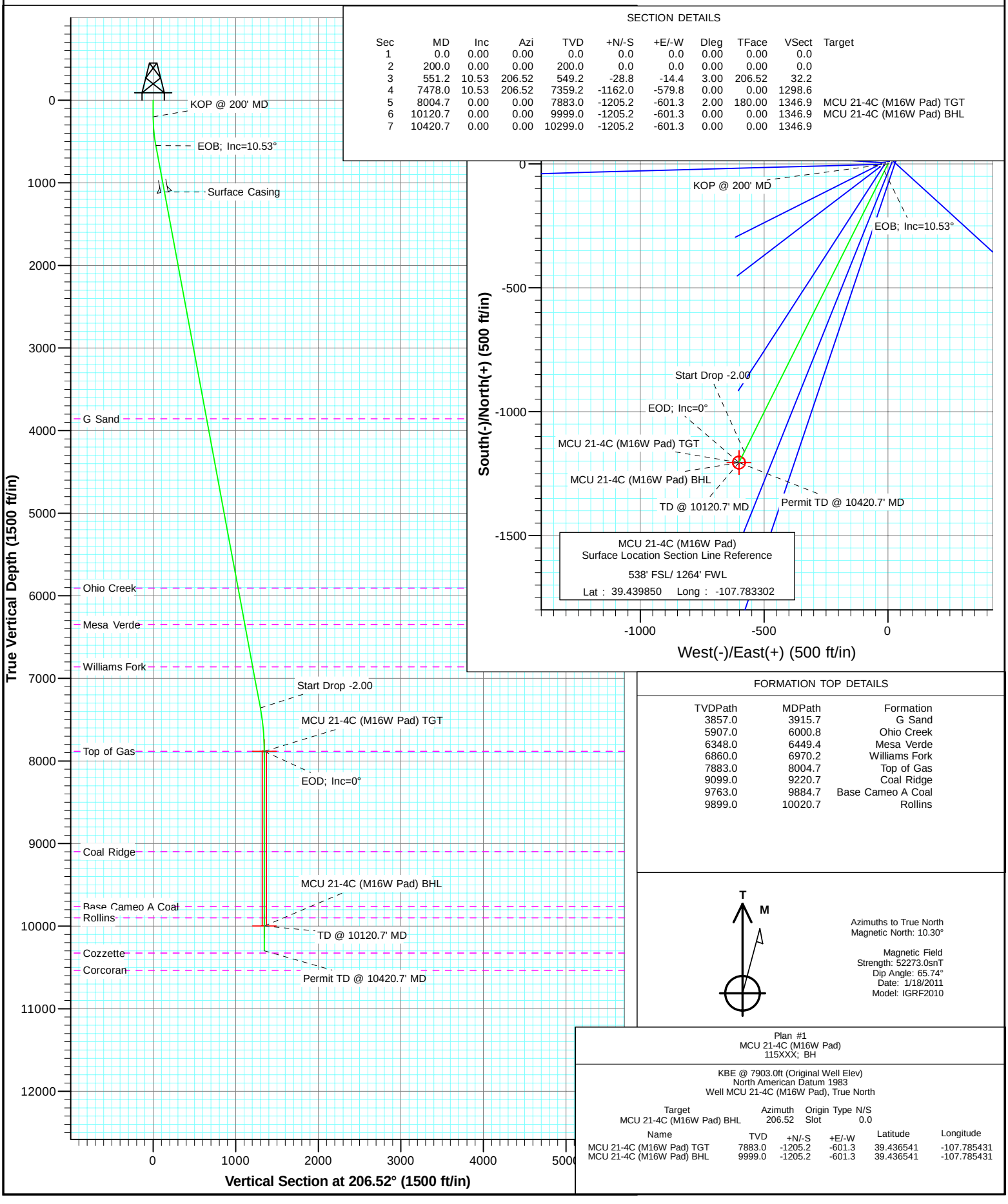
Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU 21-4C (M16W Pad)
Wellbore: DD
Plan: Plan #1

ENCANA

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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	551.2	10.53	206.52	549.2	-28.8	-14.4	3.00	206.52	32.2	
4	7478.0	10.53	206.52	7359.2	-1162.0	-579.8	0.00	0.00	1298.6	
5	8004.7	0.00	0.00	7883.0	-1205.2	-601.3	2.00	180.00	1346.9	MCU 21-4C (M16W Pad) TGT
6	10120.7	0.00	0.00	9999.0	-1205.2	-601.3	0.00	0.00	1346.9	MCU 21-4C (M16W Pad) BHL
7	10420.7	0.00	0.00	10299.0	-1205.2	-601.3	0.00	0.00	1346.9	



FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3857.0	3915.7	G Sand
5907.0	6000.8	Ohio Creek
6348.0	6449.4	Mesa Verde
6860.0	6970.2	Williams Fork
7883.0	8004.7	Top of Gas
9099.0	9220.7	Coal Ridge
9763.0	9884.7	Base Cameo A Coal
9899.0	10020.7	Rollins

Azimuths to True North
Magnetic North: 10.30°

Magnetic Field
Strength: 52273.0snT
Dip Angle: 65.74°
Date: 1/18/2011
Model: IGRF2010

Plan #1
MCU 21-4C (M16W Pad)
115XXX; BH

KBE @ 7903.0ft (Original Well Elev)
North American Datum 1983
Well MCU 21-4C (M16W Pad), True North

Target	Azimuth	Origin Type	N/S
MCU 21-4C (M16W Pad) BHL	206.52	Slot	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU 21-4C (M16W Pad) TGT	7883.0	-1205.2	-601.3	39.436541	-107.785431
MCU 21-4C (M16W Pad) BHL	9999.0	-1205.2	-601.3	39.436541	-107.785431

Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU 21-4C (M16W Pad)
Wellbore: DD
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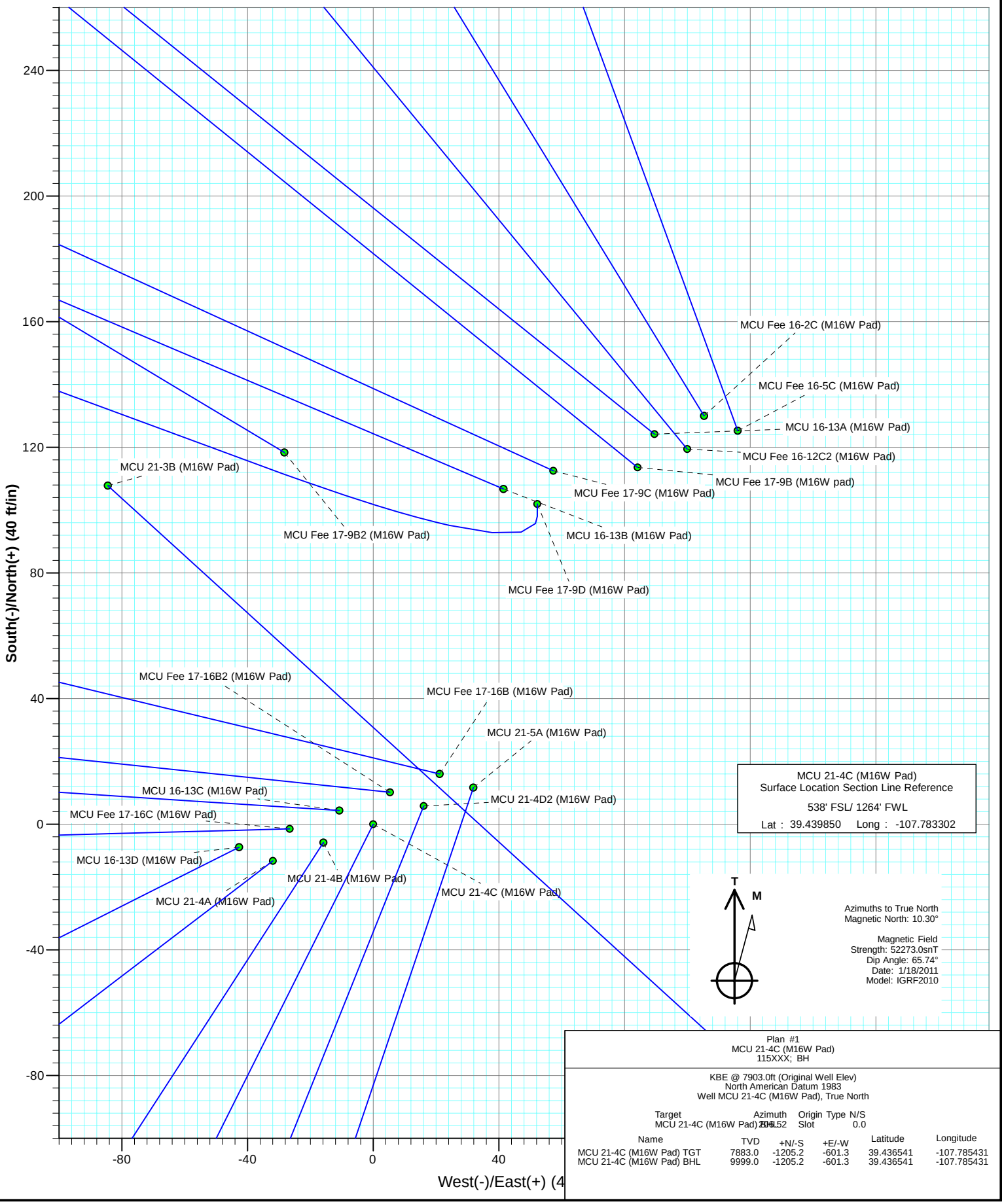


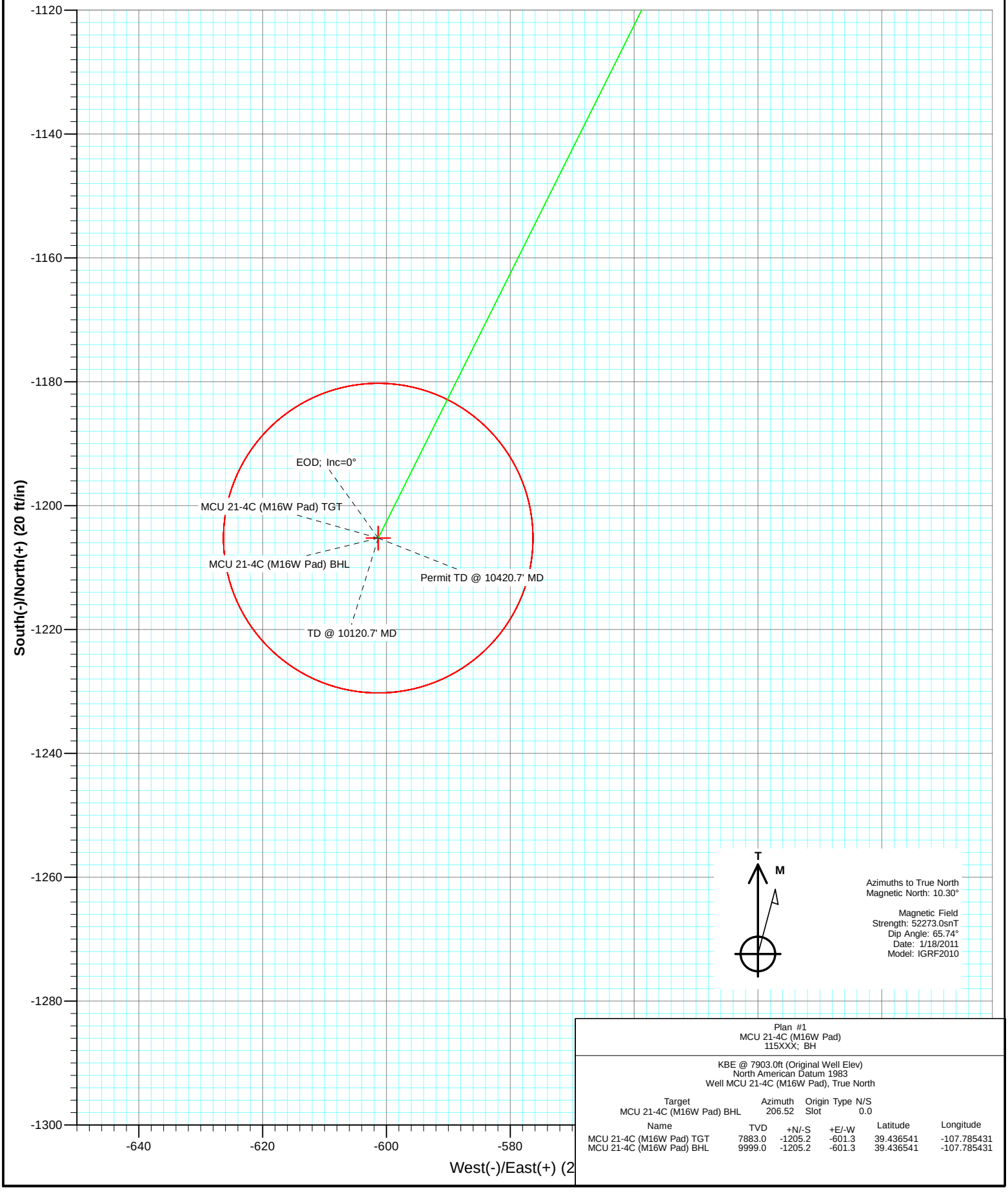
Plan #1
MCU 21-4C (M16W Pad)
115XXX; BH

KBE @ 7903.0ft (Original Well Elev)
North American Datum 1983
Well MCU 21-4C (M16W Pad), True North

Target	Azimuth	Origin Type	N/S
MCU 21-4C (M16W Pad) BHL	206.52	Slot	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU 21-4C (M16W Pad) TGT	7883.0	-1205.2	-601.3	39.436541	-107.785431
MCU 21-4C (M16W Pad) BHL	9999.0	-1205.2	-601.3	39.436541	-107.785431

Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU 21-4C (M16W Pad)
Wellbore: DD
Plan: Plan #1



Plan #1
MCU 21-4C (M16W Pad)
115XXX; BH

KBE @ 7903.0ft (Original Well Elev)
North American Datum 1983
Well MCU 21-4C (M16W Pad), True North

Target	Azimuth	Origin Type	N/S
MCU 21-4C (M16W Pad) BHL	206.52	Slot	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU 21-4C (M16W Pad) TGT	7883.0	-1205.2	-601.3	39.436541	-107.785431
MCU 21-4C (M16W Pad) BHL	9999.0	-1205.2	-601.3	39.436541	-107.785431

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	**North Reference:**	True
Well:	MCU 21-4C (M16W Pad)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Project Mamm Creek

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

Site SWSW S16-T7S-R93W (M16W Pad)

Site Position:		**Northing:**	1,593,196.17 ft	**Latitude:**	39.439834
From:	Lat/Long	**Easting:**	2,355,193.71 ft	**Longitude:**	-107.783358
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-1.44 °

Well MCU 21-4C (M16W Pad)

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,593,201.59 ft	**Latitude:**	39.439850
	+E/-W	0.0 ft	**Easting:**	2,355,209.67 ft	**Longitude:**	-107.783302
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	7,881.0 ft

Wellbore DD

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/18/2011	10.30	65.74	52,273

Design Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	206.52

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.00	0.00	
551.2	10.53	206.52	549.2	-28.8	-14.4	3.00	3.00	0.00	206.52	
7,478.0	10.53	206.52	7,359.2	-1,162.0	-579.8	0.00	0.00	0.00	0.00	
8,004.7	0.00	0.00	7,883.0	-1,205.2	-601.3	2.00	-2.00	0.00	180.00	MCU 21-4C (M16W P
10,120.7	0.00	0.00	9,999.0	-1,205.2	-601.3	0.00	0.00	0.00	0.00	MCU 21-4C (M16W P
10,420.7	0.00	0.00	10,299.0	-1,205.2	-601.3	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	**North Reference:**	True
Well:	MCU 21-4C (M16W Pad)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 200' MD
300.0	3.00	206.52	300.0	-2.3	-1.2	2.6	3.00	3.00	
400.0	6.00	206.52	399.6	-9.4	-4.7	10.5	3.00	3.00	
500.0	9.00	206.52	498.8	-21.0	-10.5	23.5	3.00	3.00	
551.2	10.53	206.52	549.2	-28.8	-14.4	32.2	3.00	3.00	EOB; Inc=10.53°
600.0	10.53	206.52	597.2	-36.8	-18.4	41.1	0.00	0.00	
700.0	10.53	206.52	695.5	-53.2	-26.5	59.4	0.00	0.00	
800.0	10.53	206.52	793.8	-69.5	-34.7	77.7	0.00	0.00	
900.0	10.53	206.52	892.1	-85.9	-42.8	96.0	0.00	0.00	
1,000.0	10.53	206.52	990.5	-102.2	-51.0	114.3	0.00	0.00	
1,100.0	10.53	206.52	1,088.8	-118.6	-59.2	132.5	0.00	0.00	
1,122.6	10.53	206.52	1,111.0	-122.3	-61.0	136.7	0.00	0.00	Surface Casing
1,200.0	10.53	206.52	1,187.1	-135.0	-67.3	150.8	0.00	0.00	
1,300.0	10.53	206.52	1,285.4	-151.3	-75.5	169.1	0.00	0.00	
1,400.0	10.53	206.52	1,383.7	-167.7	-83.7	187.4	0.00	0.00	
1,500.0	10.53	206.52	1,482.0	-184.0	-91.8	205.7	0.00	0.00	
1,600.0	10.53	206.52	1,580.3	-200.4	-100.0	224.0	0.00	0.00	
1,700.0	10.53	206.52	1,678.7	-216.8	-108.1	242.2	0.00	0.00	
1,800.0	10.53	206.52	1,777.0	-233.1	-116.3	260.5	0.00	0.00	
1,900.0	10.53	206.52	1,875.3	-249.5	-124.5	278.8	0.00	0.00	
2,000.0	10.53	206.52	1,973.6	-265.8	-132.6	297.1	0.00	0.00	
2,100.0	10.53	206.52	2,071.9	-282.2	-140.8	315.4	0.00	0.00	
2,200.0	10.53	206.52	2,170.2	-298.6	-149.0	333.7	0.00	0.00	
2,300.0	10.53	206.52	2,268.5	-314.9	-157.1	351.9	0.00	0.00	
2,400.0	10.53	206.52	2,366.9	-331.3	-165.3	370.2	0.00	0.00	
2,500.0	10.53	206.52	2,465.2	-347.6	-173.4	388.5	0.00	0.00	
2,600.0	10.53	206.52	2,563.5	-364.0	-181.6	406.8	0.00	0.00	
2,700.0	10.53	206.52	2,661.8	-380.4	-189.8	425.1	0.00	0.00	
2,800.0	10.53	206.52	2,760.1	-396.7	-197.9	443.3	0.00	0.00	
2,900.0	10.53	206.52	2,858.4	-413.1	-206.1	461.6	0.00	0.00	
3,000.0	10.53	206.52	2,956.7	-429.4	-214.3	479.9	0.00	0.00	
3,100.0	10.53	206.52	3,055.1	-445.8	-222.4	498.2	0.00	0.00	
3,200.0	10.53	206.52	3,153.4	-462.2	-230.6	516.5	0.00	0.00	
3,300.0	10.53	206.52	3,251.7	-478.5	-238.7	534.8	0.00	0.00	
3,400.0	10.53	206.52	3,350.0	-494.9	-246.9	553.0	0.00	0.00	
3,500.0	10.53	206.52	3,448.3	-511.2	-255.1	571.3	0.00	0.00	
3,600.0	10.53	206.52	3,546.6	-527.6	-263.2	589.6	0.00	0.00	
3,700.0	10.53	206.52	3,644.9	-544.0	-271.4	607.9	0.00	0.00	
3,800.0	10.53	206.52	3,743.3	-560.3	-279.6	626.2	0.00	0.00	
3,900.0	10.53	206.52	3,841.6	-576.7	-287.7	644.5	0.00	0.00	
3,915.7	10.53	206.52	3,857.0	-579.2	-289.0	647.3	0.00	0.00	G Sand
4,000.0	10.53	206.52	3,939.9	-593.0	-295.9	662.7	0.00	0.00	
4,100.0	10.53	206.52	4,038.2	-609.4	-304.0	681.0	0.00	0.00	
4,200.0	10.53	206.52	4,136.5	-625.8	-312.2	699.3	0.00	0.00	
4,300.0	10.53	206.52	4,234.8	-642.1	-320.4	717.6	0.00	0.00	
4,400.0	10.53	206.52	4,333.2	-658.5	-328.5	735.9	0.00	0.00	
4,500.0	10.53	206.52	4,431.5	-674.8	-336.7	754.2	0.00	0.00	
4,600.0	10.53	206.52	4,529.8	-691.2	-344.8	772.4	0.00	0.00	
4,700.0	10.53	206.52	4,628.1	-707.6	-353.0	790.7	0.00	0.00	
4,800.0	10.53	206.52	4,726.4	-723.9	-361.2	809.0	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	**North Reference:**	True
Well:	MCU 21-4C (M16W Pad)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	10.53	206.52	4,824.7	-740.3	-369.3	827.3	0.00	0.00	
5,000.0	10.53	206.52	4,923.0	-756.6	-377.5	845.6	0.00	0.00	
5,100.0	10.53	206.52	5,021.4	-773.0	-385.7	863.9	0.00	0.00	
5,200.0	10.53	206.52	5,119.7	-789.4	-393.8	882.1	0.00	0.00	
5,300.0	10.53	206.52	5,218.0	-805.7	-402.0	900.4	0.00	0.00	
5,400.0	10.53	206.52	5,316.3	-822.1	-410.1	918.7	0.00	0.00	
5,500.0	10.53	206.52	5,414.6	-838.4	-418.3	937.0	0.00	0.00	
5,600.0	10.53	206.52	5,512.9	-854.8	-426.5	955.3	0.00	0.00	
5,700.0	10.53	206.52	5,611.2	-871.2	-434.6	973.6	0.00	0.00	
5,800.0	10.53	206.52	5,709.6	-887.5	-442.8	991.8	0.00	0.00	
5,900.0	10.53	206.52	5,807.9	-903.9	-451.0	1,010.1	0.00	0.00	
6,000.0	10.53	206.52	5,906.2	-920.2	-459.1	1,028.4	0.00	0.00	
6,000.8	10.53	206.52	5,907.0	-920.4	-459.2	1,028.6	0.00	0.00	Ohio Creek
6,100.0	10.53	206.52	6,004.5	-936.6	-467.3	1,046.7	0.00	0.00	
6,200.0	10.53	206.52	6,102.8	-953.0	-475.4	1,065.0	0.00	0.00	
6,300.0	10.53	206.52	6,201.1	-969.3	-483.6	1,083.3	0.00	0.00	
6,400.0	10.53	206.52	6,299.4	-985.7	-491.8	1,101.5	0.00	0.00	
6,449.4	10.53	206.52	6,348.0	-993.8	-495.8	1,110.6	0.00	0.00	Mesa Verde
6,500.0	10.53	206.52	6,397.8	-1,002.0	-499.9	1,119.8	0.00	0.00	
6,600.0	10.53	206.52	6,496.1	-1,018.4	-508.1	1,138.1	0.00	0.00	
6,700.0	10.53	206.52	6,594.4	-1,034.8	-516.3	1,156.4	0.00	0.00	
6,800.0	10.53	206.52	6,692.7	-1,051.1	-524.4	1,174.7	0.00	0.00	
6,900.0	10.53	206.52	6,791.0	-1,067.5	-532.6	1,193.0	0.00	0.00	
6,970.2	10.53	206.52	6,860.0	-1,079.0	-538.3	1,205.8	0.00	0.00	Williams Fork
7,000.0	10.53	206.52	6,889.3	-1,083.8	-540.7	1,211.2	0.00	0.00	
7,100.0	10.53	206.52	6,987.6	-1,100.2	-548.9	1,229.5	0.00	0.00	
7,200.0	10.53	206.52	7,086.0	-1,116.6	-557.1	1,247.8	0.00	0.00	
7,300.0	10.53	206.52	7,184.3	-1,132.9	-565.2	1,266.1	0.00	0.00	
7,400.0	10.53	206.52	7,282.6	-1,149.3	-573.4	1,284.4	0.00	0.00	
7,478.0	10.53	206.52	7,359.2	-1,162.0	-579.8	1,298.6	0.00	0.00	Start Drop -2.00
7,500.0	10.09	206.52	7,380.9	-1,165.6	-581.5	1,302.6	2.00	-2.00	
7,600.0	8.09	206.52	7,479.7	-1,179.7	-588.6	1,318.4	2.00	-2.00	
7,700.0	6.09	206.52	7,578.9	-1,190.8	-594.1	1,330.7	2.00	-2.00	
7,800.0	4.09	206.52	7,678.5	-1,198.7	-598.1	1,339.6	2.00	-2.00	
7,900.0	2.09	206.52	7,778.3	-1,203.5	-600.5	1,345.0	2.00	-2.00	
8,000.0	0.09	206.52	7,878.3	-1,205.2	-601.3	1,346.9	2.00	-2.00	
8,004.7	0.00	0.00	7,883.0	-1,205.2	-601.3	1,346.9	2.00	-2.00	EOD; Inc=0° - Top of Gas - MCU 21-4C (M16W
8,100.0	0.00	0.00	7,978.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,200.0	0.00	0.00	8,078.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,300.0	0.00	0.00	8,178.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,400.0	0.00	0.00	8,278.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,500.0	0.00	0.00	8,378.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,600.0	0.00	0.00	8,478.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,700.0	0.00	0.00	8,578.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,800.0	0.00	0.00	8,678.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
8,900.0	0.00	0.00	8,778.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,000.0	0.00	0.00	8,878.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,100.0	0.00	0.00	8,978.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,200.0	0.00	0.00	9,078.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,220.7	0.00	0.00	9,099.0	-1,205.2	-601.3	1,346.9	0.00	0.00	Coal Ridge
9,300.0	0.00	0.00	9,178.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,400.0	0.00	0.00	9,278.3	-1,205.2	-601.3	1,346.9	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	**North Reference:**	True
Well:	MCU 21-4C (M16W Pad)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,500.0	0.00	0.00	9,378.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,600.0	0.00	0.00	9,478.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,700.0	0.00	0.00	9,578.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,800.0	0.00	0.00	9,678.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
9,884.7	0.00	0.00	9,763.0	-1,205.2	-601.3	1,346.9	0.00	0.00	Base Cameo A Coal
9,900.0	0.00	0.00	9,778.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
10,000.0	0.00	0.00	9,878.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
10,020.7	0.00	0.00	9,899.0	-1,205.2	-601.3	1,346.9	0.00	0.00	Rollins
10,100.0	0.00	0.00	9,978.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
10,120.7	0.00	0.00	9,999.0	-1,205.2	-601.3	1,346.9	0.00	0.00	TD @ 10120.7' MD - MCU 21-4C (M16W Pad) I
10,200.0	0.00	0.00	10,078.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
10,300.0	0.00	0.00	10,178.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
10,400.0	0.00	0.00	10,278.3	-1,205.2	-601.3	1,346.9	0.00	0.00	
10,420.7	0.00	0.00	10,299.0	-1,205.2	-601.3	1,346.9	0.00	0.00	Permit TD @ 10420.7' 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
MCU 21-4C (M16W Pad - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,999.0	-1,205.2	-601.3	1,592,011.84	2,354,578.26	39.436541	-107.785431
MCU 21-4C (M16W Pad - plan hits target center - Circle (radius 25.0)	0.00	0.00	7,883.0	-1,205.2	-601.3	1,592,011.84	2,354,578.26	39.436541	-107.785431

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,122.6	1,111.0	Surface Casing	0.000	0.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,915.7	3,857.0	G Sand		0.00	
6,000.8	5,907.0	Ohio Creek		0.00	
6,449.4	6,348.0	Mesa Verde		0.00	
6,970.2	6,860.0	Williams Fork		0.00	
8,004.7	7,883.0	Top of Gas		0.00	
9,220.7	9,099.0	Coal Ridge		0.00	
9,884.7	9,763.0	Base Cameo A Coal		0.00	
10,020.7	9,899.0	Rollins		0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site:	SWSW S16-T7S-R93W (M16W Pad)	**North Reference:**	True
Well:	MCU 21-4C (M16W Pad)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
200.0	200.0	0.0	0.0	KOP @ 200' MD
551.2	549.2	-28.8	-14.4	EOB; Inc=10.53°
7,478.0	7,359.2	-1,162.0	-579.8	Start Drop -2.00
8,004.7	7,883.0	-1,205.2	-601.3	EOD; Inc=0°
10,120.7	9,999.0	-1,205.2	-601.3	TD @ 10120.7' MD
10,420.7	10,299.0	-1,205.2	-601.3	Permit TD @ 10420.7' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek
SWSW S16-T7S-R93W (M16W Pad)
MCU 21-4C (M16W Pad)
DD
Plan #1

Anticollision Report

19 January, 2011

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Reference	Plan #1

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	**Error Model:**	Systematic Ellipse
Depth Range:	Unlimited	**Scan Method:**	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 500.0ft	**Error Surface:**	Elliptical Conic
Warning Levels Evaluated at:	2.00 **Sigma**		

Survey Tool Program **Date** 1/19/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,420.7	Plan #1 (DD)	MWD	Geolink MWD

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**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
SWSW S16-T7S-R93W (M16W Pad)						
MCU 16-13A (M16W Pad) - DD - Plan #1	200.0	200.0	153.1	152.5	246.417	CC, ES
MCU 16-13A (M16W Pad) - DD - Plan #1	1,800.0	1,756.9	476.7	469.2	63.312	SF
MCU 16-13B (M16W Pad) - DD - Plan #1	200.0	200.0	114.5	113.9	184.299	CC, ES
MCU 16-13B (M16W Pad) - DD - Plan #1	2,300.0	2,260.6	497.9	488.2	50.935	SF
MCU 16-13C (M16W Pad) - DD - Plan #1	200.0	200.0	11.6	11.0	18.650	CC, ES
MCU 16-13C (M16W Pad) - DD - Plan #1	300.0	299.3	14.0	13.0	14.264	SF
MCU 16-13D (M16W Pad) - DD - Plan #1	200.0	200.0	43.3	42.6	69.631	CC, ES
MCU 16-13D (M16W Pad) - DD - Plan #1	900.0	892.8	72.1	68.0	17.736	SF
MCU 21-3B (M16W Pad) - DD - Plan #1	740.4	762.3	114.7	111.5	36.296	CC, ES
MCU 21-3B (M16W Pad) - DD - Plan #1	1,200.0	1,204.8	169.0	162.6	26.160	SF
MCU 21-4A (M16W Pad) - DD - Plan #1	200.0	200.0	34.0	33.4	54.682	CC, ES
MCU 21-4A (M16W Pad) - DD - Plan #1	900.0	894.4	52.6	48.4	12.613	SF
MCU 21-4B (M16W Pad) - DD - Plan #1	200.0	200.0	16.9	16.2	27.123	CC
MCU 21-4B (M16W Pad) - DD - Plan #1	700.0	697.9	18.1	14.9	5.708	ES
MCU 21-4B (M16W Pad) - DD - Plan #1	1,000.0	997.6	23.1	18.0	4.502	SF
MCU 21-4D2 (M16W Pad) - DD - Plan #1	200.0	200.0	17.1	16.5	27.552	CC
MCU 21-4D2 (M16W Pad) - DD - Plan #1	800.0	802.3	19.2	15.0	4.582	ES
MCU 21-4D2 (M16W Pad) - DD - Plan #1	1,000.0	1,002.1	23.1	17.5	4.097	SF
MCU 21-5A (M16W Pad) - DD - Plan #1	200.0	200.0	34.0	33.4	54.682	CC
MCU 21-5A (M16W Pad) - DD - Plan #1	300.0	301.1	34.2	33.2	34.861	ES
MCU 21-5A (M16W Pad) - DD - Plan #1	1,000.0	1,003.9	44.2	38.3	7.489	SF
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	200.0	200.0	155.8	155.2	250.723	CC, ES
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	1,600.0	1,544.6	476.7	470.0	71.461	SF
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	200.0	200.0	167.3	166.7	269.337	CC, ES
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	1,400.0	1,331.2	472.4	466.6	81.878	SF
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	200.0	200.0	170.8	170.2	274.893	CC, ES
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	1,200.0	1,087.1	468.0	463.2	97.441	SF
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	200.0	200.0	26.6	25.9	42.749	CC, ES
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	400.0	400.9	31.9	30.6	23.326	SF
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	200.0	200.0	11.5	10.9	18.547	CC, ES
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	300.0	300.1	13.4	12.4	13.699	SF
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	200.0	200.0	26.6	26.0	42.792	CC, ES
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	500.0	494.0	43.4	41.6	23.408	SF
MCU Fee 17-9B (M16W pad) - DD - Plan #1	200.0	200.0	141.4	140.8	227.589	CC, ES
MCU Fee 17-9B (M16W pad) - DD - Plan #1	1,500.0	1,399.7	465.1	457.8	63.697	SF
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	200.0	200.0	121.7	121.1	195.866	CC, ES
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	1,400.0	1,283.7	477.8	470.7	66.922	SF
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	200.0	200.0	126.3	125.7	203.268	CC, ES
MCU Fee 17-9C (M16W Pad) - DD - Plan #1	1,500.0	1,419.0	459.3	450.7	53.736	SF
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	200.0	200.0	114.6	114.0	184.426	CC, ES
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	1,700.0	1,641.8	422.8	413.4	44.798	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13A (M16W Pad) - DD - Plan #1

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	35.78	124.2	89.5	153.1				
100.0	100.0	100.0	100.0	0.1	0.1	35.78	124.2	89.5	153.1	152.8	0.27	562.335	
200.0	200.0	200.0	200.0	0.3	0.3	35.78	124.2	89.5	153.1	152.5	0.62	246.417	CC, ES
300.0	300.0	299.4	299.4	0.5	0.5	-171.82	125.8	87.5	155.9	154.9	0.98	159.496	
400.0	399.6	397.8	397.5	0.7	0.7	-174.85	130.6	81.6	164.4	163.1	1.36	120.471	
500.0	498.8	495.4	494.3	1.0	1.0	-178.99	138.0	72.3	179.4	177.6	1.78	101.043	
600.0	597.2	592.5	590.7	1.3	1.2	177.38	145.8	62.8	199.9	197.7	2.19	91.119	
700.0	695.5	689.5	686.9	1.7	1.5	174.45	153.5	53.2	221.6	219.0	2.62	84.566	
800.0	793.8	786.6	783.2	2.0	1.8	172.04	161.2	43.6	243.8	240.8	3.05	79.893	
900.0	892.1	883.6	879.4	2.4	2.0	170.03	168.9	34.0	266.4	262.9	3.49	76.388	
1,000.0	990.5	980.6	975.7	2.7	2.3	168.33	176.6	24.5	289.2	285.3	3.93	73.657	
1,100.0	1,088.8	1,077.7	1,071.9	3.1	2.6	166.89	184.3	14.9	312.2	307.9	4.37	71.468	
1,200.0	1,187.1	1,174.7	1,168.2	3.5	2.8	165.64	192.0	5.3	335.4	330.6	4.81	69.673	
1,300.0	1,285.4	1,271.7	1,264.4	3.8	3.1	164.55	199.7	-4.2	358.8	353.5	5.26	68.175	
1,400.0	1,383.7	1,368.8	1,360.6	4.2	3.4	163.59	207.4	-13.8	382.2	376.5	5.71	66.905	
1,500.0	1,482.0	1,465.8	1,456.9	4.6	3.7	162.75	215.1	-23.4	405.7	399.5	6.16	65.815	
1,600.0	1,580.3	1,562.8	1,553.1	4.9	3.9	161.99	222.8	-33.0	429.3	422.7	6.62	64.870	
1,700.0	1,678.7	1,659.8	1,649.4	5.3	4.2	161.32	230.5	-42.5	453.0	445.9	7.07	64.042	
1,800.0	1,777.0	1,756.9	1,745.6	5.6	4.5	160.71	238.2	-52.1	476.7	469.2	7.53	63.312	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13B (M16W Pad) - DD - Plan #1

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	21.26	106.7	41.5	114.5				
100.0	100.0	100.0	100.0	0.1	0.1	21.26	106.7	41.5	114.5	114.2	0.27	420.579	
200.0	200.0	200.0	200.0	0.3	0.3	21.26	106.7	41.5	114.5	113.9	0.62	184.299	CC, ES
300.0	300.0	299.7	299.6	0.5	0.5	173.58	107.7	39.1	117.2	116.2	0.98	119.900	
400.0	399.6	398.7	398.3	0.7	0.7	170.42	110.7	32.0	125.6	124.2	1.36	92.071	
500.0	498.8	497.4	496.6	1.0	0.9	167.22	114.5	23.1	139.7	137.9	1.76	79.190	
600.0	597.2	595.5	594.2	1.3	1.2	165.06	118.3	14.2	158.5	156.3	2.18	72.850	
700.0	695.5	693.4	691.6	1.7	1.4	163.47	122.1	5.4	178.1	175.5	2.60	68.491	
800.0	793.8	791.4	789.1	2.0	1.6	162.20	125.8	-3.5	197.9	194.9	3.03	65.254	
900.0	892.1	889.3	886.6	2.4	1.9	161.16	129.6	-12.4	217.7	214.2	3.47	62.756	
1,000.0	990.5	987.3	984.1	2.7	2.1	160.29	133.4	-21.2	237.6	233.7	3.91	60.771	
1,100.0	1,088.8	1,085.2	1,081.5	3.1	2.4	159.55	137.1	-30.1	257.5	253.1	4.35	59.158	
1,200.0	1,187.1	1,183.2	1,179.0	3.5	2.6	158.93	140.9	-38.9	277.4	272.6	4.80	57.822	
1,300.0	1,285.4	1,281.1	1,276.5	3.8	2.8	158.38	144.7	-47.8	297.4	292.2	5.25	56.697	
1,400.0	1,383.7	1,379.1	1,374.0	4.2	3.1	157.91	148.4	-56.7	317.4	311.7	5.69	55.737	
1,500.0	1,482.0	1,477.0	1,471.4	4.6	3.3	157.49	152.2	-65.5	337.4	331.3	6.14	54.909	
1,600.0	1,580.3	1,575.0	1,568.9	4.9	3.5	157.11	156.0	-74.4	357.4	350.9	6.60	54.188	
1,700.0	1,678.7	1,672.9	1,666.4	5.3	3.8	156.78	159.7	-83.3	377.5	370.4	7.05	53.554	
1,800.0	1,777.0	1,770.9	1,763.9	5.6	4.0	156.48	163.5	-92.1	397.5	390.0	7.50	52.992	
1,900.0	1,875.3	1,868.8	1,861.3	6.0	4.3	156.21	167.2	-101.0	417.6	409.7	7.96	52.492	
2,000.0	1,973.6	1,966.8	1,958.8	6.4	4.5	155.96	171.0	-109.8	437.7	429.3	8.41	52.042	
2,100.0	2,071.9	2,064.7	2,056.3	6.7	4.7	155.74	174.8	-118.7	457.8	448.9	8.87	51.637	
2,200.0	2,170.2	2,162.7	2,153.8	7.1	5.0	155.54	178.5	-127.6	477.9	468.5	9.32	51.270	
2,300.0	2,268.5	2,260.6	2,251.2	7.5	5.2	155.35	182.3	-136.4	497.9	488.2	9.78	50.935	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13C (M16W Pad) - DD - Plan #1

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	-67.84	4.4	-10.7	11.6				
100.0	100.0	100.0	100.0	0.1	0.1	-67.84	4.4	-10.7	11.6	11.3	0.27	42.561	
200.0	200.0	200.0	200.0	0.3	0.3	-67.84	4.4	-10.7	11.6	11.0	0.62	18.650	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	92.88	4.5	-13.3	14.0	13.0	0.98	14.264	SF
400.0	399.6	398.6	398.3	0.7	0.7	105.14	5.0	-20.6	21.5	20.1	1.38	15.528	
500.0	498.8	497.8	497.1	1.0	0.9	118.39	5.5	-28.7	32.2	30.4	1.84	17.521	
600.0	597.2	596.4	595.5	1.3	1.1	129.47	6.1	-36.8	46.7	44.4	2.30	20.254	
700.0	695.5	695.0	693.7	1.7	1.3	135.75	6.6	-44.8	62.5	59.7	2.76	22.665	
800.0	793.8	793.6	791.9	2.0	1.6	139.48	7.1	-52.9	78.8	75.6	3.21	24.562	
900.0	892.1	892.1	890.2	2.4	1.8	141.92	7.6	-60.9	95.3	91.6	3.65	26.062	
1,000.0	990.5	990.7	988.4	2.7	2.0	143.64	8.1	-69.0	111.9	107.8	4.10	27.268	
1,100.0	1,088.8	1,089.3	1,086.6	3.1	2.2	144.92	8.7	-77.1	128.5	124.0	4.55	28.256	
1,200.0	1,187.1	1,187.8	1,184.9	3.5	2.5	145.90	9.2	-85.1	145.3	140.3	5.00	29.079	
1,300.0	1,285.4	1,286.4	1,283.1	3.8	2.7	146.68	9.7	-93.2	162.0	156.6	5.44	29.772	
1,400.0	1,383.7	1,385.0	1,381.3	4.2	2.9	147.32	10.2	-101.3	178.8	172.9	5.89	30.365	
1,500.0	1,482.0	1,483.5	1,479.6	4.6	3.1	147.84	10.8	-109.3	195.6	189.3	6.33	30.878	
1,600.0	1,580.3	1,582.1	1,577.8	4.9	3.3	148.28	11.3	-117.4	212.4	205.6	6.78	31.325	
1,700.0	1,678.7	1,680.7	1,676.0	5.3	3.6	148.66	11.8	-125.4	229.2	222.0	7.23	31.718	
1,800.0	1,777.0	1,779.2	1,774.3	5.6	3.8	148.99	12.3	-133.5	246.1	238.4	7.67	32.067	
1,900.0	1,875.3	1,877.8	1,872.5	6.0	4.0	149.27	12.8	-141.6	262.9	254.8	8.12	32.378	
2,000.0	1,973.6	1,976.4	1,970.7	6.4	4.2	149.52	13.4	-149.6	279.7	271.2	8.57	32.658	
2,100.0	2,071.9	2,074.9	2,069.0	6.7	4.5	149.74	13.9	-157.7	296.6	287.6	9.01	32.910	
2,200.0	2,170.2	2,173.5	2,167.2	7.1	4.7	149.94	14.4	-165.8	313.4	304.0	9.46	33.139	
2,300.0	2,268.5	2,272.0	2,265.4	7.5	4.9	150.12	14.9	-173.8	330.3	320.4	9.90	33.348	
2,400.0	2,366.9	2,370.6	2,363.7	7.8	5.1	150.28	15.4	-181.9	347.1	336.8	10.35	33.539	
2,500.0	2,465.2	2,469.2	2,461.9	8.2	5.3	150.42	16.0	-190.0	364.0	353.2	10.80	33.714	
2,600.0	2,563.5	2,567.7	2,560.1	8.6	5.6	150.55	16.5	-198.0	380.9	369.6	11.24	33.876	
2,700.0	2,661.8	2,666.3	2,658.4	8.9	5.8	150.68	17.0	-206.1	397.7	386.0	11.69	34.025	
2,800.0	2,760.1	2,764.9	2,756.6	9.3	6.0	150.79	17.5	-214.1	414.6	402.4	12.14	34.163	
2,900.0	2,858.4	2,863.4	2,854.8	9.6	6.2	150.89	18.1	-222.2	431.4	418.9	12.58	34.292	
3,000.0	2,956.7	2,962.0	2,953.1	10.0	6.5	150.98	18.6	-230.3	448.3	435.3	13.03	34.412	
3,100.0	3,055.1	3,060.6	3,051.3	10.4	6.7	151.07	19.1	-238.3	465.2	451.7	13.47	34.524	
3,200.0	3,153.4	3,159.1	3,149.5	10.7	6.9	151.15	19.6	-246.4	482.1	468.1	13.92	34.630	
3,300.0	3,251.7	3,257.7	3,247.8	11.1	7.1	151.23	20.1	-254.5	498.9	484.6	14.37	34.728	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 16-13D (M16W Pad) - DD - Plan #1

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	-99.69	-7.3	-42.6	43.3				
100.0	100.0	100.0	100.0	0.1	0.1	-99.69	-7.3	-42.6	43.3	43.0	0.27	158.900	
200.0	200.0	200.0	200.0	0.3	0.3	-99.69	-7.3	-42.6	43.3	42.6	0.62	69.631	CC, ES
300.0	300.0	297.9	297.8	0.5	0.5	55.50	-8.4	-44.9	44.2	43.2	0.97	45.406	
400.0	399.6	396.3	396.0	0.7	0.7	60.36	-11.7	-51.4	46.9	45.6	1.36	34.481	
500.0	498.8	495.9	495.3	1.0	0.9	69.60	-15.5	-59.0	49.0	47.1	1.83	26.714	
600.0	597.2	595.2	594.2	1.3	1.1	82.88	-19.3	-66.6	51.4	49.0	2.40	21.426	
700.0	695.5	694.4	693.0	1.7	1.4	95.12	-23.2	-74.2	56.4	53.4	2.98	18.903	
800.0	793.8	793.6	791.9	2.0	1.6	105.03	-27.0	-81.8	63.5	59.9	3.54	17.930	
900.0	892.1	892.8	890.7	2.4	1.8	112.78	-30.8	-89.3	72.1	68.0	4.07	17.736	SF
1,000.0	990.5	992.1	989.5	2.7	2.0	118.80	-34.6	-96.9	81.7	77.2	4.56	17.920	
1,100.0	1,088.8	1,091.3	1,088.4	3.1	2.3	123.52	-38.4	-104.5	92.1	87.1	5.04	18.280	
1,200.0	1,187.1	1,190.5	1,187.2	3.5	2.5	127.27	-42.2	-112.1	103.0	97.5	5.50	18.714	
1,300.0	1,285.4	1,289.7	1,286.1	3.8	2.7	130.30	-46.0	-119.7	114.2	108.2	5.96	19.169	
1,400.0	1,383.7	1,388.9	1,384.9	4.2	2.9	132.78	-49.9	-127.2	125.6	119.2	6.40	19.618	
1,500.0	1,482.0	1,488.1	1,483.8	4.6	3.2	134.84	-53.7	-134.8	137.3	130.4	6.85	20.050	
1,600.0	1,580.3	1,587.3	1,582.6	4.9	3.4	136.58	-57.5	-142.4	149.1	141.8	7.29	20.458	
1,700.0	1,678.7	1,686.5	1,681.5	5.3	3.6	138.06	-61.3	-150.0	161.0	153.3	7.73	20.840	
1,800.0	1,777.0	1,785.7	1,780.3	5.6	3.9	139.34	-65.1	-157.5	173.0	164.9	8.16	21.195	
1,900.0	1,875.3	1,884.9	1,879.1	6.0	4.1	140.46	-68.9	-165.1	185.1	176.5	8.60	21.526	
2,000.0	1,973.6	1,984.1	1,978.0	6.4	4.3	141.43	-72.8	-172.7	197.2	188.2	9.03	21.834	
2,100.0	2,071.9	2,083.3	2,076.8	6.7	4.5	142.29	-76.6	-180.3	209.4	200.0	9.47	22.120	
2,200.0	2,170.2	2,182.5	2,175.7	7.1	4.8	143.06	-80.4	-187.9	221.7	211.8	9.90	22.386	
2,300.0	2,268.5	2,281.7	2,274.5	7.5	5.0	143.75	-84.2	-195.4	234.0	223.6	10.34	22.633	
2,400.0	2,366.9	2,380.9	2,373.4	7.8	5.2	144.37	-88.0	-203.0	246.3	235.5	10.77	22.865	
2,500.0	2,465.2	2,480.2	2,472.2	8.2	5.4	144.93	-91.8	-210.6	258.6	247.4	11.20	23.081	
2,600.0	2,563.5	2,579.4	2,571.0	8.6	5.7	145.44	-95.6	-218.2	270.9	259.3	11.64	23.283	
2,700.0	2,661.8	2,678.6	2,669.9	8.9	5.9	145.90	-99.5	-225.8	283.3	271.2	12.07	23.472	
2,800.0	2,760.1	2,777.8	2,768.7	9.3	6.1	146.33	-103.3	-233.3	295.7	283.2	12.50	23.650	
2,900.0	2,858.4	2,877.0	2,867.6	9.6	6.4	146.72	-107.1	-240.9	308.1	295.2	12.94	23.817	
3,000.0	2,956.7	2,976.2	2,966.4	10.0	6.6	147.08	-110.9	-248.5	320.5	307.1	13.37	23.974	
3,100.0	3,055.1	3,075.4	3,065.3	10.4	6.8	147.41	-114.7	-256.1	332.9	319.1	13.80	24.122	
3,200.0	3,153.4	3,174.6	3,164.1	10.7	7.0	147.72	-118.5	-263.7	345.4	331.1	14.23	24.263	
3,300.0	3,251.7	3,273.8	3,262.9	11.1	7.3	148.01	-122.3	-271.2	357.8	343.2	14.67	24.395	
3,400.0	3,350.0	3,373.0	3,361.8	11.5	7.5	148.28	-126.2	-278.8	370.3	355.2	15.10	24.521	
3,500.0	3,448.3	3,472.2	3,460.6	11.8	7.7	148.53	-130.0	-286.4	382.7	367.2	15.53	24.640	
3,600.0	3,546.6	3,571.4	3,559.5	12.2	8.0	148.77	-133.8	-294.0	395.2	379.2	15.97	24.753	
3,700.0	3,644.9	3,670.6	3,658.3	12.6	8.2	148.99	-137.6	-301.5	407.7	391.3	16.40	24.860	
3,800.0	3,743.3	3,769.8	3,757.2	12.9	8.4	149.20	-141.4	-309.1	420.2	403.3	16.83	24.962	
3,900.0	3,841.6	3,869.1	3,856.0	13.3	8.6	149.39	-145.2	-316.7	432.6	415.4	17.26	25.060	
4,000.0	3,939.9	3,968.3	3,954.9	13.7	8.9	149.58	-149.1	-324.3	445.1	427.4	17.70	25.153	
4,100.0	4,038.2	4,067.5	4,053.7	14.0	9.1	149.75	-152.9	-331.9	457.6	439.5	18.13	25.241	
4,200.0	4,136.5	4,166.7	4,152.5	14.4	9.3	149.92	-156.7	-339.4	470.1	451.6	18.56	25.326	
4,300.0	4,234.8	4,265.9	4,251.4	14.7	9.6	150.08	-160.5	-347.0	482.6	463.6	19.00	25.407	
4,400.0	4,333.2	4,365.1	4,350.2	15.1	9.8	150.23	-164.3	-354.6	495.1	475.7	19.43	25.485	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-3B (M16W Pad) - DD - Plan #1

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	-38.07	107.8	-84.4	136.9				
100.0	100.0	100.0	100.0	0.1	0.1	-38.07	107.8	-84.4	136.9	136.7	0.27	502.983	
200.0	200.0	200.0	200.0	0.3	0.3	-38.07	107.8	-84.4	136.9	136.3	0.62	220.408	
300.0	300.0	307.5	307.4	0.5	0.5	116.75	105.8	-82.2	135.3	134.3	0.99	136.533	
400.0	399.6	414.3	413.8	0.7	0.8	120.89	99.7	-75.6	130.9	129.5	1.39	94.109	
500.0	498.8	519.6	518.2	1.0	1.1	128.19	89.8	-64.7	124.9	123.1	1.84	67.973	
600.0	597.2	623.1	619.6	1.3	1.5	138.73	76.4	-50.0	119.6	117.3	2.34	51.128	
700.0	695.5	723.4	716.9	1.7	1.9	151.31	59.9	-31.9	115.2	112.3	2.91	39.549	
740.4	735.3	762.3	754.5	1.8	2.1	156.55	53.2	-24.5	114.7	111.5	3.16	36.296	CC, ES
800.0	793.8	819.6	809.9	2.0	2.4	164.24	43.2	-13.6	115.8	112.3	3.54	32.725	
900.0	892.1	915.9	902.9	2.4	2.8	176.45	26.5	4.8	122.5	118.3	4.22	29.045	
1,000.0	990.5	1,012.2	996.0	2.7	3.3	-172.96	9.8	23.1	134.4	129.5	4.95	27.185	
1,100.0	1,088.8	1,108.5	1,089.0	3.1	3.8	-164.25	-6.9	41.4	150.3	144.6	5.70	26.367	
1,200.0	1,187.1	1,204.8	1,182.0	3.5	4.2	-157.26	-23.6	59.8	169.0	162.6	6.46	26.160	SF
1,300.0	1,285.4	1,301.0	1,275.1	3.8	4.7	-151.69	-40.3	78.1	189.8	182.6	7.21	26.307	
1,400.0	1,383.7	1,397.3	1,368.1	4.2	5.2	-147.21	-57.1	96.4	211.9	204.0	7.95	26.651	
1,500.0	1,482.0	1,493.6	1,461.1	4.6	5.6	-143.58	-73.8	114.8	235.1	226.4	8.68	27.095	
1,600.0	1,580.3	1,589.9	1,554.2	4.9	6.1	-140.61	-90.5	133.1	259.0	249.6	9.39	27.584	
1,700.0	1,678.7	1,686.2	1,647.2	5.3	6.6	-138.13	-107.2	151.4	283.5	273.4	10.10	28.084	
1,800.0	1,777.0	1,782.5	1,740.2	5.6	7.0	-136.04	-123.9	169.8	308.4	297.6	10.79	28.579	
1,900.0	1,875.3	1,878.7	1,833.2	6.0	7.5	-134.27	-140.6	188.1	333.7	322.2	11.48	29.057	
2,000.0	1,973.6	1,975.0	1,926.3	6.4	8.0	-132.74	-157.3	206.4	359.2	347.0	12.17	29.513	
2,100.0	2,071.9	2,071.3	2,019.3	6.7	8.4	-131.42	-174.0	224.8	384.9	372.0	12.85	29.945	
2,200.0	2,170.2	2,167.6	2,112.3	7.1	8.9	-130.26	-190.7	243.1	410.7	397.2	13.53	30.353	
2,300.0	2,268.5	2,263.9	2,205.4	7.5	9.4	-129.24	-207.4	261.5	436.7	422.5	14.21	30.737	
2,400.0	2,366.9	2,360.1	2,298.4	7.8	9.9	-128.33	-224.2	279.8	462.9	448.0	14.88	31.097	
2,500.0	2,465.2	2,456.4	2,391.4	8.2	10.3	-127.52	-240.9	298.1	489.1	473.5	15.56	31.436	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4A (M16W Pad) - DD - Plan #1

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	-110.06	-11.7	-31.9	34.0				
100.0	100.0	100.0	100.0	0.1	0.1	-110.06	-11.7	-31.9	34.0	33.7	0.27	124.787	
200.0	200.0	200.0	200.0	0.3	0.3	-110.06	-11.7	-31.9	34.0	33.4	0.62	54.682	CC, ES
300.0	300.0	298.3	298.3	0.5	0.5	45.10	-13.2	-33.9	34.5	33.6	0.97	35.529	
400.0	399.6	396.8	396.4	0.7	0.7	49.81	-17.8	-39.9	36.4	35.0	1.35	26.896	
500.0	498.8	496.6	495.7	1.0	0.9	59.15	-23.6	-47.6	37.3	35.5	1.82	20.555	
600.0	597.2	596.1	594.8	1.3	1.2	74.26	-29.5	-55.3	37.7	35.3	2.41	15.686	
700.0	695.5	695.5	693.7	1.7	1.4	89.08	-35.3	-63.0	40.6	37.6	3.03	13.379	
800.0	793.8	794.9	792.7	2.0	1.6	101.28	-41.2	-70.6	45.8	42.1	3.63	12.616	
900.0	892.1	894.4	891.7	2.4	1.9	110.69	-47.0	-78.3	52.6	48.4	4.17	12.613	SF
1,000.0	990.5	993.8	990.7	2.7	2.1	117.82	-52.9	-85.9	60.5	55.8	4.67	12.957	
1,100.0	1,088.8	1,093.3	1,089.6	3.1	2.4	123.24	-58.7	-93.6	69.1	63.9	5.14	13.442	
1,200.0	1,187.1	1,192.7	1,188.6	3.5	2.6	127.43	-64.6	-101.3	78.1	72.5	5.59	13.972	
1,300.0	1,285.4	1,292.2	1,287.6	3.8	2.8	130.74	-70.4	-108.9	87.5	81.5	6.04	14.499	
1,400.0	1,383.7	1,391.6	1,386.6	4.2	3.1	133.41	-76.3	-116.6	97.2	90.7	6.48	15.003	
1,500.0	1,482.0	1,491.0	1,485.5	4.6	3.3	135.58	-82.1	-124.3	107.0	100.1	6.91	15.476	
1,600.0	1,580.3	1,590.5	1,584.5	4.9	3.6	137.40	-88.0	-131.9	116.9	109.6	7.35	15.914	
1,700.0	1,678.7	1,689.9	1,683.5	5.3	3.8	138.92	-93.8	-139.6	127.0	119.2	7.78	16.319	
1,800.0	1,777.0	1,789.4	1,782.5	5.6	4.0	140.22	-99.7	-147.2	137.1	128.9	8.21	16.692	
1,900.0	1,875.3	1,888.8	1,881.4	6.0	4.3	141.35	-105.5	-154.9	147.3	138.6	8.64	17.036	
2,000.0	1,973.6	1,988.3	1,980.4	6.4	4.5	142.33	-111.4	-162.6	157.5	148.4	9.08	17.353	
2,100.0	2,071.9	2,087.7	2,079.4	6.7	4.8	143.18	-117.2	-170.2	167.7	158.2	9.51	17.645	
2,200.0	2,170.2	2,187.1	2,178.4	7.1	5.0	143.94	-123.1	-177.9	178.0	168.1	9.94	17.916	
2,300.0	2,268.5	2,286.6	2,277.3	7.5	5.3	144.62	-128.9	-185.6	188.4	178.0	10.37	18.166	
2,400.0	2,366.9	2,386.0	2,376.3	7.8	5.5	145.23	-134.8	-193.2	198.7	187.9	10.80	18.399	
2,500.0	2,465.2	2,485.5	2,475.3	8.2	5.7	145.77	-140.6	-200.9	209.1	197.8	11.23	18.616	
2,600.0	2,563.5	2,584.9	2,574.3	8.6	6.0	146.27	-146.5	-208.5	219.5	207.8	11.66	18.818	
2,700.0	2,661.8	2,684.3	2,673.2	8.9	6.2	146.72	-152.3	-216.2	229.9	217.8	12.09	19.006	
2,800.0	2,760.1	2,783.8	2,772.2	9.3	6.5	147.13	-158.2	-223.9	240.3	227.7	12.53	19.183	
2,900.0	2,858.4	2,883.2	2,871.2	9.6	6.7	147.50	-164.0	-231.5	250.7	237.7	12.96	19.348	
3,000.0	2,956.7	2,982.7	2,970.2	10.0	6.9	147.85	-169.9	-239.2	261.1	247.7	13.39	19.504	
3,100.0	3,055.1	3,082.1	3,069.1	10.4	7.2	148.17	-175.7	-246.8	271.6	257.7	13.82	19.650	
3,200.0	3,153.4	3,181.6	3,168.1	10.7	7.4	148.46	-181.6	-254.5	282.0	267.8	14.25	19.788	
3,300.0	3,251.7	3,281.0	3,267.1	11.1	7.7	148.74	-187.4	-262.2	292.5	277.8	14.68	19.918	
3,400.0	3,350.0	3,380.4	3,366.1	11.5	7.9	149.00	-193.3	-269.8	302.9	287.8	15.12	20.041	
3,500.0	3,448.3	3,479.9	3,465.0	11.8	8.2	149.23	-199.1	-277.5	313.4	297.8	15.55	20.157	
3,600.0	3,546.6	3,579.3	3,564.0	12.2	8.4	149.46	-204.9	-285.2	323.9	307.9	15.98	20.268	
3,700.0	3,644.9	3,678.8	3,663.0	12.6	8.6	149.67	-210.8	-292.8	334.3	317.9	16.41	20.372	
3,800.0	3,743.3	3,778.2	3,762.0	12.9	8.9	149.86	-216.6	-300.5	344.8	328.0	16.84	20.472	
3,900.0	3,841.6	3,877.7	3,860.9	13.3	9.1	150.05	-222.5	-308.1	355.3	338.0	17.28	20.567	
4,000.0	3,939.9	3,977.1	3,959.9	13.7	9.4	150.22	-228.3	-315.8	365.8	348.1	17.71	20.657	
4,100.0	4,038.2	4,076.5	4,058.9	14.0	9.6	150.39	-234.2	-323.5	376.3	358.1	18.14	20.743	
4,200.0	4,136.5	4,176.0	4,157.8	14.4	9.9	150.55	-240.0	-331.1	386.8	368.2	18.57	20.826	
4,300.0	4,234.8	4,275.4	4,256.8	14.7	10.1	150.69	-245.9	-338.8	397.3	378.3	19.00	20.904	
4,400.0	4,333.2	4,374.9	4,355.8	15.1	10.3	150.83	-251.7	-346.5	407.8	388.3	19.44	20.979	
4,500.0	4,431.5	4,474.3	4,454.8	15.5	10.6	150.97	-257.6	-354.1	418.3	398.4	19.87	21.051	
4,600.0	4,529.8	4,573.8	4,553.7	15.8	10.8	151.09	-263.4	-361.8	428.8	408.5	20.30	21.120	
4,700.0	4,628.1	4,673.2	4,652.7	16.2	11.1	151.21	-269.3	-369.4	439.3	418.5	20.73	21.186	
4,800.0	4,726.4	4,772.6	4,751.7	16.6	11.3	151.33	-275.1	-377.1	449.8	428.6	21.17	21.250	
4,900.0	4,824.7	4,872.1	4,850.7	16.9	11.5	151.44	-281.0	-384.8	460.3	438.7	21.60	21.311	
5,000.0	4,923.0	4,971.5	4,949.6	17.3	11.8	151.54	-286.8	-392.4	470.8	448.8	22.03	21.370	
5,100.0	5,021.4	5,071.0	5,048.6	17.7	12.0	151.64	-292.7	-400.1	481.3	458.8	22.46	21.426	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4A (M16W Pad) - DD - Plan #1

Survey Program: 0-MWD

Offset Site Error: 0.0 ft

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
5,200.0	5,119.7	5,170.4	5,147.6	18.0	12.3	151.74	-298.5	-407.8	491.8	468.9	22.90	21.481	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4B (M16W Pad) - DD - Plan #1

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	-110.20	-5.8	-15.8	16.9				
100.0	100.0	100.0	100.0	0.1	0.1	-110.20	-5.8	-15.8	16.9	16.6	0.27	61.895	
200.0	200.0	200.0	200.0	0.3	0.3	-110.20	-5.8	-15.8	16.9	16.2	0.62	27.123	CC
300.0	300.0	299.3	299.3	0.5	0.5	44.06	-8.0	-17.2	17.0	16.1	0.98	17.442	
400.0	399.6	398.6	398.2	0.7	0.7	46.29	-14.5	-21.4	17.6	16.2	1.37	12.844	
500.0	498.8	498.0	496.8	1.0	1.0	49.89	-25.2	-28.4	18.5	16.6	1.84	10.048	
600.0	597.2	597.9	595.7	1.3	1.3	60.85	-37.5	-36.3	18.0	15.6	2.45	7.357	
645.9	642.3	643.8	641.0	1.5	1.4	66.88	-43.1	-39.9	17.9	15.2	2.77	6.464	
700.0	695.5	697.9	694.5	1.7	1.6	73.98	-49.8	-44.2	18.1	14.9	3.16	5.708	ES
800.0	793.8	797.8	793.4	2.0	1.9	86.42	-62.0	-52.2	19.0	15.1	3.89	4.895	
900.0	892.1	897.7	892.2	2.4	2.2	97.21	-74.3	-60.1	20.8	16.2	4.55	4.566	
1,000.0	990.5	997.6	991.0	2.7	2.5	106.07	-86.6	-68.0	23.1	18.0	5.14	4.502	SF
1,100.0	1,088.8	1,097.5	1,089.9	3.1	2.8	113.16	-98.9	-76.0	25.9	20.3	5.67	4.577	
1,200.0	1,187.1	1,197.4	1,188.7	3.5	3.1	118.79	-111.1	-83.9	29.1	22.9	6.16	4.722	
1,300.0	1,285.4	1,297.3	1,287.6	3.8	3.4	123.30	-123.4	-91.8	32.4	25.8	6.62	4.900	
1,400.0	1,383.7	1,397.3	1,386.4	4.2	3.7	126.94	-135.7	-99.8	35.9	28.9	7.06	5.089	
1,500.0	1,482.0	1,497.2	1,485.2	4.6	4.0	129.93	-147.9	-107.7	39.6	32.1	7.50	5.279	
1,600.0	1,580.3	1,597.1	1,584.1	4.9	4.3	132.41	-160.2	-115.6	43.3	35.4	7.93	5.462	
1,700.0	1,678.7	1,697.0	1,682.9	5.3	4.6	134.49	-172.5	-123.6	47.1	38.7	8.35	5.638	
1,800.0	1,777.0	1,796.9	1,781.8	5.6	4.9	136.26	-184.7	-131.5	50.9	42.2	8.78	5.803	
1,900.0	1,875.3	1,896.8	1,880.6	6.0	5.3	137.78	-197.0	-139.4	54.8	45.6	9.20	5.959	
2,000.0	1,973.6	1,996.7	1,979.4	6.4	5.6	139.10	-209.3	-147.4	58.7	49.1	9.62	6.104	
2,100.0	2,071.9	2,096.7	2,078.3	6.7	5.9	140.25	-221.5	-155.3	62.7	52.6	10.05	6.240	
2,200.0	2,170.2	2,196.6	2,177.1	7.1	6.2	141.27	-233.8	-163.2	66.7	56.2	10.47	6.368	
2,300.0	2,268.5	2,296.5	2,276.0	7.5	6.5	142.17	-246.1	-171.2	70.6	59.8	10.89	6.486	
2,400.0	2,366.9	2,396.4	2,374.8	7.8	6.8	142.97	-258.3	-179.1	74.6	63.3	11.31	6.598	
2,500.0	2,465.2	2,496.3	2,473.6	8.2	7.1	143.70	-270.6	-187.0	78.7	66.9	11.74	6.702	
2,600.0	2,563.5	2,596.2	2,572.5	8.6	7.4	144.35	-282.9	-195.0	82.7	70.5	12.16	6.799	
2,700.0	2,661.8	2,696.2	2,671.3	8.9	7.7	144.94	-295.2	-202.9	86.7	74.1	12.59	6.891	
2,800.0	2,760.1	2,796.1	2,770.2	9.3	8.0	145.48	-307.4	-210.8	90.8	77.8	13.01	6.977	
2,900.0	2,858.4	2,896.0	2,869.0	9.6	8.3	145.98	-319.7	-218.8	94.8	81.4	13.44	7.058	
3,000.0	2,956.7	2,995.9	2,967.8	10.0	8.7	146.43	-332.0	-226.7	98.9	85.0	13.86	7.134	
3,100.0	3,055.1	3,095.8	3,066.7	10.4	9.0	146.84	-344.2	-234.6	103.0	88.7	14.29	7.206	
3,200.0	3,153.4	3,195.7	3,165.5	10.7	9.3	147.23	-356.5	-242.5	107.0	92.3	14.71	7.274	
3,300.0	3,251.7	3,295.6	3,264.4	11.1	9.6	147.59	-368.8	-250.5	111.1	96.0	15.14	7.339	
3,400.0	3,350.0	3,395.6	3,363.2	11.5	9.9	147.92	-381.0	-258.4	115.2	99.6	15.57	7.400	
3,500.0	3,448.3	3,495.5	3,462.1	11.8	10.2	148.23	-393.3	-266.3	119.3	103.3	15.99	7.458	
3,600.0	3,546.6	3,595.4	3,560.9	12.2	10.5	148.52	-405.6	-274.3	123.3	106.9	16.42	7.513	
3,700.0	3,644.9	3,695.3	3,659.7	12.6	10.8	148.79	-417.8	-282.2	127.4	110.6	16.85	7.565	
3,800.0	3,743.3	3,795.2	3,758.6	12.9	11.1	149.04	-430.1	-290.1	131.5	114.3	17.27	7.615	
3,900.0	3,841.6	3,895.1	3,857.4	13.3	11.4	149.28	-442.4	-298.1	135.6	117.9	17.70	7.662	
4,000.0	3,939.9	3,995.0	3,956.3	13.7	11.7	149.50	-454.6	-306.0	139.7	121.6	18.13	7.707	
4,100.0	4,038.2	4,095.0	4,055.1	14.0	12.1	149.71	-466.9	-313.9	143.8	125.3	18.56	7.751	
4,200.0	4,136.5	4,194.9	4,153.9	14.4	12.4	149.91	-479.2	-321.9	147.9	128.9	18.98	7.792	
4,300.0	4,234.8	4,294.8	4,252.8	14.7	12.7	150.10	-491.5	-329.8	152.0	132.6	19.41	7.831	
4,400.0	4,333.2	4,394.7	4,351.6	15.1	13.0	150.28	-503.7	-337.7	156.1	136.3	19.84	7.869	
4,500.0	4,431.5	4,494.6	4,450.5	15.5	13.3	150.45	-516.0	-345.7	160.2	140.0	20.27	7.906	
4,600.0	4,529.8	4,594.5	4,549.3	15.8	13.6	150.61	-528.3	-353.6	164.3	143.6	20.70	7.940	
4,700.0	4,628.1	4,694.4	4,648.1	16.2	13.9	150.77	-540.5	-361.5	168.4	147.3	21.12	7.974	
4,800.0	4,726.4	4,794.4	4,747.0	16.6	14.2	150.91	-552.8	-369.5	172.5	151.0	21.55	8.006	
4,900.0	4,824.7	4,894.3	4,845.8	16.9	14.5	151.05	-565.1	-377.4	176.7	154.7	21.98	8.037	
5,000.0	4,923.0	4,994.2	4,944.7	17.3	14.8	151.18	-577.3	-385.3	180.8	158.4	22.41	8.067	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4B (M16W Pad) - DD - Plan #1

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	5,021.4	5,094.1	5,043.5	17.7	15.1	151.31	-589.6	-393.3	184.9	162.0	22.84	8.095	
5,200.0	5,119.7	5,194.0	5,142.3	18.0	15.5	151.43	-601.9	-401.2	189.0	165.7	23.27	8.123	
5,300.0	5,218.0	5,293.9	5,241.2	18.4	15.8	151.55	-614.1	-409.1	193.1	169.4	23.70	8.149	
5,400.0	5,316.3	5,393.8	5,340.0	18.8	16.1	151.66	-626.4	-417.1	197.2	173.1	24.12	8.175	
5,500.0	5,414.6	5,493.8	5,438.9	19.1	16.4	151.77	-638.7	-425.0	201.3	176.8	24.55	8.200	
5,600.0	5,512.9	5,593.7	5,537.7	19.5	16.7	151.87	-650.9	-432.9	205.4	180.5	24.98	8.224	
5,700.0	5,611.2	5,693.6	5,636.5	19.8	17.0	151.97	-663.2	-440.9	209.6	184.2	25.41	8.247	
5,800.0	5,709.6	5,793.5	5,735.4	20.2	17.3	152.06	-675.5	-448.8	213.7	187.8	25.84	8.269	
5,900.0	5,807.9	5,893.4	5,834.2	20.6	17.6	152.15	-687.8	-456.7	217.8	191.5	26.27	8.291	
6,000.0	5,906.2	5,993.3	5,933.1	20.9	17.9	152.24	-700.0	-464.7	221.9	195.2	26.70	8.312	
6,100.0	6,004.5	6,093.2	6,031.9	21.3	18.2	152.33	-712.3	-472.6	226.0	198.9	27.13	8.332	
6,200.0	6,102.8	6,193.2	6,130.8	21.7	18.6	152.41	-724.6	-480.5	230.1	202.6	27.56	8.352	
6,300.0	6,201.1	6,293.1	6,229.6	22.0	18.9	152.49	-736.8	-488.5	234.3	206.3	27.99	8.371	
6,400.0	6,299.4	6,393.0	6,328.4	22.4	19.2	152.56	-749.1	-496.4	238.4	210.0	28.42	8.389	
6,500.0	6,397.8	6,492.9	6,427.3	22.8	19.5	152.64	-761.4	-504.3	242.5	213.7	28.85	8.407	
6,600.0	6,496.1	6,592.8	6,526.1	23.1	19.8	152.71	-773.6	-512.3	246.6	217.4	29.28	8.424	
6,700.0	6,594.4	6,692.7	6,625.0	23.5	20.1	152.78	-785.9	-520.2	250.7	221.0	29.70	8.441	
6,800.0	6,692.7	6,792.6	6,723.8	23.9	20.4	152.84	-798.2	-528.1	254.9	224.7	30.13	8.458	
6,900.0	6,791.0	6,892.6	6,822.6	24.2	20.7	152.91	-810.4	-536.1	259.0	228.4	30.56	8.474	
7,000.0	6,889.3	6,992.5	6,921.5	24.6	21.0	152.97	-822.7	-544.0	263.1	232.1	30.99	8.489	
7,100.0	6,987.6	7,092.4	7,020.3	25.0	21.3	153.03	-835.0	-551.9	267.2	235.8	31.42	8.504	
7,200.0	7,086.0	7,192.3	7,119.2	25.3	21.6	153.09	-847.3	-559.8	271.4	239.5	31.85	8.519	
7,300.0	7,184.3	7,292.2	7,218.0	25.7	22.0	153.15	-859.5	-567.8	275.5	243.2	32.28	8.533	
7,400.0	7,282.6	7,392.1	7,316.8	26.0	22.3	153.20	-871.8	-575.7	279.6	246.9	32.71	8.547	
7,500.0	7,380.9	7,492.1	7,415.7	26.4	22.6	153.25	-884.1	-583.6	283.6	250.5	33.15	8.558	
7,600.0	7,479.7	7,587.7	7,510.4	26.7	22.9	153.16	-895.4	-591.0	286.0	252.3	33.60	8.510	
7,700.0	7,578.9	7,680.0	7,602.0	27.0	23.1	153.07	-904.1	-596.6	287.6	253.6	34.00	8.458	
7,800.0	7,678.5	7,772.2	7,694.0	27.1	23.2	153.01	-910.3	-600.6	288.8	254.5	34.33	8.411	
7,900.0	7,778.3	7,864.4	7,786.1	27.3	23.4	152.98	-914.1	-603.0	289.6	255.0	34.61	8.367	
8,000.0	7,878.3	7,956.7	7,878.3	27.4	23.5	152.98	-915.3	-603.8	289.9	255.1	34.83	8.325	
8,100.0	7,978.3	8,056.7	7,978.3	27.5	23.6	-0.50	-915.3	-603.8	289.9	254.8	35.10	8.260	
8,200.0	8,078.3	8,156.7	8,078.3	27.6	23.7	-0.50	-915.3	-603.8	289.9	254.6	35.38	8.195	
8,300.0	8,178.3	8,256.7	8,178.3	27.7	23.8	-0.50	-915.3	-603.8	289.9	254.3	35.66	8.130	
8,400.0	8,278.3	8,356.7	8,278.3	27.7	23.9	-0.50	-915.3	-603.8	289.9	254.0	35.95	8.066	
8,500.0	8,378.3	8,456.7	8,378.3	27.8	24.0	-0.50	-915.3	-603.8	289.9	253.7	36.23	8.003	
8,600.0	8,478.3	8,556.7	8,478.3	27.9	24.1	-0.50	-915.3	-603.8	289.9	253.4	36.52	7.940	
8,700.0	8,578.3	8,656.7	8,578.3	28.0	24.2	-0.50	-915.3	-603.8	289.9	253.1	36.80	7.879	
8,800.0	8,678.3	8,756.7	8,678.3	28.1	24.3	-0.50	-915.3	-603.8	289.9	252.9	37.09	7.818	
8,900.0	8,778.3	8,856.7	8,778.3	28.2	24.4	-0.50	-915.3	-603.8	289.9	252.6	37.38	7.757	
9,000.0	8,878.3	8,956.7	8,878.3	28.3	24.6	-0.50	-915.3	-603.8	289.9	252.3	37.67	7.698	
9,100.0	8,978.3	9,056.7	8,978.3	28.4	24.7	-0.50	-915.3	-603.8	289.9	252.0	37.96	7.639	
9,200.0	9,078.3	9,156.7	9,078.3	28.5	24.8	-0.50	-915.3	-603.8	289.9	251.7	38.25	7.581	
9,300.0	9,178.3	9,256.7	9,178.3	28.6	24.9	-0.50	-915.3	-603.8	289.9	251.4	38.54	7.523	
9,400.0	9,278.3	9,356.7	9,278.3	28.7	25.0	-0.50	-915.3	-603.8	289.9	251.1	38.83	7.466	
9,500.0	9,378.3	9,456.7	9,378.3	28.8	25.1	-0.50	-915.3	-603.8	289.9	250.8	39.13	7.410	
9,600.0	9,478.3	9,556.7	9,478.3	28.9	25.2	-0.50	-915.3	-603.8	289.9	250.5	39.42	7.355	
9,700.0	9,578.3	9,656.7	9,578.3	29.0	25.3	-0.50	-915.3	-603.8	289.9	250.2	39.72	7.300	
9,800.0	9,678.3	9,756.7	9,678.3	29.1	25.5	-0.50	-915.3	-603.8	289.9	249.9	40.01	7.246	
9,900.0	9,778.3	9,856.7	9,778.3	29.2	25.6	-0.50	-915.3	-603.8	289.9	249.6	40.31	7.193	
10,000.0	9,878.3	9,956.7	9,878.3	29.3	25.7	-0.50	-915.3	-603.8	289.9	249.3	40.61	7.140	
10,100.0	9,978.3	10,056.7	9,978.3	29.4	25.8	-0.50	-915.3	-603.8	289.9	249.0	40.91	7.087	
10,200.0	10,078.3	10,156.7	10,078.3	29.5	25.9	-0.50	-915.3	-603.8	289.9	248.7	41.21	7.036	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4B (M16W Pad) - DD - Plan #1

Survey Program: 0-MWD

Offset Site Error: 0.0 ft

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
10,300.0	10,178.3	10,256.7	10,178.3	29.6	26.1	-0.50	-915.3	-603.8	289.9	248.4	41.51	6.985	
10,400.0	10,278.3	10,356.7	10,278.3	29.7	26.2	-0.50	-915.3	-603.8	289.9	248.1	41.81	6.935	
10,420.7	10,299.0	10,377.3	10,299.0	29.8	26.2	-0.50	-915.3	-603.8	289.9	248.1	41.87	6.924	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4D2 (M16W Pad) - DD - Plan #1

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	70.11	5.8	16.1	17.1				
100.0	100.0	100.0	100.0	0.1	0.1	70.11	5.8	16.1	17.1	16.8	0.27	62.875	
200.0	200.0	200.0	200.0	0.3	0.3	70.11	5.8	16.1	17.1	16.5	0.62	27.552	CC
300.0	300.0	300.6	300.6	0.5	0.5	-135.87	3.4	15.1	17.3	16.3	0.98	17.610	
400.0	399.6	401.2	400.8	0.7	0.7	-134.31	-4.0	12.2	17.7	16.3	1.38	12.804	
500.0	498.8	501.8	500.5	1.0	1.0	-131.88	-16.3	7.2	18.5	16.6	1.87	9.858	
600.0	597.2	602.3	599.4	1.3	1.4	-127.37	-33.4	0.4	19.2	16.7	2.49	7.689	
700.0	695.5	702.4	696.9	1.7	1.8	-114.19	-54.0	-7.9	18.7	15.4	3.32	5.632	
705.5	700.9	707.9	702.3	1.7	1.8	-113.42	-55.2	-8.4	18.7	15.3	3.37	5.551	
800.0	793.8	802.3	794.3	2.0	2.2	-100.32	-74.9	-16.3	19.2	15.0	4.19	4.582	ES
900.0	892.1	902.2	891.6	2.4	2.6	-87.83	-95.7	-24.6	20.7	15.8	4.98	4.166	
1,000.0	990.5	1,002.1	988.9	2.7	3.0	-77.47	-116.6	-33.0	23.1	17.5	5.64	4.097	SF
1,100.0	1,088.8	1,102.0	1,086.3	3.1	3.4	-69.25	-137.5	-41.3	26.1	19.9	6.20	4.206	
1,200.0	1,187.1	1,201.9	1,183.6	3.5	3.9	-62.81	-158.3	-49.7	29.5	22.8	6.69	4.405	
1,300.0	1,285.4	1,301.8	1,280.9	3.8	4.3	-57.76	-179.2	-58.1	33.2	26.0	7.14	4.642	
1,400.0	1,383.7	1,401.7	1,378.3	4.2	4.7	-53.74	-200.0	-66.4	37.1	29.5	7.58	4.892	
1,500.0	1,482.0	1,501.6	1,475.6	4.6	5.2	-50.49	-220.9	-74.8	41.1	33.1	8.00	5.141	
1,600.0	1,580.3	1,601.5	1,572.9	4.9	5.6	-47.84	-241.7	-83.2	45.3	36.8	8.41	5.381	
1,700.0	1,678.7	1,701.3	1,670.3	5.3	6.0	-45.63	-262.6	-91.5	49.5	40.7	8.82	5.609	
1,800.0	1,777.0	1,801.2	1,767.6	5.6	6.4	-43.78	-283.5	-99.9	53.8	44.5	9.24	5.823	
1,900.0	1,875.3	1,901.1	1,864.9	6.0	6.9	-42.20	-304.3	-108.2	58.1	48.5	9.65	6.024	
2,000.0	1,973.6	2,001.0	1,962.3	6.4	7.3	-40.84	-325.2	-116.6	62.5	52.4	10.06	6.212	
2,100.0	2,071.9	2,100.9	2,059.6	6.7	7.7	-39.65	-346.0	-125.0	66.9	56.4	10.48	6.387	
2,200.0	2,170.2	2,200.8	2,156.9	7.1	8.2	-38.62	-366.9	-133.3	71.3	60.5	10.89	6.551	
2,300.0	2,268.5	2,300.7	2,254.3	7.5	8.6	-37.71	-387.7	-141.7	75.8	64.5	11.31	6.703	
2,400.0	2,366.9	2,400.6	2,351.6	7.8	9.0	-36.90	-408.6	-150.1	80.3	68.6	11.73	6.846	
2,500.0	2,465.2	2,500.5	2,448.9	8.2	9.4	-36.17	-429.5	-158.4	84.8	72.6	12.15	6.979	
2,600.0	2,563.5	2,600.4	2,546.3	8.6	9.9	-35.52	-450.3	-166.8	89.3	76.7	12.57	7.104	
2,700.0	2,661.8	2,700.3	2,643.6	8.9	10.3	-34.93	-471.2	-175.1	93.8	80.8	12.99	7.221	
2,800.0	2,760.1	2,800.2	2,740.9	9.3	10.7	-34.39	-492.0	-183.5	98.3	84.9	13.41	7.331	
2,900.0	2,858.4	2,900.1	2,838.3	9.6	11.2	-33.90	-512.9	-191.9	102.8	89.0	13.83	7.434	
3,000.0	2,956.7	3,000.0	2,935.6	10.0	11.6	-33.45	-533.7	-200.2	107.4	93.1	14.25	7.532	
3,100.0	3,055.1	3,099.9	3,032.9	10.4	12.0	-33.04	-554.6	-208.6	111.9	97.2	14.68	7.623	
3,200.0	3,153.4	3,199.8	3,130.3	10.7	12.5	-32.66	-575.5	-216.9	116.4	101.3	15.10	7.710	
3,300.0	3,251.7	3,299.6	3,227.6	11.1	12.9	-32.31	-596.3	-225.3	121.0	105.5	15.53	7.792	
3,400.0	3,350.0	3,399.5	3,324.9	11.5	13.3	-31.99	-617.2	-233.7	125.5	109.6	15.95	7.870	
3,500.0	3,448.3	3,499.4	3,422.3	11.8	13.7	-31.69	-638.0	-242.0	130.1	113.7	16.38	7.944	
3,600.0	3,546.6	3,599.3	3,519.6	12.2	14.2	-31.40	-658.9	-250.4	134.7	117.9	16.80	8.014	
3,700.0	3,644.9	3,699.2	3,616.9	12.6	14.6	-31.14	-679.7	-258.8	139.2	122.0	17.23	8.080	
3,800.0	3,743.3	3,799.1	3,714.3	12.9	15.0	-30.89	-700.6	-267.1	143.8	126.1	17.66	8.143	
3,900.0	3,841.6	3,899.0	3,811.6	13.3	15.5	-30.66	-721.5	-275.5	148.4	130.3	18.08	8.204	
4,000.0	3,939.9	3,998.9	3,908.9	13.7	15.9	-30.44	-742.3	-283.8	152.9	134.4	18.51	8.261	
4,100.0	4,038.2	4,098.8	4,006.3	14.0	16.3	-30.24	-763.2	-292.2	157.5	138.6	18.94	8.316	
4,200.0	4,136.5	4,198.7	4,103.6	14.4	16.8	-30.05	-784.0	-300.6	162.1	142.7	19.37	8.368	
4,300.0	4,234.8	4,298.6	4,200.9	14.7	17.2	-29.86	-804.9	-308.9	166.7	146.9	19.80	8.419	
4,400.0	4,333.2	4,398.5	4,298.3	15.1	17.6	-29.69	-825.7	-317.3	171.2	151.0	20.23	8.467	
4,500.0	4,431.5	4,498.4	4,395.6	15.5	18.0	-29.53	-846.6	-325.7	175.8	155.2	20.65	8.513	
4,600.0	4,529.8	4,598.3	4,492.9	15.8	18.5	-29.37	-867.5	-334.0	180.4	159.3	21.08	8.557	
4,700.0	4,628.1	4,698.2	4,590.3	16.2	18.9	-29.22	-888.3	-342.4	185.0	163.5	21.51	8.599	
4,800.0	4,726.4	4,798.1	4,687.6	16.6	19.3	-29.08	-909.2	-350.7	189.6	167.6	21.94	8.640	
4,900.0	4,824.7	4,897.9	4,784.9	16.9	19.8	-28.95	-930.0	-359.1	194.2	171.8	22.37	8.679	
5,000.0	4,923.0	4,997.8	4,882.3	17.3	20.2	-28.82	-950.9	-367.5	198.7	175.9	22.80	8.717	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4D2 (M16W Pad) - DD - Plan #1

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	5,021.4	5,097.7	4,979.6	17.7	20.6	-28.70	-971.7	-375.8	203.3	180.1	23.23	8.753	
5,200.0	5,119.7	5,197.6	5,076.9	18.0	21.1	-28.58	-992.6	-384.2	207.9	184.3	23.66	8.788	
5,300.0	5,218.0	5,297.5	5,174.3	18.4	21.5	-28.47	-1,013.5	-392.6	212.5	188.4	24.09	8.822	
5,400.0	5,316.3	5,397.4	5,271.6	18.8	21.9	-28.36	-1,034.3	-400.9	217.1	192.6	24.52	8.854	
5,500.0	5,414.6	5,497.3	5,368.9	19.1	22.4	-28.26	-1,055.2	-409.3	221.7	196.7	24.95	8.885	
5,600.0	5,512.9	5,597.2	5,466.3	19.5	22.8	-28.16	-1,076.0	-417.6	226.3	200.9	25.38	8.916	
5,700.0	5,611.2	5,697.1	5,563.6	19.8	23.2	-28.07	-1,096.9	-426.0	230.9	205.1	25.81	8.945	
5,800.0	5,709.6	5,797.0	5,660.9	20.2	23.6	-27.97	-1,117.7	-434.4	235.5	209.2	26.24	8.973	
5,900.0	5,807.9	5,896.9	5,758.3	20.6	24.1	-27.89	-1,138.6	-442.7	240.1	213.4	26.67	9.001	
6,000.0	5,906.2	5,996.8	5,855.6	20.9	24.5	-27.80	-1,159.5	-451.1	244.6	217.5	27.10	9.027	
6,100.0	6,004.5	6,096.7	5,952.9	21.3	24.9	-27.72	-1,180.3	-459.4	249.2	221.7	27.53	9.053	
6,200.0	6,102.8	6,196.6	6,050.3	21.7	25.4	-27.64	-1,201.2	-467.8	253.8	225.9	27.96	9.078	
6,300.0	6,201.1	6,296.5	6,147.6	22.0	25.8	-27.57	-1,222.0	-476.2	258.4	230.0	28.39	9.102	
6,400.0	6,299.4	6,396.4	6,244.9	22.4	26.2	-27.50	-1,242.9	-484.5	263.0	234.2	28.82	9.125	
6,500.0	6,397.8	6,496.2	6,342.3	22.8	26.7	-27.43	-1,263.7	-492.9	267.6	238.4	29.26	9.148	
6,600.0	6,496.1	6,596.1	6,439.6	23.1	27.1	-27.36	-1,284.6	-501.3	272.2	242.5	29.69	9.170	
6,700.0	6,594.4	6,696.0	6,536.9	23.5	27.5	-27.29	-1,305.5	-509.6	276.8	246.7	30.12	9.191	
6,800.0	6,692.7	6,795.9	6,634.3	23.9	27.9	-27.23	-1,326.3	-518.0	281.4	250.9	30.55	9.212	
6,900.0	6,791.0	6,895.8	6,731.6	24.2	28.4	-27.17	-1,347.2	-526.3	286.0	255.0	30.98	9.232	
7,000.0	6,889.3	6,995.7	6,828.9	24.6	28.8	-27.11	-1,368.0	-534.7	290.6	259.2	31.41	9.252	
7,100.0	6,987.6	7,095.6	6,926.3	25.0	29.2	-27.05	-1,388.9	-543.1	295.2	263.4	31.84	9.271	
7,200.0	7,086.0	7,195.5	7,023.6	25.3	29.7	-26.99	-1,409.7	-551.4	299.8	267.5	32.27	9.289	
7,300.0	7,184.3	7,295.4	7,120.9	25.7	30.1	-26.94	-1,430.6	-559.8	304.4	271.7	32.71	9.307	
7,400.0	7,282.6	7,395.3	7,218.3	26.0	30.5	-26.89	-1,451.5	-568.2	309.0	275.9	33.14	9.325	
7,500.0	7,380.9	7,503.5	7,324.0	26.4	31.0	-26.91	-1,473.0	-576.8	312.7	279.1	33.61	9.303	
7,600.0	7,479.7	7,614.7	7,433.4	26.7	31.3	-27.02	-1,491.3	-584.1	315.1	281.0	34.07	9.247	
7,700.0	7,578.9	7,726.1	7,543.7	27.0	31.6	-27.09	-1,505.8	-589.9	317.0	282.5	34.48	9.195	
7,800.0	7,678.5	7,837.5	7,654.5	27.1	31.8	-27.15	-1,516.2	-594.1	318.4	283.6	34.82	9.145	
7,900.0	7,778.3	7,948.9	7,765.7	27.3	32.0	-27.17	-1,522.6	-596.7	319.4	284.3	35.10	9.098	
8,000.0	7,878.3	8,060.4	7,877.2	27.4	32.1	-27.17	-1,525.0	-597.6	319.8	284.5	35.33	9.053	
8,100.0	7,978.3	8,161.5	7,978.3	27.5	32.2	179.34	-1,525.0	-597.7	319.8	284.2	35.60	8.983	
8,200.0	8,078.3	8,261.5	8,078.3	27.6	32.3	179.34	-1,525.0	-597.7	319.8	283.9	35.88	8.914	
8,300.0	8,178.3	8,361.5	8,178.3	27.7	32.3	179.34	-1,525.0	-597.7	319.8	283.7	36.16	8.845	
8,400.0	8,278.3	8,461.5	8,278.3	27.7	32.4	179.34	-1,525.0	-597.7	319.8	283.4	36.44	8.777	
8,500.0	8,378.3	8,561.5	8,378.3	27.8	32.5	179.34	-1,525.0	-597.7	319.8	283.1	36.72	8.709	
8,600.0	8,478.3	8,661.5	8,478.3	27.9	32.6	179.34	-1,525.0	-597.7	319.8	282.8	37.00	8.643	
8,700.0	8,578.3	8,761.5	8,578.3	28.0	32.7	179.34	-1,525.0	-597.7	319.8	282.5	37.29	8.577	
8,800.0	8,678.3	8,861.5	8,678.3	28.1	32.7	179.34	-1,525.0	-597.7	319.8	282.2	37.57	8.512	
8,900.0	8,778.3	8,961.5	8,778.3	28.2	32.8	179.34	-1,525.0	-597.7	319.8	282.0	37.86	8.448	
9,000.0	8,878.3	9,061.5	8,878.3	28.3	32.9	179.34	-1,525.0	-597.7	319.8	281.7	38.15	8.384	
9,100.0	8,978.3	9,161.5	8,978.3	28.4	33.0	179.34	-1,525.0	-597.7	319.8	281.4	38.43	8.321	
9,200.0	9,078.3	9,261.5	9,078.3	28.5	33.1	179.34	-1,525.0	-597.7	319.8	281.1	38.72	8.259	
9,300.0	9,178.3	9,361.5	9,178.3	28.6	33.2	179.34	-1,525.0	-597.7	319.8	280.8	39.01	8.197	
9,400.0	9,278.3	9,461.5	9,278.3	28.7	33.3	179.34	-1,525.0	-597.7	319.8	280.5	39.31	8.137	
9,500.0	9,378.3	9,561.5	9,378.3	28.8	33.3	179.34	-1,525.0	-597.7	319.8	280.2	39.60	8.077	
9,600.0	9,478.3	9,661.5	9,478.3	28.9	33.4	179.34	-1,525.0	-597.7	319.8	279.9	39.89	8.017	
9,700.0	9,578.3	9,761.5	9,578.3	29.0	33.5	179.34	-1,525.0	-597.7	319.8	279.6	40.18	7.959	
9,800.0	9,678.3	9,861.5	9,678.3	29.1	33.6	179.34	-1,525.0	-597.7	319.8	279.3	40.48	7.901	
9,900.0	9,778.3	9,961.5	9,778.3	29.2	33.7	179.34	-1,525.0	-597.7	319.8	279.0	40.78	7.843	
10,000.0	9,878.3	10,061.5	9,878.3	29.3	33.8	179.34	-1,525.0	-597.7	319.8	278.7	41.07	7.787	
10,100.0	9,978.3	10,161.5	9,978.3	29.4	33.9	179.34	-1,525.0	-597.7	319.8	278.4	41.37	7.731	
10,200.0	10,078.3	10,261.5	10,078.3	29.5	34.0	179.34	-1,525.0	-597.7	319.8	278.2	41.67	7.676	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-4D2 (M16W Pad) - DD - Plan #1

Survey Program: 0-MWD

Offset Site Error: 0.0 ft

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
10,300.0	10,178.3	10,361.5	10,178.3	29.6	34.1	179.34	-1,525.0	-597.7	319.8	277.9	41.97	7.621	
10,400.0	10,278.3	10,461.5	10,278.3	29.7	34.1	179.34	-1,525.0	-597.7	319.8	277.6	42.27	7.567	
10,420.7	10,299.0	10,482.2	10,299.0	29.8	34.2	179.34	-1,525.0	-597.7	319.8	277.5	42.33	7.556	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-5A (M16W Pad) - DD - Plan #1

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	69.94	11.7	31.9	34.0				
100.0	100.0	100.0	100.0	0.1	0.1	69.94	11.7	31.9	34.0	33.7	0.27	124.787	
200.0	200.0	200.0	200.0	0.3	0.3	69.94	11.7	31.9	34.0	33.4	0.62	54.682	CC
300.0	300.0	301.1	301.1	0.5	0.5	-136.12	9.1	31.1	34.2	33.2	0.98	34.861	ES
400.0	399.6	402.2	401.9	0.7	0.7	-134.78	1.5	28.5	35.0	33.6	1.39	25.221	
500.0	498.8	503.3	502.0	1.0	1.0	-132.68	-11.1	24.3	36.3	34.4	1.88	19.290	
600.0	597.2	604.4	601.3	1.3	1.4	-129.29	-28.8	18.3	37.8	35.3	2.50	15.118	
700.0	695.5	705.1	699.2	1.7	1.8	-119.88	-51.3	10.8	37.5	34.2	3.32	11.293	
746.0	740.7	750.9	743.4	1.8	2.0	-113.41	-62.9	6.8	37.3	33.5	3.76	9.911	
800.0	793.8	804.8	795.2	2.0	2.3	-105.73	-76.6	2.2	37.6	33.3	4.28	8.793	
900.0	892.1	904.3	891.1	2.4	2.8	-92.38	-102.0	-6.3	40.0	34.8	5.16	7.737	
1,000.0	990.5	1,003.9	987.0	2.7	3.3	-81.03	-127.4	-14.8	44.2	38.3	5.90	7.489	SF
1,100.0	1,088.8	1,103.4	1,082.9	3.1	3.8	-71.94	-152.8	-23.4	49.8	43.3	6.50	7.668	
1,200.0	1,187.1	1,203.0	1,178.8	3.5	4.3	-64.83	-178.2	-31.9	56.5	49.5	7.01	8.062	
1,300.0	1,285.4	1,302.6	1,274.7	3.8	4.8	-59.27	-203.5	-40.4	63.8	56.3	7.46	8.554	
1,400.0	1,383.7	1,402.1	1,370.6	4.2	5.3	-54.89	-228.9	-49.0	71.6	63.7	7.88	9.083	
1,500.0	1,482.0	1,501.7	1,466.5	4.6	5.8	-51.38	-254.3	-57.5	79.7	71.4	8.29	9.614	
1,600.0	1,580.3	1,601.3	1,562.4	4.9	6.2	-48.53	-279.7	-66.0	88.1	79.4	8.70	10.129	
1,700.0	1,678.7	1,700.8	1,658.3	5.3	6.7	-46.18	-305.0	-74.6	96.6	87.5	9.10	10.622	
1,800.0	1,777.0	1,800.4	1,754.2	5.6	7.2	-44.21	-330.4	-83.1	105.3	95.8	9.50	11.087	
1,900.0	1,875.3	1,899.9	1,850.1	6.0	7.7	-42.54	-355.8	-91.6	114.1	104.2	9.90	11.523	
2,000.0	1,973.6	1,999.5	1,946.0	6.4	8.2	-41.12	-381.2	-100.2	123.0	112.7	10.31	11.931	
2,100.0	2,071.9	2,099.1	2,041.9	6.7	8.7	-39.88	-406.6	-108.7	131.9	121.2	10.71	12.312	
2,200.0	2,170.2	2,198.6	2,137.8	7.1	9.2	-38.80	-431.9	-117.2	140.9	129.8	11.12	12.669	
2,300.0	2,268.5	2,298.2	2,233.6	7.5	9.7	-37.85	-457.3	-125.8	149.9	138.4	11.53	13.001	
2,400.0	2,366.9	2,397.8	2,329.5	7.8	10.2	-37.01	-482.7	-134.3	159.0	147.1	11.94	13.312	
2,500.0	2,465.2	2,497.3	2,425.4	8.2	10.7	-36.26	-508.1	-142.8	168.1	155.7	12.36	13.604	
2,600.0	2,563.5	2,596.9	2,521.3	8.6	11.2	-35.59	-533.5	-151.4	177.2	164.5	12.77	13.876	
2,700.0	2,661.8	2,696.4	2,617.2	8.9	11.7	-34.98	-558.8	-159.9	186.4	173.2	13.19	14.132	
2,800.0	2,760.1	2,796.0	2,713.1	9.3	12.2	-34.43	-584.2	-168.4	195.5	181.9	13.61	14.373	
2,900.0	2,858.4	2,895.6	2,809.0	9.6	12.7	-33.93	-609.6	-177.0	204.7	190.7	14.02	14.599	
3,000.0	2,956.7	2,995.1	2,904.9	10.0	13.2	-33.48	-635.0	-185.5	213.9	199.5	14.44	14.812	
3,100.0	3,055.1	3,094.7	3,000.8	10.4	13.7	-33.06	-660.4	-194.0	223.1	208.3	14.86	15.013	
3,200.0	3,153.4	3,194.3	3,096.7	10.7	14.2	-32.67	-685.7	-202.6	232.3	217.1	15.28	15.203	
3,300.0	3,251.7	3,293.8	3,192.6	11.1	14.7	-32.31	-711.1	-211.1	241.6	225.9	15.70	15.383	
3,400.0	3,350.0	3,393.4	3,288.5	11.5	15.2	-31.98	-736.5	-219.6	250.8	234.7	16.13	15.553	
3,500.0	3,448.3	3,492.9	3,384.4	11.8	15.7	-31.67	-761.9	-228.2	260.1	243.5	16.55	15.715	
3,600.0	3,546.6	3,592.5	3,480.3	12.2	16.2	-31.39	-787.3	-236.7	269.3	252.3	16.97	15.868	
3,700.0	3,644.9	3,692.1	3,576.2	12.6	16.7	-31.12	-812.6	-245.2	278.6	261.2	17.40	16.014	
3,800.0	3,743.3	3,791.6	3,672.1	12.9	17.2	-30.87	-838.0	-253.8	287.8	270.0	17.82	16.152	
3,900.0	3,841.6	3,891.2	3,768.0	13.3	17.7	-30.64	-863.4	-262.3	297.1	278.9	18.24	16.284	
4,000.0	3,939.9	3,990.7	3,863.9	13.7	18.2	-30.42	-888.8	-270.8	306.4	287.7	18.67	16.411	
4,100.0	4,038.2	4,090.3	3,959.7	14.0	18.7	-30.21	-914.1	-279.4	315.7	296.6	19.10	16.531	
4,200.0	4,136.5	4,189.9	4,055.6	14.4	19.2	-30.01	-939.5	-287.9	324.9	305.4	19.52	16.646	
4,300.0	4,234.8	4,289.4	4,151.5	14.7	19.7	-29.83	-964.9	-296.4	334.2	314.3	19.95	16.756	
4,400.0	4,333.2	4,389.0	4,247.4	15.1	20.2	-29.65	-990.3	-305.0	343.5	323.1	20.37	16.861	
4,500.0	4,431.5	4,488.6	4,343.3	15.5	20.7	-29.49	-1,015.7	-313.5	352.8	332.0	20.80	16.962	
4,600.0	4,529.8	4,588.1	4,439.2	15.8	21.2	-29.33	-1,041.0	-322.0	362.1	340.9	21.23	17.059	
4,700.0	4,628.1	4,687.7	4,535.1	16.2	21.7	-29.18	-1,066.4	-330.6	371.4	349.7	21.65	17.152	
4,800.0	4,726.4	4,787.2	4,631.0	16.6	22.2	-29.04	-1,091.8	-339.1	380.7	358.6	22.08	17.241	
4,900.0	4,824.7	4,886.8	4,726.9	16.9	22.7	-28.91	-1,117.2	-347.6	390.0	367.5	22.51	17.327	
5,000.0	4,923.0	4,986.4	4,822.8	17.3	23.2	-28.78	-1,142.6	-356.2	399.3	376.4	22.94	17.410	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU 21-5A (M16W Pad) - DD - Plan #1

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	5,021.4	5,085.9	4,918.7	17.7	23.7	-28.65	-1,167.9	-364.7	408.6	385.2	23.36	17.489	
5,200.0	5,119.7	5,185.5	5,014.6	18.0	24.2	-28.54	-1,193.3	-373.2	417.9	394.1	23.79	17.566	
5,300.0	5,218.0	5,285.1	5,110.5	18.4	24.7	-28.42	-1,218.7	-381.8	427.2	403.0	24.22	17.640	
5,400.0	5,316.3	5,384.6	5,206.4	18.8	25.2	-28.32	-1,244.1	-390.3	436.5	411.9	24.65	17.711	
5,500.0	5,414.6	5,484.2	5,302.3	19.1	25.7	-28.21	-1,269.5	-398.8	445.8	420.8	25.08	17.780	
5,600.0	5,512.9	5,583.7	5,398.2	19.5	26.2	-28.11	-1,294.8	-407.4	455.2	429.7	25.50	17.846	
5,700.0	5,611.2	5,683.3	5,494.1	19.8	26.7	-28.02	-1,320.2	-415.9	464.5	438.5	25.93	17.911	
5,800.0	5,709.6	5,782.9	5,590.0	20.2	27.2	-27.93	-1,345.6	-424.4	473.8	447.4	26.36	17.973	
5,900.0	5,807.9	5,882.4	5,685.8	20.6	27.7	-27.84	-1,371.0	-433.0	483.1	456.3	26.79	18.033	
6,000.0	5,906.2	5,982.0	5,781.7	20.9	28.2	-27.76	-1,396.4	-441.5	492.4	465.2	27.22	18.091	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1

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	39.92	119.5	100.0	155.8				
100.0	100.0	100.0	100.0	0.1	0.1	39.92	119.5	100.0	155.8	155.5	0.27	572.163	
200.0	200.0	200.0	200.0	0.3	0.3	39.92	119.5	100.0	155.8	155.2	0.62	250.723	CC, ES
300.0	300.0	298.3	298.3	0.5	0.5	-167.68	121.4	98.4	158.8	157.9	0.98	162.891	
400.0	399.6	395.6	395.2	0.7	0.7	-170.69	127.2	93.6	168.3	167.0	1.36	123.931	
500.0	498.8	490.6	489.5	1.0	1.0	-174.94	136.5	86.0	185.0	183.2	1.78	103.772	
600.0	597.2	586.1	583.7	1.3	1.3	-179.41	148.3	76.3	208.3	206.1	2.21	94.118	
700.0	695.5	681.9	678.3	1.7	1.6	176.96	160.2	66.5	233.4	230.7	2.65	88.010	
800.0	793.8	777.8	773.0	2.0	1.9	174.04	172.0	56.8	259.1	256.0	3.09	83.844	
900.0	892.1	873.6	867.6	2.4	2.2	171.64	183.9	47.0	285.4	281.9	3.53	80.825	
1,000.0	990.5	969.5	962.2	2.7	2.5	169.64	195.8	37.3	312.1	308.1	3.97	78.532	
1,100.0	1,088.8	1,065.3	1,056.8	3.1	2.8	167.96	207.6	27.5	339.1	334.7	4.42	76.729	
1,200.0	1,187.1	1,161.2	1,151.4	3.5	3.1	166.52	219.5	17.7	366.3	361.4	4.87	75.273	
1,300.0	1,285.4	1,257.0	1,246.0	3.8	3.4	165.28	231.4	8.0	393.7	388.4	5.31	74.071	
1,400.0	1,383.7	1,352.9	1,340.6	4.2	3.8	164.21	243.3	-1.8	421.2	415.5	5.77	73.062	
1,500.0	1,482.0	1,448.7	1,435.2	4.6	4.1	163.26	255.1	-11.5	448.9	442.7	6.22	72.202	
1,600.0	1,580.3	1,544.6	1,529.8	4.9	4.4	162.42	267.0	-21.3	476.7	470.0	6.67	71.461	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-2C (M16W Pad) - DD - Plan #1

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	39.01	130.0	105.3	167.3				
100.0	100.0	100.0	100.0	0.1	0.1	39.01	130.0	105.3	167.3	167.1	0.27	614.641	
200.0	200.0	200.0	200.0	0.3	0.3	39.01	130.0	105.3	167.3	166.7	0.62	269.337	CC, ES
300.0	300.0	297.0	296.9	0.5	0.5	-168.44	132.1	104.1	170.8	169.8	0.97	175.727	
400.0	399.6	392.7	392.4	0.7	0.7	-171.03	138.3	100.3	181.3	180.0	1.35	134.581	
500.0	498.8	486.3	485.2	1.0	1.0	-174.67	148.3	94.2	199.5	197.8	1.75	113.809	
600.0	597.2	576.7	574.2	1.3	1.3	-178.72	161.6	86.0	225.4	223.2	2.18	103.248	
700.0	695.5	670.5	666.2	1.7	1.6	177.39	177.7	76.2	254.3	251.7	2.63	96.675	
800.0	793.8	764.9	758.7	2.0	2.0	174.26	193.8	66.4	284.2	281.1	3.08	92.318	
900.0	892.1	859.3	851.1	2.4	2.3	171.72	209.9	56.5	314.7	311.2	3.53	89.261	
1,000.0	990.5	953.7	943.6	2.7	2.7	169.63	226.0	46.7	345.7	341.7	3.97	87.006	
1,100.0	1,088.8	1,048.1	1,036.1	3.1	3.1	167.87	242.2	36.8	377.0	372.6	4.42	85.276	
1,200.0	1,187.1	1,142.4	1,128.5	3.5	3.4	166.39	258.3	27.0	408.6	403.8	4.87	83.907	
1,300.0	1,285.4	1,236.8	1,221.0	3.8	3.8	165.12	274.4	17.1	440.4	435.1	5.32	82.796	
1,400.0	1,383.7	1,331.2	1,313.5	4.2	4.2	164.01	290.6	7.2	472.4	466.6	5.77	81.878	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 16-5C (M16W Pad) - DD - Plan #1

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	42.81	125.3	116.1	170.8				
100.0	100.0	100.0	100.0	0.1	0.1	42.81	125.3	116.1	170.8	170.5	0.27	627.320	
200.0	200.0	200.0	200.0	0.3	0.3	42.81	125.3	116.1	170.8	170.2	0.62	274.893	CC, ES
300.0	300.0	295.9	295.8	0.5	0.5	-164.61	127.6	115.3	174.5	173.5	0.97	180.001	
400.0	399.6	390.5	390.2	0.7	0.7	-167.08	134.2	112.8	185.8	184.4	1.34	138.748	
500.0	498.8	482.7	481.6	1.0	0.9	-170.54	144.9	108.9	205.2	203.4	1.73	118.457	
600.0	597.2	571.5	569.2	1.3	1.3	-174.37	159.1	103.7	232.6	230.4	2.14	108.484	
700.0	695.5	657.5	653.2	1.7	1.6	-178.08	176.5	97.4	264.4	261.8	2.57	102.778	
800.0	793.8	740.7	733.5	2.0	2.0	178.50	196.7	90.0	300.1	297.1	3.01	99.740	
900.0	892.1	820.8	809.9	2.4	2.5	175.42	219.3	81.8	339.7	336.3	3.44	98.684	
1,000.0	990.5	909.0	893.4	2.7	3.0	172.46	246.0	72.1	381.8	377.9	3.90	97.924	
1,100.0	1,088.8	998.0	977.7	3.1	3.5	170.06	272.9	62.2	424.7	420.3	4.35	97.557	
1,200.0	1,187.1	1,087.1	1,062.0	3.5	4.0	168.09	299.9	52.4	468.0	463.2	4.80	97.441	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-16B (M16W Pad) - DD - Plan #1

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	52.89	16.0	21.2	26.6				
100.0	100.0	100.0	100.0	0.1	0.1	52.89	16.0	21.2	26.6	26.3	0.27	97.555	
200.0	200.0	200.0	200.0	0.3	0.3	52.89	16.0	21.2	26.6	25.9	0.62	42.749	CC, ES
300.0	300.0	300.8	300.7	0.5	0.5	-160.37	16.6	18.6	27.4	26.4	0.98	28.028	
400.0	399.6	400.9	400.5	0.7	0.7	-177.28	18.5	10.9	31.9	30.6	1.37	23.326	SF
500.0	498.8	499.8	498.6	1.0	1.0	165.05	21.5	-1.6	43.5	41.6	1.83	23.719	
600.0	597.2	596.9	594.0	1.3	1.4	152.47	25.6	-18.8	62.5	60.1	2.40	26.046	
700.0	695.5	692.3	686.8	1.7	1.8	143.15	30.8	-40.2	85.5	82.4	3.06	27.952	
800.0	793.8	785.6	776.5	2.0	2.3	135.73	36.9	-65.4	112.1	108.3	3.77	29.741	
900.0	892.1	877.4	863.3	2.4	2.8	129.69	43.8	-94.3	142.5	138.0	4.49	31.759	
1,000.0	990.5	971.3	951.7	2.7	3.4	125.28	51.3	-125.1	174.8	169.6	5.20	33.617	
1,100.0	1,088.8	1,065.2	1,040.1	3.1	4.0	122.25	58.7	-156.0	207.8	201.9	5.90	35.211	
1,200.0	1,187.1	1,159.2	1,128.5	3.5	4.6	120.05	66.1	-186.8	241.1	234.5	6.59	36.562	
1,300.0	1,285.4	1,253.1	1,216.9	3.8	5.2	118.37	73.6	-217.6	274.7	267.4	7.28	37.712	
1,400.0	1,383.7	1,347.0	1,305.3	4.2	5.8	117.07	81.0	-248.5	308.4	300.5	7.97	38.697	
1,500.0	1,482.0	1,440.9	1,393.8	4.6	6.4	116.02	88.4	-279.3	342.3	333.6	8.66	39.547	
1,600.0	1,580.3	1,534.9	1,482.2	4.9	7.0	115.15	95.8	-310.1	376.2	366.9	9.34	40.288	
1,700.0	1,678.7	1,628.8	1,570.6	5.3	7.6	114.44	103.3	-341.0	410.3	400.2	10.02	40.937	
1,800.0	1,777.0	1,722.7	1,659.0	5.6	8.2	113.83	110.7	-371.8	444.3	433.6	10.70	41.511	
1,900.0	1,875.3	1,816.6	1,747.4	6.0	8.8	113.30	118.1	-402.6	478.4	467.0	11.38	42.022	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1

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	27.75	10.2	5.4	11.5				
100.0	100.0	100.0	100.0	0.1	0.1	27.75	10.2	5.4	11.5	11.3	0.27	42.326	
200.0	200.0	200.0	200.0	0.3	0.3	27.75	10.2	5.4	11.5	10.9	0.62	18.547	CC, ES
300.0	300.0	300.1	300.1	0.5	0.5	170.50	10.5	2.8	13.4	12.4	0.98	13.699	SF
400.0	399.6	399.7	399.4	0.7	0.7	152.37	11.3	-5.0	20.7	19.3	1.38	14.948	
500.0	498.8	498.3	497.1	1.0	1.0	140.69	12.6	-17.8	34.5	32.6	1.87	18.399	
600.0	597.2	595.4	592.6	1.3	1.3	134.16	14.5	-35.2	54.1	51.7	2.46	21.977	
700.0	695.5	691.0	685.6	1.7	1.8	128.33	16.8	-57.1	76.9	73.8	3.13	24.583	
800.0	793.8	784.8	775.7	2.0	2.3	122.95	19.5	-83.0	102.9	99.0	3.84	26.784	
900.0	892.1	877.5	863.5	2.4	2.8	118.20	22.6	-112.7	132.2	127.6	4.56	29.014	
1,000.0	990.5	972.3	952.8	2.7	3.4	114.77	25.9	-144.3	162.9	157.6	5.27	30.905	
1,100.0	1,088.8	1,067.1	1,042.1	3.1	4.0	112.43	29.2	-175.8	194.0	188.0	5.98	32.444	
1,200.0	1,187.1	1,161.9	1,131.5	3.5	4.6	110.73	32.5	-207.3	225.3	218.6	6.68	33.706	
1,300.0	1,285.4	1,256.7	1,220.8	3.8	5.2	109.45	35.8	-238.9	256.7	249.3	7.39	34.756	
1,400.0	1,383.7	1,351.5	1,310.2	4.2	5.8	108.45	39.1	-270.4	288.2	280.1	8.09	35.640	
1,500.0	1,482.0	1,446.3	1,399.5	4.6	6.4	107.64	42.5	-301.9	319.8	311.0	8.79	36.393	
1,600.0	1,580.3	1,541.1	1,488.8	4.9	7.0	106.98	45.8	-333.4	351.4	341.9	9.49	37.042	
1,700.0	1,678.7	1,635.9	1,578.2	5.3	7.6	106.43	49.1	-365.0	383.1	372.9	10.19	37.607	
1,800.0	1,777.0	1,730.7	1,667.5	5.6	8.2	105.96	52.4	-396.5	414.7	403.9	10.88	38.103	
1,900.0	1,875.3	1,825.5	1,756.8	6.0	8.8	105.56	55.7	-428.0	446.4	434.9	11.58	38.541	
2,000.0	1,973.6	1,920.3	1,846.2	6.4	9.4	105.21	59.0	-459.6	478.2	465.9	12.28	38.931	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-16C (M16W Pad) - DD - Plan #1

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	-93.14	-1.5	-26.5	26.6				
100.0	100.0	100.0	100.0	0.1	0.1	-93.14	-1.5	-26.5	26.6	26.3	0.27	97.652	
200.0	200.0	200.0	200.0	0.3	0.3	-93.14	-1.5	-26.5	26.6	26.0	0.62	42.792	CC, ES
300.0	300.0	298.6	298.5	0.5	0.5	65.05	-1.5	-29.1	28.0	27.0	0.97	28.692	
400.0	399.6	396.7	396.4	0.7	0.7	76.39	-1.7	-36.7	33.1	31.7	1.37	24.145	
500.0	498.8	494.0	492.9	1.0	1.0	88.41	-2.1	-49.1	43.4	41.6	1.86	23.408	SF
600.0	597.2	590.2	587.5	1.3	1.3	97.19	-2.5	-66.3	59.7	57.2	2.44	24.458	
700.0	695.5	685.2	680.0	1.7	1.8	100.47	-3.1	-87.8	80.6	77.6	3.08	26.199	
800.0	793.8	778.6	769.8	2.0	2.3	100.67	-3.8	-113.5	105.4	101.6	3.75	28.093	
900.0	892.1	871.9	858.2	2.4	2.8	99.56	-4.6	-143.2	133.5	129.0	4.43	30.105	
1,000.0	990.5	967.6	948.7	2.7	3.4	98.62	-5.5	-174.5	162.3	157.2	5.13	31.640	
1,100.0	1,088.8	1,063.3	1,039.1	3.1	4.0	97.96	-6.3	-205.8	191.2	185.4	5.83	32.795	
1,200.0	1,187.1	1,159.0	1,129.6	3.5	4.6	97.47	-7.2	-237.1	220.1	213.6	6.53	33.691	
1,300.0	1,285.4	1,254.7	1,220.0	3.8	5.1	97.09	-8.0	-268.4	249.0	241.8	7.24	34.406	
1,400.0	1,383.7	1,350.5	1,310.5	4.2	5.7	96.80	-8.9	-299.7	277.9	270.0	7.94	34.990	
1,500.0	1,482.0	1,446.2	1,400.9	4.6	6.3	96.56	-9.7	-331.0	306.8	298.2	8.65	35.475	
1,600.0	1,580.3	1,541.9	1,491.4	4.9	6.9	96.36	-10.6	-362.3	335.7	326.4	9.36	35.884	
1,700.0	1,678.7	1,637.6	1,581.8	5.3	7.5	96.19	-11.5	-393.6	364.7	354.6	10.06	36.234	
1,800.0	1,777.0	1,733.3	1,672.3	5.6	8.1	96.05	-12.3	-424.9	393.6	382.8	10.77	36.537	
1,900.0	1,875.3	1,829.1	1,762.7	6.0	8.7	95.92	-13.2	-456.2	422.5	411.0	11.48	36.801	
2,000.0	1,973.6	1,924.8	1,853.2	6.4	9.3	95.81	-14.0	-487.5	451.5	439.3	12.19	37.033	
2,100.0	2,071.9	2,020.5	1,943.7	6.7	9.9	95.72	-14.9	-518.8	480.4	467.5	12.90	37.240	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9B (M16W pad) - DD - Plan #1

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	36.52	113.6	84.2	141.4				
100.0	100.0	100.0	100.0	0.1	0.1	36.52	113.6	84.2	141.4	141.1	0.27	519.370	
200.0	200.0	200.0	200.0	0.3	0.3	36.52	113.6	84.2	141.4	140.8	0.62	227.589	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	-170.16	113.6	84.2	144.0	143.0	0.97	148.469	
400.0	399.6	399.6	399.6	0.7	0.7	-170.63	113.6	84.2	151.7	150.4	1.32	115.236	
500.0	498.8	498.1	498.1	1.0	0.8	-172.19	115.2	82.2	164.8	163.1	1.66	99.079	
600.0	597.2	595.0	594.7	1.3	1.0	-175.25	119.9	76.4	183.1	181.1	2.03	90.234	
700.0	695.5	690.4	689.3	1.7	1.3	-179.12	127.5	67.0	203.5	201.1	2.44	83.434	
800.0	793.8	783.9	781.3	2.0	1.6	176.61	137.8	54.3	226.0	223.1	2.90	77.814	
900.0	892.1	875.3	870.4	2.4	2.0	172.19	150.6	38.4	251.0	247.6	3.43	73.226	
1,000.0	990.5	964.1	956.0	2.7	2.4	167.83	165.7	19.9	279.2	275.2	4.01	69.672	
1,100.0	1,088.8	1,050.2	1,037.7	3.1	2.9	163.65	182.6	-1.0	311.0	306.3	4.63	67.129	
1,200.0	1,187.1	1,133.2	1,115.3	3.5	3.4	159.76	201.1	-23.9	346.3	341.1	5.27	65.666	
1,300.0	1,285.4	1,221.0	1,196.5	3.8	4.0	156.02	222.1	-50.0	384.7	378.8	5.96	64.607	
1,400.0	1,383.7	1,310.3	1,279.1	4.2	4.6	152.87	243.6	-76.5	424.5	417.8	6.63	63.983	
1,500.0	1,482.0	1,399.7	1,361.6	4.6	5.2	150.24	265.1	-103.0	465.1	457.8	7.30	63.697	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1

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	-13.42	118.4	-28.2	121.7				
100.0	100.0	100.0	100.0	0.1	0.1	-13.42	118.4	-28.2	121.7	121.4	0.27	446.975	
200.0	200.0	200.0	200.0	0.3	0.3	-13.42	118.4	-28.2	121.7	121.1	0.62	195.866	CC, ES
300.0	300.0	295.6	295.6	0.5	0.5	139.95	119.6	-30.3	125.5	124.5	0.97	129.336	
400.0	399.6	390.4	390.1	0.7	0.7	139.61	123.3	-36.4	136.7	135.3	1.35	101.293	
500.0	498.8	483.7	482.6	1.0	1.0	139.12	129.2	-46.3	155.3	153.5	1.78	87.173	
600.0	597.2	574.8	572.4	1.3	1.3	138.68	137.2	-59.7	180.6	178.3	2.27	79.557	
700.0	695.5	663.9	659.4	1.7	1.7	137.80	147.2	-76.3	209.6	206.8	2.80	74.731	
800.0	793.8	751.0	743.4	2.0	2.1	136.44	159.0	-95.9	241.9	238.5	3.38	71.651	
900.0	892.1	835.6	823.9	2.4	2.6	134.85	172.3	-118.1	277.4	273.5	3.97	69.800	
1,000.0	990.5	919.1	902.2	2.7	3.1	133.14	187.2	-142.9	316.2	311.6	4.59	68.915	
1,100.0	1,088.8	1,010.2	987.2	3.1	3.7	131.51	204.1	-171.2	356.4	351.2	5.23	68.131	
1,200.0	1,187.1	1,101.4	1,072.2	3.5	4.3	130.21	221.1	-199.4	396.7	390.9	5.87	67.589	
1,300.0	1,285.4	1,192.5	1,157.2	3.8	5.0	129.14	238.0	-227.7	437.2	430.7	6.51	67.202	
1,400.0	1,383.7	1,283.7	1,242.2	4.2	5.6	128.26	255.0	-255.9	477.8	470.7	7.14	66.922	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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9C (M16W Pad) - DD - Plan #1

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	27.00	112.5	57.3	126.3				
100.0	100.0	100.0	100.0	0.1	0.1	27.00	112.5	57.3	126.3	126.0	0.27	463.868	
200.0	200.0	200.0	200.0	0.3	0.3	27.00	112.5	57.3	126.3	125.7	0.62	203.268	CC, ES
300.0	300.0	300.1	300.1	0.5	0.5	179.30	113.6	54.9	128.8	127.9	0.98	131.668	
400.0	399.6	399.5	399.1	0.7	0.7	176.06	116.9	47.9	136.7	135.4	1.37	99.856	
500.0	498.8	497.3	496.1	1.0	1.0	171.47	122.1	36.3	150.7	148.9	1.82	83.008	
600.0	597.2	593.0	590.2	1.3	1.3	166.40	129.3	20.7	170.8	168.4	2.33	73.184	
700.0	695.5	686.6	681.4	1.7	1.8	161.20	138.2	1.3	193.9	190.9	2.93	66.127	
800.0	793.8	778.0	769.2	2.0	2.2	156.08	148.6	-21.6	219.9	216.3	3.60	61.160	
900.0	892.1	866.8	853.3	2.4	2.8	151.21	160.5	-47.4	249.4	245.1	4.30	57.965	
1,000.0	990.5	957.8	938.6	2.7	3.4	146.68	173.8	-76.5	282.0	277.0	5.03	56.048	
1,100.0	1,088.8	1,050.0	1,024.9	3.1	4.0	143.00	187.3	-106.0	316.0	310.2	5.75	54.908	
1,200.0	1,187.1	1,142.3	1,111.2	3.5	4.6	140.02	200.8	-135.5	350.9	344.4	6.47	54.267	
1,300.0	1,285.4	1,234.5	1,197.6	3.8	5.2	137.57	214.3	-165.1	386.5	379.4	7.17	53.926	
1,400.0	1,383.7	1,326.8	1,283.9	4.2	5.8	135.53	227.8	-194.6	422.7	414.8	7.86	53.773	
1,500.0	1,482.0	1,419.0	1,370.2	4.6	6.4	133.80	241.3	-224.1	459.3	450.7	8.55	53.736	SF
1,600.0	1,580.3	1,511.2	1,456.6	4.9	7.0	132.33	254.8	-253.7	496.1	486.9	9.23	53.774	

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 MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Offset Design SWSW S16-T7S-R93W (M16W Pad) - MCU Fee 17-9D (M16W Pad) - DD - Plan #1

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	27.13	102.0	52.2	114.6				
100.0	100.0	100.0	100.0	0.1	0.1	27.13	102.0	52.2	114.6	114.3	0.27	420.869	
200.0	200.0	200.0	200.0	0.3	0.3	27.13	102.0	52.2	114.6	114.0	0.62	184.426	CC, ES
300.0	300.0	303.7	303.7	0.5	0.5	-178.98	100.1	52.2	115.6	114.6	0.98	118.319	
400.0	399.6	405.2	405.1	0.7	0.7	-178.33	95.6	51.5	119.2	117.8	1.33	89.765	
500.0	498.8	504.7	504.4	1.0	0.9	-179.85	93.0	46.8	127.7	126.0	1.67	76.428	
600.0	597.2	603.0	602.2	1.3	1.1	176.78	92.9	37.6	141.3	139.3	2.05	69.099	
700.0	695.5	700.0	698.3	1.7	1.3	172.26	95.2	24.2	156.8	154.3	2.49	62.977	
800.0	793.8	795.5	792.1	2.0	1.7	167.04	99.8	6.9	174.3	171.3	3.03	57.509	
900.0	892.1	888.9	882.9	2.4	2.1	161.56	106.4	-14.0	194.7	191.0	3.67	53.027	
1,000.0	990.5	980.5	970.8	2.7	2.5	156.12	115.1	-38.2	218.6	214.2	4.38	49.889	
1,100.0	1,088.8	1,075.0	1,061.0	3.1	3.0	151.24	124.8	-64.5	245.0	239.9	5.13	47.783	
1,200.0	1,187.1	1,169.5	1,151.2	3.5	3.5	147.30	134.5	-90.9	272.8	267.0	5.87	46.490	
1,300.0	1,285.4	1,263.9	1,241.4	3.8	4.0	144.08	144.2	-117.2	301.7	295.1	6.60	45.701	
1,400.0	1,383.7	1,358.4	1,331.6	4.2	4.5	141.41	153.9	-143.6	331.2	323.9	7.32	45.231	
1,500.0	1,482.0	1,452.9	1,421.8	4.6	5.1	139.18	163.6	-169.9	361.4	353.3	8.04	44.967	
1,600.0	1,580.3	1,547.3	1,512.0	4.9	5.6	137.29	173.3	-196.2	391.9	383.2	8.74	44.838	
1,700.0	1,678.7	1,641.8	1,602.2	5.3	6.1	135.67	183.0	-222.6	422.8	413.4	9.44	44.798	SF
1,800.0	1,777.0	1,736.3	1,692.4	5.6	6.6	134.27	192.7	-248.9	454.0	443.8	10.13	44.817	
1,900.0	1,875.3	1,830.7	1,782.6	6.0	7.2	133.04	202.4	-275.3	485.4	474.5	10.82	44.874	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU 21-4C (M16W Pad)
Project:	Mamm Creek	**TVD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Reference Site:	SWSW S16-T7S-R93W (M16W Pad)	**MD Reference:**	KBE @ 7903.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	MCU 21-4C (M16W Pad)	**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 #1	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to KBE @ 7903.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °
Coordinates are relative to: MCU 21-4C (M16W Pad)
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.44°