1	5.5	-95.65	-255.8	-270.0	270.8	259.3	11.46	23.627	
2,000.0	1,932.4	1,916.0	1,884.1	7.9	6.0	-99.67	-276.2	-289.2	296.4	283.6	12.74	23.263	
2,100.0	2,022.4	2,007.6	1,971.3	8.7	6.5	-102.88	-296.6	-308.2	323.7	309.7	14.00	23.125	
2,200.0	2,112.4	2,101.5	2,060.6	9.5	7.0	-105.62	-317.9	-327.9	352.0	336.8	15.24	23.093	
2,300.0	2,202.5	2,206.1	2,160.2	10.4	7.6	-108.19	-340.4	-350.5	379.9	363.4	16.54	22.977	
2,400.0	2,292.5	2,309.9	2,259.4	11.2	8.1	-110.39	-360.3	-373.8	405.8	388.0	17.82	22.779	
2,500.0	2,382.5	2,405.0	2,350.0	12.0	8.7	-112.02	-378.2	-396.4	431.5	412.4	19.10	22.594	
2,600.0	2,472.6	2,500.4	2,440.4	12.9	9.3	-113.25	-397.0	-420.5	457.5	437.1	20.37	22.457	
2,700.0	2,562.6	2,587.3	2,522.4	13.7	9.8	-114.13	-415.0	-443.0	484.4	462.8	21.59	22.438	SF
2,800.0	2,652.6	2,667.6	2,598.1	14.5	10.3	-114.91	-433.5	-462.5	514.1	491.3	22.75	22.593	
2,900.0	2,742.7	2,755.8	2,681.2	15.4	10.8	-115.78	-455.3	-482.1	546.1	522.2	23.92	22.825	
3,000.0	2,832.7	2,844.4	2,765.1	16.2	11.3	-116.71	-477.0	-500.4	578.8	553.7	25.07	23.083	
3,100.0	2,922.7	2,924.2	2,840.7	17.1	11.8	-117.50	-497.5	-515.8	613.3	587.2	26.17	23.440	
3,200.0	3,012.8	2,999.0	2,911.7	17.9	12.2	-118.31	-517.7	-528.0	650.4	623.2	27.19	23.923	
3,300.0	3,102.8	3,075.3	2,984.2	18.7	12.6	-119.20	-539.2	-538.3	689.9	661.8	28.17	24.493	
3,400.0	3,192.8	3,151.2	3,056.2	19.6	13.0	-120.07	-561.4	-546.9	731.6	702.5	29.13	25.117	
3,500.0	3,282.9	3,227.7	3,128.7	20.4	13.4	-120.93	-584.5	-554.1	775.1	745.1	30.07	25.780	
3,600.0	3,372.9	3,304.7	3,201.8	21.3	13.8	-121.77	-608.4	-560.1	820.2	789.3	30.99	26.472	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well Benjamin Federal 28-12C1
Project:	Mamm Creek	**TVD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Reference Site:	K28NW Pad	**MD Reference:**	WELL @ 5965.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	Benjamin Federal 28-12C1	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 5965.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: Benjamin Federal 28-12C1
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.44°



CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation