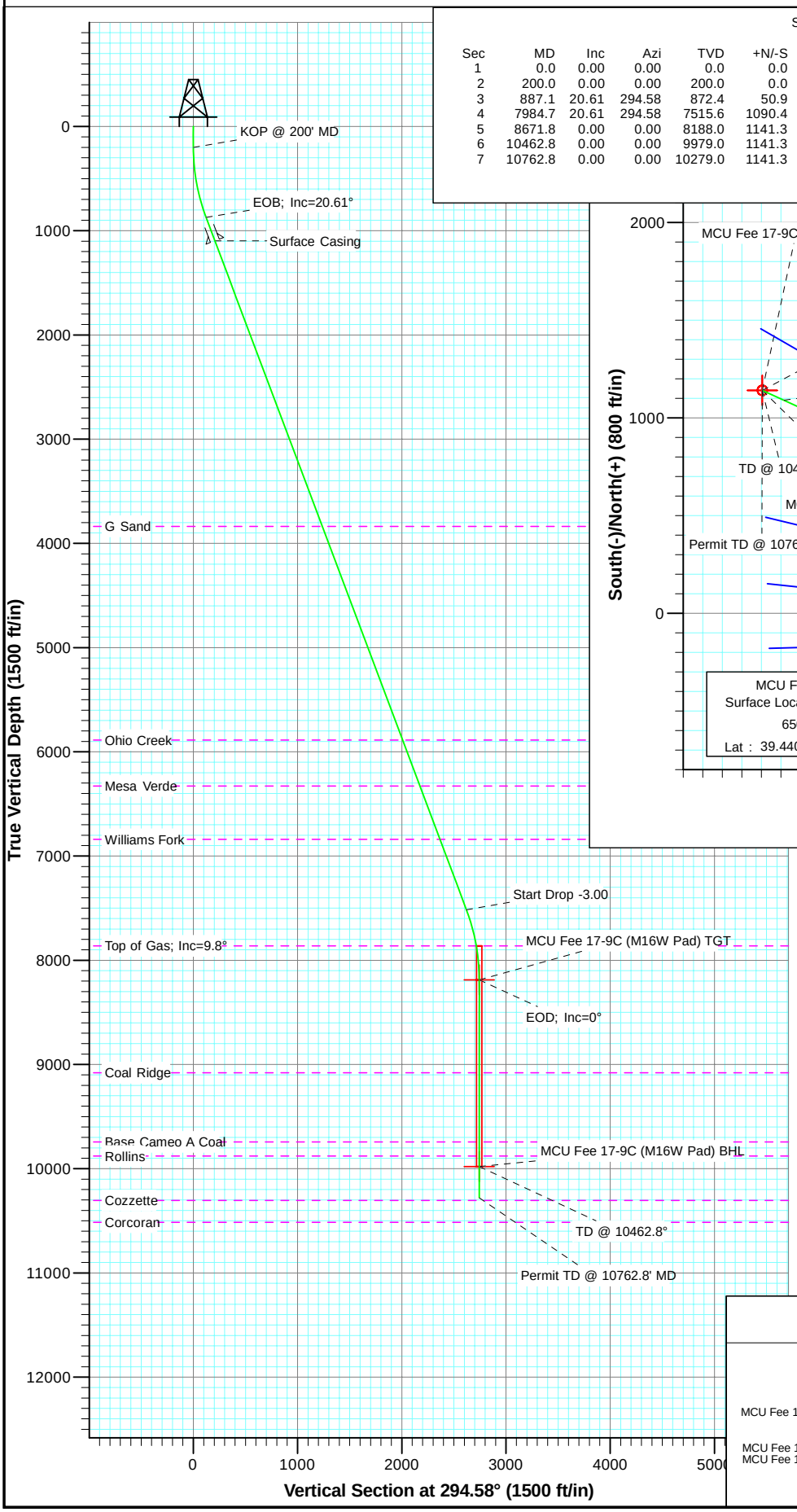
Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU Fee 17-9C (M16W Pad)
Wellbore: DD
Plan: Plan #1

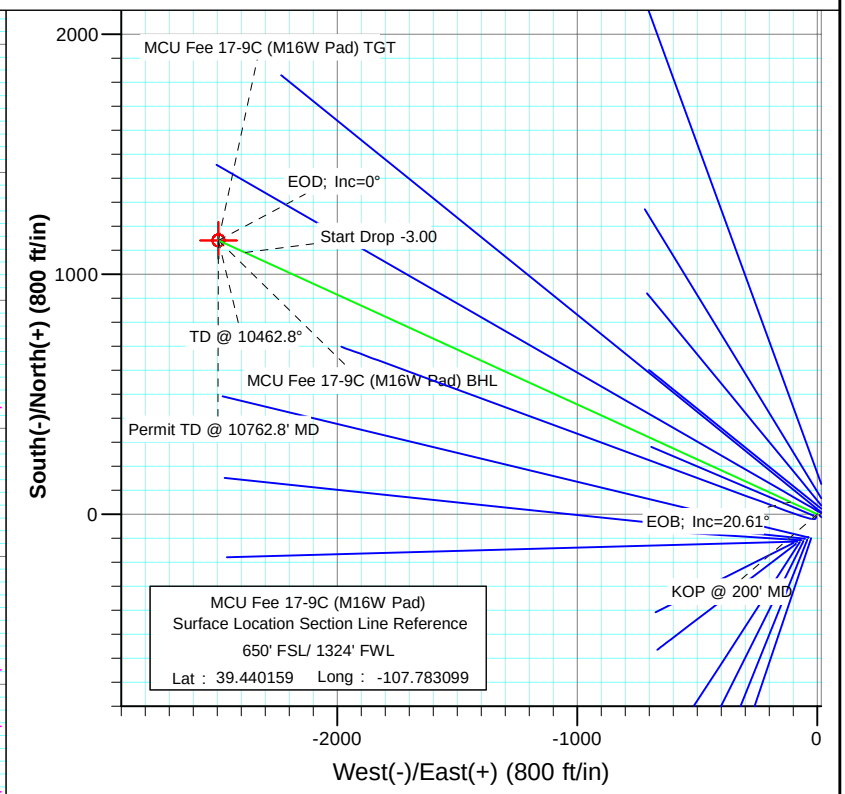
ENCANA

CATHEDRAL

SECTION DETAILS

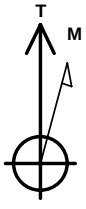
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	887.1	20.61	294.58	872.4	50.9	-111.2	3.00	294.58	122.3	
4	7984.7	20.61	294.58	7515.6	1090.4	-2383.4	0.00	0.00	2621.0	
5	8671.8	0.00	0.00	8188.0	1141.3	-2494.5	3.00	180.00	2743.2	MCU Fee 17-9C (M16W Pad) TGT
6	10462.8	0.00	0.00	9979.0	1141.3	-2494.5	0.00	0.00	2743.2	MCU Fee 17-9C (M16W Pad) BHL
7	10762.8	0.00	0.00	10279.0	1141.3	-2494.5	0.00	0.00	2743.2	





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3837.0	4054.5	G Sand
5887.0	6244.7	Ohio Creek
6328.0	6715.9	Mesa Verde
6840.0	7262.9	Williams Fork
7863.0	8345.2	Top of Gas; Inc=9.8°
9079.0	9562.8	Coal Ridge
9743.0	10226.8	Base Cameo A Coal
9879.0	10362.8	Rollins



Azimuths to True North
Magnetic North: 10.30°

Magnetic Field
Strength: 52273.2snT
Dip Angle: 65.74°
Date: 1/18/2011
Model: IGRF2010

Plan #1
MCU Fee 17-9C (M16W Pad)
115XXX; BH

KBE @ 7903.0ft (Original Well Elev)
North American Datum 1983
Well MCU Fee 17-9C (M16W Pad), True North

Target	Azimuth	Origin Type	N/S
MCU Fee 17-9C (M16W Pad) BHL	294.58	Slot	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU Fee 17-9C (M16W Pad) TGT	8188.0	1141.3	-2494.5	39.443292	-107.791932
MCU Fee 17-9C (M16W Pad) BHL	9979.0	1141.3	-2494.5	39.443292	-107.791932

Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
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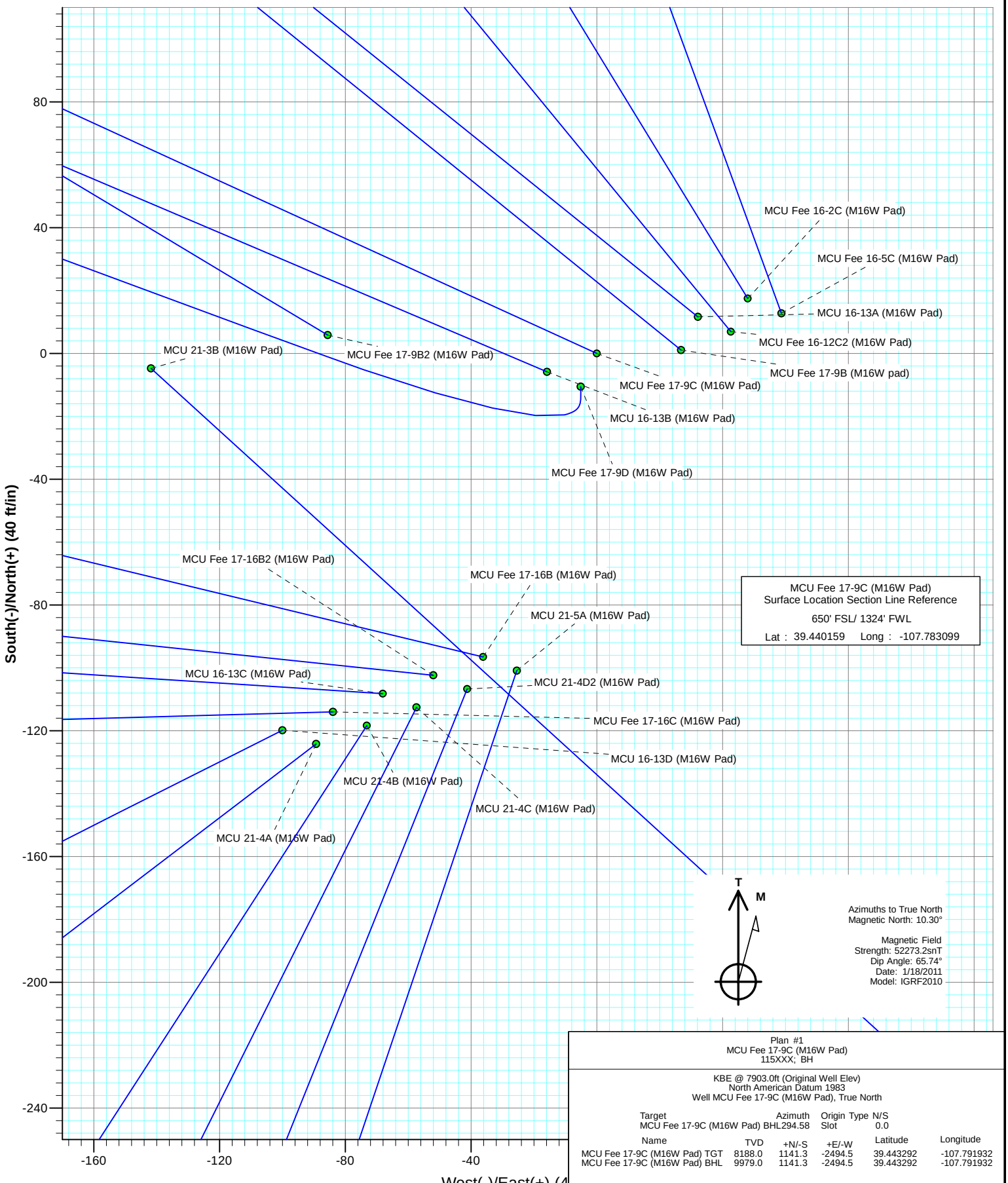

Plan #1
MCU Fee 17-9C (M16W Pad)
115XXX; BH

KBE @ 7903.0ft (Original Well Elev)
North American Datum 1983
Well MCU Fee 17-9C (M16W Pad), True North

Target		Azimuth	Origin Type	N/S
MCU Fee 17-9C (M16W Pad) BHL		294.58	Slot	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
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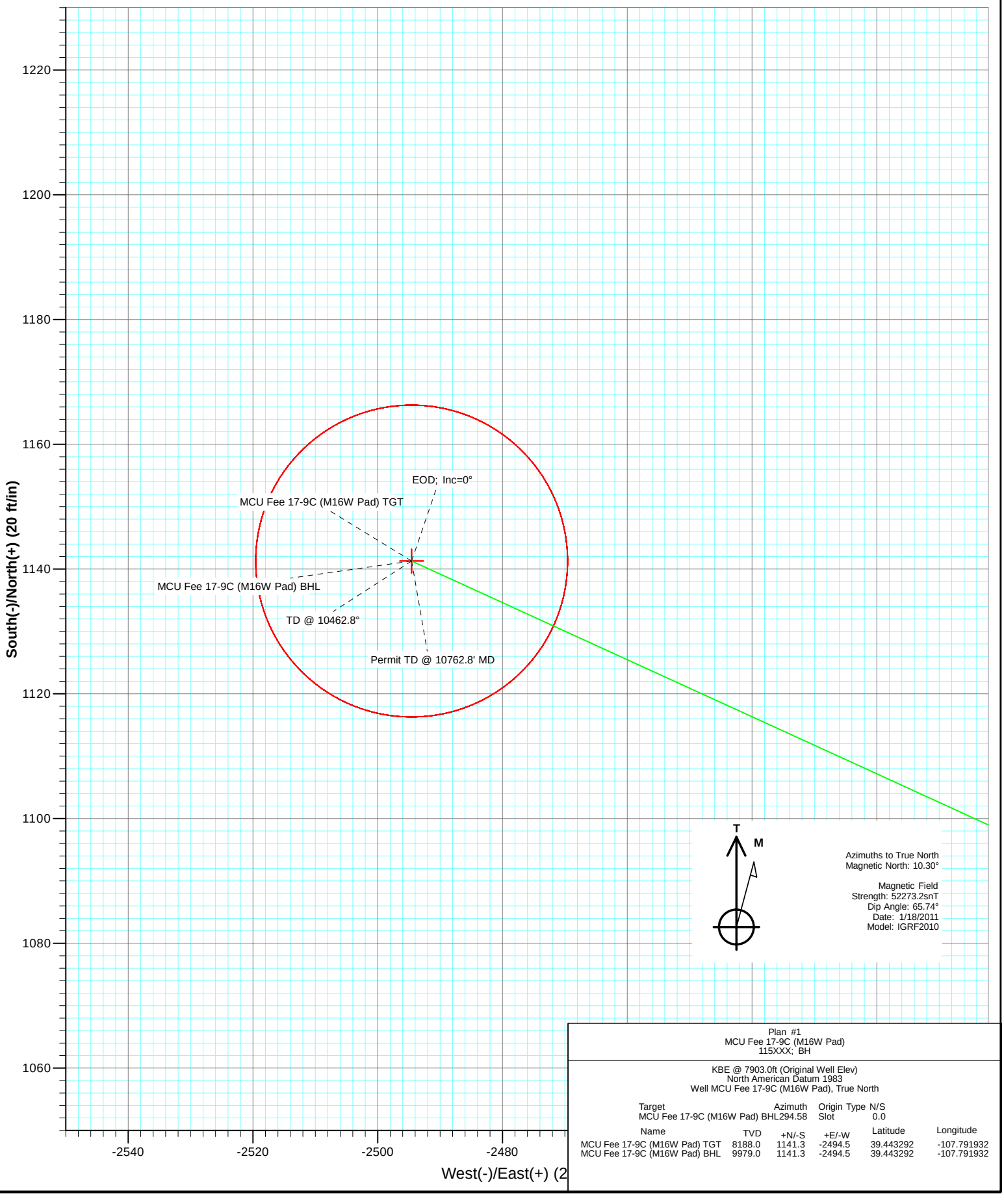
MCU Fee 17-9C (M16W Pad) BHL	9979.0	1141.3	-2494.5	39.443292	-107.791932

Project: Mamm Creek
Site: SWSW S16-T7S-R93W (M16W Pad)
Well: MCU Fee 17-9C (M16W Pad)
Wellbore: DD
Plan: Plan #1



Plan #1
MCU Fee 17-9C (M16W Pad)
115XXX; BH

KBE @ 7903.0ft (Original Well Elev)
North American Datum 1983
Well MCU Fee 17-9C (M16W Pad), True North

Target	Azimuth	Origin Type	N/S
MCU Fee 17-9C (M16W Pad) BHL	294.58	Slot	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
MCU Fee 17-9C (M16W Pad) TGT	8188.0	1141.3	-2494.5	39.443292	-107.791932
MCU Fee 17-9C (M16W Pad) BHL	9979.0	1141.3	-2494.5	39.443292	-107.791932

Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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 Fee 17-9C (M16W Pad)

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,593,312.65 ft	**Latitude:**	39.440159
	+E/-W	0.0 ft	**Easting:**	2,355,269.81 ft	**Longitude:**	-107.783099
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	294.58

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	
887.1	20.61	294.58	872.4	50.9	-111.2	3.00	3.00	0.00	294.58	
7,984.7	20.61	294.58	7,515.6	1,090.4	-2,383.4	0.00	0.00	0.00	0.00	
8,671.8	0.00	0.00	8,188.0	1,141.3	-2,494.5	3.00	-3.00	0.00	180.00	MCU Fee 17-9C (M16
10,462.8	0.00	0.00	9,979.0	1,141.3	-2,494.5	0.00	0.00	0.00	0.00	MCU Fee 17-9C (M16
10,762.8	0.00	0.00	10,279.0	1,141.3	-2,494.5	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	294.58	300.0	1.1	-2.4	2.6	3.00	3.00	
400.0	6.00	294.58	399.6	4.4	-9.5	10.5	3.00	3.00	
500.0	9.00	294.58	498.8	9.8	-21.4	23.5	3.00	3.00	
600.0	12.00	294.58	597.1	17.4	-38.0	41.7	3.00	3.00	
700.0	15.00	294.58	694.3	27.1	-59.2	65.1	3.00	3.00	
800.0	18.00	294.58	790.2	38.9	-85.0	93.5	3.00	3.00	
887.1	20.61	294.58	872.4	50.9	-111.2	122.3	3.00	3.00	EOB; Inc=20.61°
900.0	20.61	294.58	884.4	52.8	-115.3	126.8	0.00	0.00	
1,000.0	20.61	294.58	978.0	67.4	-147.3	162.0	0.00	0.00	
1,100.0	20.61	294.58	1,071.6	82.1	-179.3	197.2	0.00	0.00	
1,128.2	20.61	294.58	1,098.0	86.2	-188.4	207.1	0.00	0.00	Surface Casing
1,200.0	20.61	294.58	1,165.2	96.7	-211.4	232.4	0.00	0.00	
1,300.0	20.61	294.58	1,258.8	111.3	-243.4	267.6	0.00	0.00	
1,400.0	20.61	294.58	1,352.4	126.0	-275.4	302.8	0.00	0.00	
1,500.0	20.61	294.58	1,446.0	140.6	-307.4	338.0	0.00	0.00	
1,600.0	20.61	294.58	1,539.6	155.3	-339.4	373.2	0.00	0.00	
1,700.0	20.61	294.58	1,633.2	169.9	-371.4	408.4	0.00	0.00	
1,800.0	20.61	294.58	1,726.8	184.6	-403.4	443.7	0.00	0.00	
1,900.0	20.61	294.58	1,820.4	199.2	-435.4	478.9	0.00	0.00	
2,000.0	20.61	294.58	1,914.0	213.9	-467.5	514.1	0.00	0.00	
2,100.0	20.61	294.58	2,007.6	228.5	-499.5	549.3	0.00	0.00	
2,200.0	20.61	294.58	2,101.2	243.2	-531.5	584.5	0.00	0.00	
2,300.0	20.61	294.58	2,194.8	257.8	-563.5	619.7	0.00	0.00	
2,400.0	20.61	294.58	2,288.4	272.5	-595.5	654.9	0.00	0.00	
2,500.0	20.61	294.58	2,382.0	287.1	-627.5	690.1	0.00	0.00	
2,600.0	20.61	294.58	2,475.6	301.7	-659.5	725.3	0.00	0.00	
2,700.0	20.61	294.58	2,569.2	316.4	-691.6	760.5	0.00	0.00	
2,800.0	20.61	294.58	2,662.8	331.0	-723.6	795.7	0.00	0.00	
2,900.0	20.61	294.58	2,756.4	345.7	-755.6	830.9	0.00	0.00	
3,000.0	20.61	294.58	2,850.0	360.3	-787.6	866.1	0.00	0.00	
3,100.0	20.61	294.58	2,943.6	375.0	-819.6	901.3	0.00	0.00	
3,200.0	20.61	294.58	3,037.2	389.6	-851.6	936.5	0.00	0.00	
3,300.0	20.61	294.58	3,130.8	404.3	-883.6	971.7	0.00	0.00	
3,400.0	20.61	294.58	3,224.4	418.9	-915.6	1,006.9	0.00	0.00	
3,500.0	20.61	294.58	3,318.0	433.6	-947.7	1,042.1	0.00	0.00	
3,600.0	20.61	294.58	3,411.6	448.2	-979.7	1,077.3	0.00	0.00	
3,700.0	20.61	294.58	3,505.2	462.9	-1,011.7	1,112.5	0.00	0.00	
3,800.0	20.61	294.58	3,598.8	477.5	-1,043.7	1,147.7	0.00	0.00	
3,900.0	20.61	294.58	3,692.4	492.2	-1,075.7	1,182.9	0.00	0.00	
4,000.0	20.61	294.58	3,786.0	506.8	-1,107.7	1,218.2	0.00	0.00	
4,054.5	20.61	294.58	3,837.0	514.8	-1,125.2	1,237.3	0.00	0.00	G Sand
4,100.0	20.61	294.58	3,879.6	521.4	-1,139.7	1,253.4	0.00	0.00	
4,200.0	20.61	294.58	3,973.2	536.1	-1,171.8	1,288.6	0.00	0.00	
4,300.0	20.61	294.58	4,066.8	550.7	-1,203.8	1,323.8	0.00	0.00	
4,400.0	20.61	294.58	4,160.4	565.4	-1,235.8	1,359.0	0.00	0.00	
4,500.0	20.61	294.58	4,254.0	580.0	-1,267.8	1,394.2	0.00	0.00	
4,600.0	20.61	294.58	4,347.6	594.7	-1,299.8	1,429.4	0.00	0.00	
4,700.0	20.61	294.58	4,441.2	609.3	-1,331.8	1,464.6	0.00	0.00	
4,800.0	20.61	294.58	4,534.8	624.0	-1,363.8	1,499.8	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	20.61	294.58	4,628.4	638.6	-1,395.8	1,535.0	0.00	0.00	
5,000.0	20.61	294.58	4,722.0	653.3	-1,427.9	1,570.2	0.00	0.00	
5,100.0	20.61	294.58	4,815.6	667.9	-1,459.9	1,605.4	0.00	0.00	
5,200.0	20.61	294.58	4,909.2	682.6	-1,491.9	1,640.6	0.00	0.00	
5,300.0	20.61	294.58	5,002.8	697.2	-1,523.9	1,675.8	0.00	0.00	
5,400.0	20.61	294.58	5,096.4	711.9	-1,555.9	1,711.0	0.00	0.00	
5,500.0	20.61	294.58	5,190.0	726.5	-1,587.9	1,746.2	0.00	0.00	
5,600.0	20.61	294.58	5,283.6	741.1	-1,619.9	1,781.4	0.00	0.00	
5,700.0	20.61	294.58	5,377.2	755.8	-1,651.9	1,816.6	0.00	0.00	
5,800.0	20.61	294.58	5,470.8	770.4	-1,684.0	1,851.8	0.00	0.00	
5,900.0	20.61	294.58	5,564.4	785.1	-1,716.0	1,887.0	0.00	0.00	
6,000.0	20.61	294.58	5,658.0	799.7	-1,748.0	1,922.2	0.00	0.00	
6,100.0	20.61	294.58	5,751.6	814.4	-1,780.0	1,957.5	0.00	0.00	
6,200.0	20.61	294.58	5,845.2	829.0	-1,812.0	1,992.7	0.00	0.00	
6,244.7	20.61	294.58	5,887.0	835.6	-1,826.3	2,008.4	0.00	0.00	Ohio Creek
6,300.0	20.61	294.58	5,938.8	843.7	-1,844.0	2,027.9	0.00	0.00	
6,400.0	20.61	294.58	6,032.4	858.3	-1,876.0	2,063.1	0.00	0.00	
6,500.0	20.61	294.58	6,126.0	873.0	-1,908.1	2,098.3	0.00	0.00	
6,600.0	20.61	294.58	6,219.5	887.6	-1,940.1	2,133.5	0.00	0.00	
6,700.0	20.61	294.58	6,313.1	902.3	-1,972.1	2,168.7	0.00	0.00	
6,715.9	20.61	294.58	6,328.0	904.6	-1,977.2	2,174.3	0.00	0.00	Mesa Verde
6,800.0	20.61	294.58	6,406.7	916.9	-2,004.1	2,203.9	0.00	0.00	
6,900.0	20.61	294.58	6,500.3	931.5	-2,036.1	2,239.1	0.00	0.00	
7,000.0	20.61	294.58	6,593.9	946.2	-2,068.1	2,274.3	0.00	0.00	
7,100.0	20.61	294.58	6,687.5	960.8	-2,100.1	2,309.5	0.00	0.00	
7,200.0	20.61	294.58	6,781.1	975.5	-2,132.1	2,344.7	0.00	0.00	
7,262.9	20.61	294.58	6,840.0	984.7	-2,152.3	2,366.8	0.00	0.00	Williams Fork
7,300.0	20.61	294.58	6,874.7	990.1	-2,164.2	2,379.9	0.00	0.00	
7,400.0	20.61	294.58	6,968.3	1,004.8	-2,196.2	2,415.1	0.00	0.00	
7,500.0	20.61	294.58	7,061.9	1,019.4	-2,228.2	2,450.3	0.00	0.00	
7,600.0	20.61	294.58	7,155.5	1,034.1	-2,260.2	2,485.5	0.00	0.00	
7,700.0	20.61	294.58	7,249.1	1,048.7	-2,292.2	2,520.7	0.00	0.00	
7,800.0	20.61	294.58	7,342.7	1,063.4	-2,324.2	2,555.9	0.00	0.00	
7,900.0	20.61	294.58	7,436.3	1,078.0	-2,356.2	2,591.1	0.00	0.00	
7,984.7	20.61	294.58	7,515.6	1,090.4	-2,383.4	2,621.0	0.00	0.00	Start Drop -3.00
8,000.0	20.15	294.58	7,529.9	1,092.6	-2,388.2	2,626.3	3.00	-3.00	
8,100.0	17.15	294.58	7,624.7	1,105.9	-2,417.3	2,658.3	3.00	-3.00	
8,200.0	14.15	294.58	7,721.0	1,117.2	-2,441.8	2,685.2	3.00	-3.00	
8,300.0	11.15	294.58	7,818.5	1,126.3	-2,461.7	2,707.2	3.00	-3.00	
8,345.2	9.80	294.58	7,863.0	1,129.7	-2,469.2	2,715.4	3.00	-3.00	Top of Gas; Inc=9.8°
8,400.0	8.15	294.58	7,917.1	1,133.3	-2,477.0	2,723.9	3.00	-3.00	
8,500.0	5.15	294.58	8,016.4	1,138.1	-2,487.5	2,735.5	3.00	-3.00	
8,600.0	2.15	294.58	8,116.2	1,140.7	-2,493.3	2,741.9	3.00	-3.00	
8,671.8	0.00	0.00	8,188.0	1,141.3	-2,494.5	2,743.2	3.00	-3.00	EOD; Inc=0° - MCU Fee 17-9C (M16W Pad) TC
8,700.0	0.00	0.00	8,216.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
8,800.0	0.00	0.00	8,316.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
8,900.0	0.00	0.00	8,416.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,000.0	0.00	0.00	8,516.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,100.0	0.00	0.00	8,616.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,200.0	0.00	0.00	8,716.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,300.0	0.00	0.00	8,816.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,400.0	0.00	0.00	8,916.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	9,016.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,562.8	0.00	0.00	9,079.0	1,141.3	-2,494.5	2,743.2	0.00	0.00	Coal Ridge
9,600.0	0.00	0.00	9,116.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,700.0	0.00	0.00	9,216.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,800.0	0.00	0.00	9,316.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
9,900.0	0.00	0.00	9,416.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,000.0	0.00	0.00	9,516.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,100.0	0.00	0.00	9,616.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,200.0	0.00	0.00	9,716.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,226.8	0.00	0.00	9,743.0	1,141.3	-2,494.5	2,743.2	0.00	0.00	Base Cameo A Coal
10,300.0	0.00	0.00	9,816.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,362.8	0.00	0.00	9,879.0	1,141.3	-2,494.5	2,743.2	0.00	0.00	Rollins
10,400.0	0.00	0.00	9,916.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,462.8	0.00	0.00	9,979.0	1,141.3	-2,494.5	2,743.2	0.00	0.00	TD @ 10462.8° - MCU Fee 17-9C (M16W Pad)
10,500.0	0.00	0.00	10,016.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,600.0	0.00	0.00	10,116.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,700.0	0.00	0.00	10,216.2	1,141.3	-2,494.5	2,743.2	0.00	0.00	
10,762.8	0.00	0.00	10,279.0	1,141.3	-2,494.5	2,743.2	0.00	0.00	Permit TD @ 10762.8' 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 Fee 17-9C (M16W - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,188.0	1,141.3	-2,494.5	1,594,516.26	2,352,804.73	39.443292	-107.791932
MCU Fee 17-9C (M16W - plan hits target center - Circle (radius 25.0)	0.00	0.00	9,979.0	1,141.3	-2,494.5	1,594,516.26	2,352,804.73	39.443292	-107.791932

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,128.2	1,098.0	Surface Casing	0.000	0.000

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (M16W Pad)	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,054.5	3,837.0	G Sand		0.00	
6,244.7	5,887.0	Ohio Creek		0.00	
6,715.9	6,328.0	Mesa Verde		0.00	
7,262.9	6,840.0	Williams Fork		0.00	
8,345.2	7,863.0	Top of Gas; Inc=9.8°		0.00	
9,562.8	9,079.0	Coal Ridge		0.00	
10,226.8	9,743.0	Base Cameo A Coal		0.00	
10,362.8	9,879.0	Rollins		0.00	

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
887.1	872.4	50.9	-111.2	EOB; Inc=20.61°
7,984.7	7,515.6	1,090.4	-2,383.4	Start Drop -3.00
8,671.8	8,188.0	1,141.3	-2,494.5	EOD; Inc=0°
10,462.8	9,979.0	1,141.3	-2,494.5	TD @ 10462.8°
10,762.8	10,279.0	1,141.3	-2,494.5	Permit TD @ 10762.8' MD

EnCana Oil & Gas (USA) Inc

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

Anticollision Report

27 January, 2011

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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:	GLOBAL FILTER APPLIED: All wellpaths within 200'+ 100/1000 of reference		
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** 1/27/2011

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	10,762.8	Plan #1 (DD)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	34.2	33.6	55.116	CC, ES
MCU 16-13A (M16W Pad) - DD - Plan #1	600.0	601.9	45.7	43.3	19.113	SF
MCU 16-13B (M16W Pad) - DD - Plan #1	598.5	596.9	12.7	10.2	5.017	CC
MCU 16-13B (M16W Pad) - DD - Plan #1	600.0	598.4	12.7	10.2	4.999	ES, SF
MCU 16-13C (M16W Pad) - DD - Plan #1	200.0	200.0	127.8	127.2	205.682	CC, ES
MCU 16-13C (M16W Pad) - DD - Plan #1	1,000.0	983.0	173.2	168.0	33.149	SF
MCU 16-13D (M16W Pad) - DD - Plan #1	200.0	200.0	156.1	155.4	251.157	CC, ES
MCU 16-13D (M16W Pad) - DD - Plan #1	1,200.0	1,162.1	254.3	247.6	38.154	SF
MCU 21-3B (M16W Pad) - DD - Plan #1	200.0	200.0	11.7	11.1	18.879	CC, ES
MCU 21-3B (M16W Pad) - DD - Plan #1	300.0	299.2	16.8	15.8	17.323	SF
MCU 21-4A (M16W Pad) - DD - Plan #1	200.0	200.0	152.9	152.3	246.134	CC, ES
MCU 21-4A (M16W Pad) - DD - Plan #1	1,300.0	1,252.2	303.0	295.7	41.839	SF
MCU 21-4B (M16W Pad) - DD - Plan #1	200.0	200.0	139.1	138.5	223.927	CC, ES
MCU 21-4B (M16W Pad) - DD - Plan #1	1,300.0	1,233.8	355.3	348.0	48.743	SF
MCU 21-4C (M16W Pad) - DD - Plan #1	200.0	200.0	126.3	125.7	203.268	CC, ES
MCU 21-4C (M16W Pad) - DD - Plan #1	1,400.0	1,313.8	420.2	412.3	52.664	SF
MCU 21-4D2 (M16W Pad) - DD - Plan #1	200.0	200.0	114.4	113.8	184.121	CC, ES
MCU 21-4D2 (M16W Pad) - DD - Plan #1	1,500.0	1,388.4	493.5	484.8	56.571	SF
MCU 21-5A (M16W Pad) - DD - Plan #1	200.0	200.0	104.0	103.4	167.434	CC, ES
MCU 21-5A (M16W Pad) - DD - Plan #1	1,400.0	1,280.0	482.2	474.2	60.220	SF
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	200.0	200.0	43.2	42.6	69.537	CC, ES
MCU Fee 16-12C2 (M16W Pad) - DD - Plan #1	700.0	702.1	70.3	67.2	22.722	SF
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	200.0	200.0	51.1	50.5	82.243	CC, ES
MCU Fee 16-2C (M16W Pad) - DD - Plan #1	900.0	896.3	121.8	116.9	24.725	SF
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	200.0	200.0	60.1	59.5	96.750	CC, ES
MCU Fee 16-5C (M16W Pad) - DD - Plan #1	2,200.0	2,145.9	489.1	469.2	24.543	SF
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	200.0	200.0	103.1	102.4	165.864	CC, ES
MCU Fee 17-16B (M16W Pad) - DD - Plan #1	6,400.0	6,382.2	498.7	422.2	6.519	SF
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	200.0	200.0	114.8	114.2	184.722	CC, ES
MCU Fee 17-16B2 (M16W Pad) - DD - Plan #1	4,000.0	3,964.5	497.2	451.8	10.961	SF
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	200.0	200.0	141.5	140.9	227.779	CC, ES
MCU Fee 17-16C (M16W Pad) - DD - Plan #1	2,900.0	2,843.0	490.0	459.5	16.065	SF
MCU Fee 17-9B (M16W pad) - DD - Plan #1	200.0	200.0	26.9	26.2	43.218	CC
MCU Fee 17-9B (M16W pad) - DD - Plan #1	300.0	301.1	27.2	26.2	27.824	ES
MCU Fee 17-9B (M16W pad) - DD - Plan #1	4,000.0	3,992.6	331.1	283.8	7.003	SF
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	200.0	200.0	17.1	16.5	27.554	CC
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	300.0	300.6	17.3	16.3	17.633	ES
MCU Fee 17-9B2 (M16W Pad) - DD - Plan #1	2,200.0	2,202.9	70.4	47.4	3.058	SF
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	200.0	200.0	11.7	11.1	18.847	CC, ES
MCU Fee 17-9D (M16W Pad) - DD - Plan #1	7,300.0	7,296.0	474.6	432.9	11.391	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	70.08	11.7	32.2	34.2				
100.0	100.0	100.0	100.0	0.1	0.1	70.08	11.7	32.2	34.2	34.0	0.27	125.778	
200.0	200.0	200.0	200.0	0.3	0.3	70.08	11.7	32.2	34.2	33.6	0.62	55.116	CC, ES
300.0	300.0	300.9	300.9	0.5	0.5	134.78	13.3	30.1	34.7	33.8	0.98	35.358	
400.0	399.6	401.8	401.5	0.7	0.7	132.75	18.3	23.9	36.3	34.9	1.40	25.996	
500.0	498.8	502.1	501.0	1.0	1.0	130.98	26.0	14.3	39.3	37.4	1.88	20.924	
600.0	597.1	601.9	600.0	1.4	1.2	133.97	34.0	4.5	45.7	43.3	2.39	19.113	SF
700.0	694.3	701.2	698.5	1.8	1.5	139.83	41.8	-5.3	56.0	53.1	2.88	19.471	
800.0	790.2	799.8	796.3	2.4	1.8	146.20	49.7	-15.0	71.1	67.8	3.31	21.451	
900.0	884.4	897.4	893.1	3.0	2.1	151.84	57.4	-24.7	91.2	87.5	3.70	24.672	
1,000.0	978.0	994.6	989.5	3.6	2.3	156.03	65.1	-34.2	113.7	109.6	4.06	27.994	
1,100.0	1,071.6	1,091.7	1,085.9	4.3	2.6	158.82	72.8	-43.8	136.6	132.1	4.43	30.838	
1,200.0	1,165.2	1,188.9	1,182.2	5.0	2.9	160.82	80.6	-53.4	159.7	154.9	4.80	33.277	
1,300.0	1,258.8	1,286.1	1,278.6	5.6	3.1	162.31	88.3	-63.0	182.9	177.8	5.17	35.380	
1,400.0	1,352.4	1,383.2	1,375.0	6.3	3.4	163.46	96.0	-72.6	206.3	200.7	5.54	37.208	
1,500.0	1,446.0	1,480.4	1,471.4	6.9	3.7	164.38	103.7	-82.2	229.7	223.7	5.92	38.809	
1,600.0	1,539.6	1,577.6	1,567.8	7.6	4.0	165.13	111.4	-91.7	253.1	246.8	6.29	40.220	
1,700.0	1,633.2	1,674.7	1,664.2	8.3	4.2	165.75	119.1	-101.3	276.6	269.9	6.67	41.474	
1,800.0	1,726.8	1,771.9	1,760.5	8.9	4.5	166.28	126.8	-110.9	300.1	293.0	7.04	42.594	
1,900.0	1,820.4	1,869.1	1,856.9	9.6	4.8	166.72	134.6	-120.5	323.6	316.2	7.42	43.600	
2,000.0	1,914.0	1,966.2	1,953.3	10.3	5.1	167.11	142.3	-130.1	347.1	339.3	7.80	44.510	
2,100.0	2,007.6	2,063.4	2,049.7	10.9	5.3	167.45	150.0	-139.7	370.7	362.5	8.18	45.335	
2,200.0	2,101.2	2,160.6	2,146.1	11.6	5.6	167.75	157.7	-149.2	394.2	385.7	8.55	46.087	
2,300.0	2,194.8	2,257.7	2,242.5	12.3	5.9	168.01	165.4	-158.8	417.8	408.9	8.93	46.775	
2,400.0	2,288.4	2,354.9	2,338.8	12.9	6.2	168.25	173.1	-168.4	441.4	432.1	9.31	47.408	
2,500.0	2,382.0	2,452.0	2,435.2	13.6	6.4	168.46	180.8	-178.0	465.0	455.3	9.69	47.990	
2,600.0	2,475.6	2,549.2	2,531.6	14.3	6.7	168.65	188.5	-187.6	488.6	478.5	10.07	48.529	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-110.19	-5.8	-15.8	16.9				
100.0	100.0	100.0	100.0	0.1	0.1	-110.19	-5.8	-15.8	16.9	16.6	0.27	61.889	
200.0	200.0	200.0	200.0	0.3	0.3	-110.19	-5.8	-15.8	16.9	16.2	0.62	27.120	
300.0	300.0	299.4	299.3	0.5	0.5	-44.98	-4.8	-18.2	16.9	15.9	0.98	17.282	
400.0	399.6	398.8	398.4	0.7	0.7	-45.68	-1.8	-25.3	17.0	15.6	1.37	12.400	
500.0	498.8	498.7	497.9	1.0	0.9	-55.28	2.1	-34.3	15.1	13.3	1.85	8.174	
598.5	595.6	596.9	595.6	1.4	1.2	-88.59	5.8	-43.2	12.7	10.2	2.53	5.017	CC
600.0	597.1	598.4	597.0	1.4	1.2	-89.33	5.9	-43.4	12.7	10.2	2.54	4.999	ES, SF
700.0	694.3	697.4	695.6	1.8	1.4	-135.84	9.7	-52.3	18.7	15.9	2.82	6.650	
800.0	790.2	795.6	793.3	2.4	1.6	-157.30	13.5	-61.2	35.0	32.0	2.92	11.969	
900.0	884.4	892.7	889.9	3.0	1.9	-166.07	17.2	-70.0	57.9	54.7	3.14	18.401	
1,000.0	978.0	989.3	986.1	3.6	2.1	-170.17	20.9	-78.7	83.3	79.8	3.44	24.190	
1,100.0	1,071.6	1,085.9	1,082.2	4.3	2.4	-172.35	24.6	-87.5	108.9	105.1	3.76	28.931	
1,200.0	1,165.2	1,182.5	1,178.4	5.0	2.6	-173.70	28.3	-96.2	134.5	130.5	4.09	32.875	
1,300.0	1,258.8	1,279.1	1,274.5	5.6	2.8	-174.62	32.0	-105.0	160.3	155.9	4.43	36.204	
1,400.0	1,352.4	1,375.7	1,370.6	6.3	3.1	-175.28	35.8	-113.7	186.0	181.3	4.76	39.051	
1,500.0	1,446.0	1,472.3	1,466.8	6.9	3.3	-175.78	39.5	-122.4	211.8	206.7	5.10	41.514	
1,600.0	1,539.6	1,568.9	1,562.9	7.6	3.5	-176.18	43.2	-131.2	237.6	232.2	5.44	43.664	
1,700.0	1,633.2	1,665.5	1,659.0	8.3	3.8	-176.49	46.9	-139.9	263.4	257.6	5.78	45.558	
1,800.0	1,726.8	1,762.1	1,755.2	8.9	4.0	-176.75	50.6	-148.7	289.2	283.1	6.12	47.240	
1,900.0	1,820.4	1,858.7	1,851.3	9.6	4.2	-176.97	54.3	-157.4	315.0	308.6	6.46	48.742	
2,000.0	1,914.0	1,955.3	1,947.4	10.3	4.5	-177.15	58.0	-166.1	340.9	334.1	6.80	50.092	
2,100.0	2,007.6	2,051.9	2,043.6	10.9	4.7	-177.31	61.7	-174.9	366.7	359.5	7.15	51.313	
2,200.0	2,101.2	2,148.5	2,139.7	11.6	5.0	-177.45	65.5	-183.6	392.5	385.0	7.49	52.421	
2,300.0	2,194.8	2,245.2	2,235.9	12.3	5.2	-177.57	69.2	-192.4	418.3	410.5	7.83	53.432	
2,400.0	2,288.4	2,341.8	2,332.0	12.9	5.4	-177.68	72.9	-201.1	444.2	436.0	8.17	54.358	
2,500.0	2,382.0	2,438.4	2,428.1	13.6	5.7	-177.77	76.6	-209.9	470.0	461.5	8.51	55.209	
2,600.0	2,475.6	2,535.0	2,524.3	14.3	5.9	-177.86	80.3	-218.6	495.8	487.0	8.85	55.995	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-147.82	-108.2	-68.1	127.8				
100.0	100.0	100.0	100.0	0.1	0.1	-147.82	-108.2	-68.1	127.8	127.5	0.27	469.377	
200.0	200.0	200.0	200.0	0.3	0.3	-147.82	-108.2	-68.1	127.8	127.2	0.62	205.682	CC, ES
300.0	300.0	296.9	296.9	0.5	0.5	-82.54	-108.0	-70.5	128.7	127.7	0.98	131.313	
400.0	399.6	394.9	394.6	0.7	0.7	-83.07	-107.5	-77.6	131.1	129.7	1.40	93.946	
500.0	498.8	494.7	494.1	1.0	0.9	-85.46	-107.0	-85.8	133.5	131.6	1.89	70.645	
600.0	597.1	594.1	593.1	1.4	1.1	-89.92	-106.5	-93.9	136.0	133.5	2.47	54.994	
700.0	694.3	692.8	691.5	1.8	1.3	-96.23	-106.0	-102.0	139.8	136.6	3.14	44.470	
800.0	790.2	790.5	788.9	2.4	1.6	-103.93	-105.5	-110.0	146.5	142.6	3.87	37.822	
900.0	884.4	887.0	885.1	3.0	1.8	-112.37	-104.9	-117.9	157.7	153.1	4.60	34.296	
1,000.0	978.0	983.0	980.7	3.6	2.0	-120.36	-104.4	-125.7	173.2	168.0	5.23	33.149	SF
1,100.0	1,071.6	1,079.0	1,076.4	4.3	2.2	-126.99	-103.9	-133.6	191.6	185.8	5.77	33.219	
1,200.0	1,165.2	1,175.0	1,172.0	5.0	2.4	-132.45	-103.4	-141.4	212.1	205.8	6.24	33.963	
1,300.0	1,258.8	1,271.0	1,267.7	5.6	2.6	-136.95	-102.9	-149.3	234.2	227.5	6.68	35.074	
1,400.0	1,352.4	1,366.9	1,363.4	6.3	2.9	-140.67	-102.4	-157.1	257.4	250.3	7.08	36.373	
1,500.0	1,446.0	1,462.9	1,459.0	6.9	3.1	-143.78	-101.9	-165.0	281.6	274.1	7.46	37.756	
1,600.0	1,539.6	1,558.9	1,554.7	7.6	3.3	-146.41	-101.4	-172.8	306.4	298.5	7.82	39.160	
1,700.0	1,633.2	1,654.9	1,650.3	8.3	3.5	-148.64	-100.9	-180.7	331.7	323.5	8.18	40.546	
1,800.0	1,726.8	1,750.9	1,746.0	8.9	3.7	-150.55	-100.4	-188.5	357.4	348.9	8.53	41.893	
1,900.0	1,820.4	1,846.8	1,841.6	9.6	3.9	-152.22	-99.9	-196.4	383.5	374.6	8.88	43.188	
2,000.0	1,914.0	1,942.8	1,937.3	10.3	4.2	-153.67	-99.4	-204.2	409.8	400.6	9.22	44.425	
2,100.0	2,007.6	2,038.8	2,033.0	10.9	4.4	-154.94	-98.8	-212.1	436.4	426.8	9.57	45.602	
2,200.0	2,101.2	2,134.8	2,128.6	11.6	4.6	-156.08	-98.3	-219.9	463.1	453.2	9.91	46.718	
2,300.0	2,194.8	2,230.8	2,224.3	12.3	4.8	-157.08	-97.8	-227.8	490.0	479.7	10.26	47.775	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-140.16	-119.8	-100.0	156.1				
100.0	100.0	100.0	100.0	0.1	0.1	-140.16	-119.8	-100.0	156.1	155.8	0.27	573.152	
200.0	200.0	200.0	200.0	0.3	0.3	-140.16	-119.8	-100.0	156.1	155.4	0.62	251.157	CC, ES
300.0	300.0	293.0	292.9	0.5	0.5	-75.22	-120.8	-102.0	157.6	156.6	0.97	162.882	
400.0	399.6	387.4	387.1	0.7	0.7	-76.66	-123.9	-108.1	162.2	160.9	1.36	119.552	
500.0	498.8	486.9	486.2	1.0	0.9	-79.60	-127.7	-115.7	167.2	165.4	1.83	91.601	
600.0	597.1	585.8	584.8	1.4	1.1	-84.05	-131.5	-123.2	172.0	169.6	2.39	72.117	
700.0	694.3	683.9	682.6	1.8	1.3	-89.80	-135.3	-130.7	177.8	174.8	3.05	58.366	
800.0	790.2	781.0	779.2	2.4	1.6	-96.54	-139.0	-138.1	186.0	182.2	3.80	48.963	
900.0	884.4	876.7	874.6	3.0	1.8	-103.88	-142.7	-145.4	198.0	193.4	4.60	43.051	
1,000.0	978.0	971.8	969.4	3.6	2.0	-111.04	-146.4	-152.7	214.0	208.7	5.35	40.018	
1,100.0	1,071.6	1,066.9	1,064.2	4.3	2.2	-117.18	-150.0	-160.0	233.0	227.0	6.03	38.608	
1,200.0	1,165.2	1,162.1	1,159.0	5.0	2.4	-122.40	-153.7	-167.2	254.3	247.6	6.67	38.154	SF
1,300.0	1,258.8	1,257.2	1,253.8	5.6	2.6	-126.82	-157.3	-174.5	277.4	270.2	7.25	38.272	
1,400.0	1,352.4	1,352.4	1,348.5	6.3	2.9	-130.56	-161.0	-181.8	301.9	294.1	7.79	38.732	
1,500.0	1,446.0	1,447.5	1,443.3	6.9	3.1	-133.76	-164.7	-189.0	327.4	319.1	8.31	39.397	
1,600.0	1,539.6	1,542.6	1,538.1	7.6	3.3	-136.49	-168.3	-196.3	353.8	345.0	8.81	40.178	
1,700.0	1,633.2	1,637.8	1,632.9	8.3	3.5	-138.85	-172.0	-203.6	380.9	371.6	9.29	41.020	
1,800.0	1,726.8	1,732.9	1,727.7	8.9	3.7	-140.90	-175.6	-210.8	408.5	398.7	9.75	41.887	
1,900.0	1,820.4	1,828.1	1,822.5	9.6	3.9	-142.70	-179.3	-218.1	436.5	426.3	10.21	42.758	
2,000.0	1,914.0	1,923.2	1,917.3	10.3	4.2	-144.28	-182.9	-225.4	464.8	454.2	10.66	43.617	
2,100.0	2,007.6	2,018.3	2,012.1	10.9	4.4	-145.68	-186.6	-232.7	493.5	482.4	11.10	44.456	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	113.81	-4.7	10.7	11.7				
100.0	100.0	100.0	100.0	0.1	0.1	113.81	-4.7	10.7	11.7	11.5	0.27	43.083	
200.0	200.0	200.0	200.0	0.3	0.3	113.81	-4.7	10.7	11.7	11.1	0.62	18.879	CC, ES
300.0	300.0	299.2	299.1	0.5	0.5	-177.37	-6.6	12.5	16.8	15.8	0.97	17.323	SF
400.0	399.6	396.8	396.5	0.7	0.7	-173.61	-12.0	17.8	32.0	30.7	1.31	24.354	
500.0	498.8	491.4	490.3	1.0	1.0	-171.75	-20.6	26.2	57.1	55.5	1.65	34.558	
600.0	597.1	581.8	579.3	1.4	1.3	-170.78	-31.9	37.3	91.7	89.7	1.98	46.210	
700.0	694.3	667.4	662.8	1.8	1.6	-170.18	-45.4	50.5	135.2	132.9	2.31	58.651	
800.0	790.2	753.5	746.3	2.4	2.0	-169.86	-60.4	65.1	185.2	182.6	2.63	70.487	
900.0	884.4	837.4	827.7	3.0	2.4	-169.81	-74.9	79.3	239.6	236.6	2.95	81.313	
1,000.0	978.0	920.2	908.1	3.6	2.8	-170.04	-89.3	93.3	295.6	292.3	3.29	89.850	
1,100.0	1,071.6	1,003.1	988.4	4.3	3.1	-170.20	-103.6	107.3	351.6	347.9	3.63	96.745	
1,200.0	1,165.2	1,085.9	1,068.8	5.0	3.5	-170.32	-118.0	121.4	407.5	403.6	3.98	102.416	
1,300.0	1,258.8	1,168.8	1,149.2	5.6	3.9	-170.40	-132.3	135.4	463.5	459.2	4.33	107.169	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-144.30	-124.2	-89.2	152.9				
100.0	100.0	100.0	100.0	0.1	0.1	-144.30	-124.2	-89.2	152.9	152.7	0.27	561.690	
200.0	200.0	200.0	200.0	0.3	0.3	-144.30	-124.2	-89.2	152.9	152.3	0.62	246.134	CC, ES
300.0	300.0	292.8	292.8	0.5	0.5	-79.47	-125.6	-91.0	154.8	153.8	0.97	160.037	
400.0	399.6	385.4	385.1	0.7	0.7	-81.13	-129.6	-96.4	160.4	159.0	1.35	118.565	
500.0	498.8	484.5	483.8	1.0	0.9	-84.21	-135.5	-104.0	167.8	166.0	1.82	92.195	
600.0	597.1	583.2	582.0	1.4	1.1	-88.65	-141.3	-111.6	175.6	173.2	2.38	73.856	
700.0	694.3	681.1	679.4	1.8	1.4	-94.18	-147.0	-119.2	184.8	181.7	3.03	60.966	
800.0	790.2	777.8	775.6	2.4	1.6	-100.45	-152.7	-126.6	196.6	192.9	3.77	52.176	
900.0	884.4	873.1	870.5	3.0	1.8	-107.09	-158.3	-134.0	212.4	207.8	4.55	46.646	
1,000.0	978.0	967.9	964.8	3.6	2.1	-113.55	-163.9	-141.3	231.8	226.5	5.29	43.786	
1,100.0	1,071.6	1,062.6	1,059.2	4.3	2.3	-119.01	-169.5	-148.6	253.7	247.7	5.98	42.394	
1,200.0	1,165.2	1,157.4	1,153.5	5.0	2.5	-123.61	-175.0	-155.9	277.6	271.0	6.63	41.860	
1,300.0	1,258.8	1,252.2	1,247.8	5.6	2.7	-127.49	-180.6	-163.2	303.0	295.7	7.24	41.839	SF
1,400.0	1,352.4	1,346.9	1,342.1	6.3	3.0	-130.78	-186.2	-170.5	329.5	321.7	7.82	42.127	
1,500.0	1,446.0	1,441.7	1,436.4	6.9	3.2	-133.58	-191.8	-177.8	356.9	348.5	8.38	42.598	
1,600.0	1,539.6	1,536.5	1,530.7	7.6	3.4	-136.00	-197.3	-185.1	385.0	376.1	8.92	43.178	
1,700.0	1,633.2	1,631.2	1,625.1	8.3	3.7	-138.08	-202.9	-192.4	413.7	404.2	9.44	43.815	
1,800.0	1,726.8	1,726.0	1,719.4	8.9	3.9	-139.90	-208.5	-199.7	442.8	432.8	9.95	44.480	
1,900.0	1,820.4	1,820.7	1,813.7	9.6	4.1	-141.50	-214.1	-207.0	472.3	461.8	10.46	45.153	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-148.28	-118.4	-73.1	139.1				
100.0	100.0	100.0	100.0	0.1	0.1	-148.28	-118.4	-73.1	139.1	138.9	0.27	511.013	
200.0	200.0	200.0	200.0	0.3	0.3	-148.28	-118.4	-73.1	139.1	138.5	0.62	223.927	CC, ES
300.0	300.0	293.1	293.1	0.5	0.5	-83.77	-120.3	-74.4	141.3	140.3	0.97	146.089	
400.0	399.6	385.6	385.3	0.7	0.7	-86.28	-125.9	-78.0	147.9	146.5	1.35	109.546	
500.0	498.8	477.0	476.0	1.0	0.9	-89.91	-135.2	-84.0	159.6	157.8	1.80	88.821	
600.0	597.1	574.4	572.3	1.4	1.2	-94.63	-147.1	-91.8	174.8	172.5	2.34	74.746	
700.0	694.3	671.0	668.0	1.8	1.5	-99.94	-159.0	-99.4	192.2	189.2	2.97	64.694	
800.0	790.2	766.5	762.4	2.4	1.8	-105.48	-170.7	-107.0	212.6	208.9	3.68	57.708	
900.0	884.4	860.4	855.3	3.0	2.1	-111.02	-182.3	-114.5	236.8	232.4	4.45	53.210	
1,000.0	978.0	953.8	947.7	3.6	2.3	-116.41	-193.7	-121.9	264.1	258.9	5.20	50.836	
1,100.0	1,071.6	1,047.1	1,040.0	4.3	2.6	-120.80	-205.2	-129.3	293.3	287.4	5.92	49.579	
1,200.0	1,165.2	1,140.4	1,132.3	5.0	2.9	-124.42	-216.7	-136.7	323.8	317.2	6.61	48.969	
1,300.0	1,258.8	1,233.8	1,224.7	5.6	3.2	-127.43	-228.1	-144.1	355.3	348.0	7.29	48.743	SF
1,400.0	1,352.4	1,327.1	1,317.0	6.3	3.5	-129.95	-239.6	-151.5	387.6	379.7	7.95	48.748	
1,500.0	1,446.0	1,420.4	1,409.3	6.9	3.8	-132.09	-251.0	-158.9	420.5	411.9	8.60	48.893	
1,600.0	1,539.6	1,513.8	1,501.7	7.6	4.1	-133.93	-262.5	-166.3	453.8	444.6	9.24	49.123	
1,700.0	1,633.2	1,607.1	1,594.0	8.3	4.4	-135.52	-274.0	-173.8	487.5	477.6	9.87	49.402	

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 Fee 17-9C (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 Fee 17-9C (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 21-4C (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	-153.00	-112.5	-57.3	126.3				
100.0	100.0	100.0	100.0	0.1	0.1	-153.00	-112.5	-57.3	126.3	126.0	0.27	463.868	
200.0	200.0	200.0	200.0	0.3	0.3	-153.00	-112.5	-57.3	126.3	125.7	0.62	203.268	CC, ES
300.0	300.0	293.7	293.6	0.5	0.5	-88.62	-114.6	-58.4	128.7	127.7	0.97	132.913	
400.0	399.6	386.7	386.4	0.7	0.7	-91.45	-120.7	-61.4	136.0	134.7	1.35	100.636	
500.0	498.8	478.4	477.4	1.0	0.9	-95.44	-130.7	-66.4	149.0	147.2	1.80	82.906	
600.0	597.1	569.5	567.2	1.4	1.2	-99.91	-144.3	-73.2	168.2	165.9	2.32	72.440	
700.0	694.3	665.3	661.4	1.8	1.6	-104.84	-160.0	-81.0	191.2	188.3	2.94	65.019	
800.0	790.2	759.7	754.2	2.4	1.9	-109.73	-175.5	-88.7	217.4	213.7	3.64	59.749	
900.0	884.4	852.6	845.5	3.0	2.2	-114.50	-190.7	-96.3	247.2	242.8	4.39	56.301	
1,000.0	978.0	944.8	936.2	3.6	2.5	-119.19	-205.7	-103.8	279.7	274.6	5.13	54.486	
1,100.0	1,071.6	1,037.1	1,026.9	4.3	2.9	-122.93	-220.8	-111.4	313.6	307.8	5.86	53.493	
1,200.0	1,165.2	1,129.3	1,117.6	5.0	3.2	-125.95	-235.9	-118.9	348.5	341.9	6.58	52.973	
1,300.0	1,258.8	1,221.5	1,208.3	5.6	3.5	-128.43	-251.0	-126.4	384.1	376.8	7.28	52.733	
1,400.0	1,352.4	1,313.8	1,298.9	6.3	3.9	-130.50	-266.1	-134.0	420.2	412.3	7.98	52.664	SF
1,500.0	1,446.0	1,406.0	1,389.6	6.9	4.2	-132.24	-281.2	-141.5	456.8	448.1	8.67	52.699	
1,600.0	1,539.6	1,498.2	1,480.3	7.6	4.5	-133.73	-296.3	-149.0	493.6	484.3	9.35	52.798	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-158.87	-106.7	-41.2	114.4				
100.0	100.0	100.0	100.0	0.1	0.1	-158.87	-106.7	-41.2	114.4	114.1	0.27	420.174	
200.0	200.0	200.0	200.0	0.3	0.3	-158.87	-106.7	-41.2	114.4	113.8	0.62	184.121	CC, ES
300.0	300.0	294.2	294.2	0.5	0.5	-94.57	-108.9	-42.1	117.1	116.1	0.97	120.811	
400.0	399.6	387.7	387.4	0.7	0.7	-97.58	-115.3	-44.7	125.3	123.9	1.35	92.627	
500.0	498.8	479.7	478.7	1.0	0.9	-101.70	-125.7	-48.8	139.7	137.9	1.80	77.812	
600.0	597.1	569.6	567.3	1.4	1.2	-106.03	-139.8	-54.5	160.8	158.5	2.31	69.609	
700.0	694.3	658.9	654.6	1.8	1.6	-110.09	-157.5	-61.6	188.8	185.9	2.91	64.967	
800.0	790.2	752.0	745.3	2.4	2.0	-114.14	-176.9	-69.4	221.0	217.4	3.59	61.565	
900.0	884.4	843.5	834.4	3.0	2.4	-118.00	-196.0	-77.0	256.6	252.3	4.33	59.253	
1,000.0	978.0	934.3	922.9	3.6	2.7	-121.95	-215.0	-84.6	294.5	289.4	5.07	58.038	
1,100.0	1,071.6	1,025.2	1,011.4	4.3	3.1	-125.02	-234.0	-92.2	333.3	327.5	5.81	57.339	
1,200.0	1,165.2	1,116.0	1,099.9	5.0	3.5	-127.46	-252.9	-99.9	372.7	366.2	6.55	56.939	
1,300.0	1,258.8	1,206.8	1,188.4	5.6	3.9	-129.44	-271.9	-107.5	412.7	405.4	7.28	56.719	
1,400.0	1,352.4	1,297.6	1,276.9	6.3	4.3	-131.07	-290.8	-115.1	453.0	444.9	8.00	56.610	
1,500.0	1,446.0	1,388.4	1,365.4	6.9	4.7	-132.44	-309.8	-122.7	493.5	484.8	8.72	56.571	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 Fee 17-9C (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 Fee 17-9C (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	-165.86	-100.9	-25.4	104.0				
100.0	100.0	100.0	100.0	0.1	0.1	-165.86	-100.9	-25.4	104.0	103.8	0.27	382.092	
200.0	200.0	200.0	200.0	0.3	0.3	-165.86	-100.9	-25.4	104.0	103.4	0.62	167.434	CC, ES
300.0	300.0	294.7	294.7	0.5	0.5	-101.56	-103.1	-26.2	107.0	106.0	0.97	110.374	
400.0	399.6	388.6	388.3	0.7	0.7	-104.54	-109.7	-28.4	116.2	114.8	1.35	85.912	
500.0	498.8	481.0	480.0	1.0	0.9	-108.47	-120.4	-32.0	132.0	130.2	1.79	73.724	
600.0	597.1	571.1	568.7	1.4	1.3	-112.45	-134.9	-36.9	154.9	152.6	2.30	67.442	
700.0	694.3	658.3	653.9	1.8	1.6	-115.91	-152.7	-42.9	185.0	182.1	2.88	64.266	
800.0	790.2	744.3	737.0	2.4	2.0	-118.74	-173.8	-49.9	222.0	218.4	3.54	62.737	
900.0	884.4	834.2	823.6	3.0	2.4	-121.61	-196.7	-57.6	263.2	258.9	4.27	61.616	
1,000.0	978.0	923.3	909.4	3.6	2.9	-124.77	-219.4	-65.3	306.1	301.1	5.01	61.049	
1,100.0	1,071.6	1,012.5	995.3	4.3	3.3	-127.17	-242.1	-72.9	349.6	343.9	5.76	60.693	
1,200.0	1,165.2	1,101.7	1,081.2	5.0	3.8	-129.05	-264.9	-80.5	393.6	387.1	6.51	60.464	
1,300.0	1,258.8	1,190.8	1,167.1	5.6	4.2	-130.55	-287.6	-88.2	437.8	430.5	7.26	60.316	
1,400.0	1,352.4	1,280.0	1,252.9	6.3	4.6	-131.77	-310.3	-95.8	482.2	474.2	8.01	60.220	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	80.77	6.9	42.6	43.2				
100.0	100.0	100.0	100.0	0.1	0.1	80.77	6.9	42.6	43.2	42.9	0.27	158.688	
200.0	200.0	200.0	200.0	0.3	0.3	80.77	6.9	42.6	43.2	42.6	0.62	69.537	CC, ES
300.0	300.0	301.1	301.1	0.5	0.5	145.07	9.0	40.9	44.1	43.1	0.98	44.882	
400.0	399.6	402.2	401.8	0.7	0.7	142.00	15.2	35.9	46.7	45.3	1.39	33.620	
500.0	498.8	503.1	501.8	1.0	1.0	137.60	25.5	27.4	51.3	49.4	1.90	27.047	
600.0	597.1	602.8	600.2	1.4	1.3	134.91	37.8	17.3	59.0	56.5	2.48	23.767	
700.0	694.3	702.1	698.3	1.8	1.6	135.85	50.1	7.1	70.3	67.2	3.10	22.722	SF
800.0	790.2	800.8	795.7	2.4	2.0	138.82	62.3	-2.9	85.6	81.9	3.70	23.097	
900.0	884.4	898.7	892.3	3.0	2.3	142.58	74.5	-12.9	105.0	100.7	4.28	24.538	
1,000.0	978.0	996.1	988.5	3.6	2.6	145.90	86.5	-22.8	126.4	121.6	4.82	26.220	
1,100.0	1,071.6	1,093.6	1,084.7	4.3	2.9	148.26	98.6	-32.7	148.1	142.8	5.36	27.659	
1,200.0	1,165.2	1,191.1	1,180.9	5.0	3.2	150.01	110.7	-42.6	170.0	164.1	5.88	28.891	
1,300.0	1,258.8	1,288.5	1,277.1	5.6	3.5	151.36	122.8	-52.6	192.0	185.6	6.41	29.952	
1,400.0	1,352.4	1,386.0	1,373.3	6.3	3.9	152.44	134.8	-62.5	214.1	207.2	6.94	30.872	
1,500.0	1,446.0	1,483.4	1,469.5	6.9	4.2	153.31	146.9	-72.4	236.2	228.8	7.46	31.677	
1,600.0	1,539.6	1,580.9	1,565.7	7.6	4.5	154.04	159.0	-82.3	258.4	250.4	7.98	32.385	
1,700.0	1,633.2	1,678.4	1,661.9	8.3	4.8	154.65	171.0	-92.3	280.6	272.1	8.50	33.014	
1,800.0	1,726.8	1,775.8	1,758.1	8.9	5.2	155.17	183.1	-102.2	302.9	293.9	9.02	33.574	
1,900.0	1,820.4	1,873.3	1,854.3	9.6	5.5	155.62	195.2	-112.1	325.1	315.6	9.54	34.078	
2,000.0	1,914.0	1,970.7	1,950.5	10.3	5.8	156.01	207.3	-122.0	347.4	337.4	10.06	34.531	
2,100.0	2,007.6	2,068.2	2,046.7	10.9	6.1	156.35	219.3	-131.9	369.7	359.1	10.58	34.943	
2,200.0	2,101.2	2,165.7	2,142.9	11.6	6.4	156.66	231.4	-141.9	392.0	380.9	11.10	35.318	
2,300.0	2,194.8	2,263.1	2,239.1	12.3	6.8	156.93	243.5	-151.8	414.3	402.7	11.62	35.660	
2,400.0	2,288.4	2,360.6	2,335.3	12.9	7.1	157.18	255.5	-161.7	436.7	424.5	12.14	35.974	
2,500.0	2,382.0	2,458.1	2,431.5	13.6	7.4	157.40	267.6	-171.6	459.0	446.3	12.66	36.264	
2,600.0	2,475.6	2,555.5	2,527.7	14.3	7.7	157.60	279.7	-181.6	481.3	468.1	13.18	36.531	

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 Fee 17-9C (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 Fee 17-9C (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	69.98	17.5	48.0	51.1				
100.0	100.0	100.0	100.0	0.1	0.1	69.98	17.5	48.0	51.1	50.8	0.27	187.683	
200.0	200.0	200.0	200.0	0.3	0.3	69.98	17.5	48.0	51.1	50.5	0.62	82.243	CC, ES
300.0	300.0	300.5	300.5	0.5	0.5	134.55	19.8	46.6	52.4	51.5	0.98	53.317	
400.0	399.6	400.9	400.5	0.7	0.7	132.26	26.5	42.5	56.5	55.1	1.40	40.268	
500.0	498.8	501.0	499.7	1.0	1.0	129.11	37.7	35.7	63.5	61.6	1.93	32.865	
600.0	597.1	600.6	597.7	1.4	1.4	125.74	53.2	26.2	73.5	70.9	2.60	28.281	
700.0	694.3	699.7	694.8	1.8	1.7	124.72	70.1	15.9	86.5	83.2	3.34	25.879	
800.0	790.2	798.4	791.4	2.4	2.1	126.26	87.0	5.6	102.5	98.4	4.13	24.818	
900.0	884.4	896.3	887.4	3.0	2.5	129.22	103.7	-4.7	121.8	116.9	4.93	24.725	SF
1,000.0	978.0	993.8	982.9	3.6	2.8	132.26	120.4	-14.8	142.8	137.1	5.70	25.067	
1,100.0	1,071.6	1,091.4	1,078.5	4.3	3.2	134.53	137.0	-25.0	164.0	157.5	6.45	25.421	
1,200.0	1,165.2	1,188.9	1,174.1	5.0	3.6	136.28	153.7	-35.2	185.3	178.1	7.20	25.757	
1,300.0	1,258.8	1,286.5	1,269.6	5.6	4.0	137.66	170.4	-45.4	206.9	198.9	7.94	26.067	
1,400.0	1,352.4	1,384.0	1,365.2	6.3	4.4	138.78	187.1	-55.6	228.5	219.8	8.67	26.349	
1,500.0	1,446.0	1,481.6	1,460.8	6.9	4.7	139.71	203.7	-65.8	250.1	240.7	9.40	26.604	
1,600.0	1,539.6	1,579.1	1,556.4	7.6	5.1	140.50	220.4	-76.0	271.9	261.7	10.13	26.834	
1,700.0	1,633.2	1,676.7	1,651.9	8.3	5.5	141.16	237.1	-86.2	293.6	282.8	10.86	27.042	
1,800.0	1,726.8	1,774.2	1,747.5	8.9	5.9	141.74	253.7	-96.4	315.5	303.9	11.58	27.231	
1,900.0	1,820.4	1,871.7	1,843.1	9.6	6.3	142.24	270.4	-106.5	337.3	325.0	12.31	27.402	
2,000.0	1,914.0	1,969.3	1,938.6	10.3	6.6	142.67	287.1	-116.7	359.1	346.1	13.03	27.559	
2,100.0	2,007.6	2,066.8	2,034.2	10.9	7.0	143.06	303.8	-126.9	381.0	367.3	13.75	27.702	
2,200.0	2,101.2	2,164.4	2,129.8	11.6	7.4	143.41	320.4	-137.1	402.9	388.4	14.48	27.833	
2,300.0	2,194.8	2,261.9	2,225.4	12.3	7.8	143.72	337.1	-147.3	424.8	409.6	15.20	27.953	
2,400.0	2,288.4	2,359.5	2,320.9	12.9	8.2	144.00	353.8	-157.5	446.7	430.8	15.92	28.065	
2,500.0	2,382.0	2,457.0	2,416.5	13.6	8.6	144.25	370.4	-167.7	468.6	452.0	16.64	28.168	
2,600.0	2,475.6	2,554.6	2,512.1	14.3	8.9	144.49	387.1	-177.9	490.5	473.2	17.36	28.263	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	77.74	12.8	58.7	60.1				
100.0	100.0	100.0	100.0	0.1	0.1	77.74	12.8	58.7	60.1	59.8	0.27	220.789	
200.0	200.0	200.0	200.0	0.3	0.3	77.74	12.8	58.7	60.1	59.5	0.62	96.750	CC, ES
300.0	300.0	300.4	300.3	0.5	0.5	142.17	15.2	57.8	61.9	60.9	0.98	62.971	
400.0	399.6	400.5	400.2	0.7	0.7	139.50	22.6	55.1	67.2	65.8	1.40	48.111	
500.0	498.8	500.2	498.9	1.0	1.0	135.87	34.9	50.7	76.3	74.4	1.91	39.949	
600.0	597.1	599.1	596.2	1.4	1.4	132.03	51.8	44.5	89.4	86.8	2.56	34.918	
700.0	694.3	697.1	691.5	1.8	1.8	128.44	73.2	36.7	106.4	103.1	3.36	31.646	
800.0	790.2	794.0	784.4	2.4	2.3	125.29	98.8	27.3	127.5	123.1	4.33	29.464	
900.0	884.4	890.4	875.9	3.0	2.9	123.06	127.8	16.8	152.2	146.8	5.39	28.226	
1,000.0	978.0	987.0	967.3	3.6	3.4	122.31	157.0	6.1	178.0	171.6	6.48	27.472	
1,100.0	1,071.6	1,083.6	1,058.7	4.3	4.0	121.74	186.3	-4.5	203.9	196.3	7.58	26.893	
1,200.0	1,165.2	1,180.2	1,150.1	5.0	4.5	121.31	215.5	-15.2	229.8	221.1	8.69	26.440	
1,300.0	1,258.8	1,276.7	1,241.5	5.6	5.1	120.96	244.8	-25.9	255.7	245.9	9.81	26.076	
1,400.0	1,352.4	1,373.3	1,333.0	6.3	5.7	120.68	274.0	-36.5	281.7	270.7	10.93	25.779	
1,500.0	1,446.0	1,469.9	1,424.4	6.9	6.2	120.44	303.2	-47.2	307.6	295.5	12.05	25.532	
1,600.0	1,539.6	1,566.5	1,515.8	7.6	6.8	120.24	332.5	-57.9	333.5	320.3	13.17	25.324	
1,700.0	1,633.2	1,663.0	1,607.2	8.3	7.4	120.07	361.7	-68.5	359.4	345.2	14.29	25.146	
1,800.0	1,726.8	1,759.6	1,698.6	8.9	7.9	119.92	391.0	-79.2	385.4	370.0	15.42	24.992	
1,900.0	1,820.4	1,856.2	1,790.1	9.6	8.5	119.80	420.2	-89.9	411.3	394.8	16.55	24.859	
2,000.0	1,914.0	1,952.8	1,881.5	10.3	9.1	119.68	449.4	-100.5	437.3	419.6	17.67	24.741	
2,100.0	2,007.6	2,049.3	1,972.9	10.9	9.6	119.58	478.7	-111.2	463.2	444.4	18.80	24.636	
2,200.0	2,101.2	2,145.9	2,064.3	11.6	10.2	119.49	507.9	-121.9	489.1	469.2	19.93	24.543	SF

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

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-159.46	-96.5	-36.2	103.1				
100.0	100.0	100.0	100.0	0.1	0.1	-159.46	-96.5	-36.2	103.1	102.8	0.27	378.509	
200.0	200.0	200.0	200.0	0.3	0.3	-159.46	-96.5	-36.2	103.1	102.4	0.62	165.864	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	-94.05	-95.9	-38.7	103.6	102.6	0.99	105.017	
400.0	399.6	398.7	398.3	0.7	0.7	-94.06	-94.1	-46.2	105.1	103.6	1.43	73.713	
500.0	498.8	498.0	496.8	1.0	1.0	-94.06	-91.1	-58.7	107.6	105.6	1.99	54.049	
600.0	597.1	597.3	594.4	1.4	1.4	-94.06	-86.9	-76.2	111.1	108.3	2.71	40.927	
700.0	694.3	696.5	690.9	1.8	1.8	-94.06	-81.5	-98.5	115.5	111.9	3.61	31.972	
800.0	790.2	795.6	786.0	2.4	2.3	-94.06	-74.9	-125.7	121.0	116.3	4.70	25.742	
900.0	884.4	895.0	879.9	3.0	3.0	-94.21	-67.3	-157.4	127.3	121.4	5.93	21.454	
1,000.0	978.0	994.7	973.8	3.6	3.6	-94.91	-59.4	-190.2	133.9	126.7	7.20	18.607	
1,100.0	1,071.6	1,094.5	1,067.7	4.3	4.2	-95.54	-51.5	-222.9	140.6	132.1	8.47	16.589	
1,200.0	1,165.2	1,194.3	1,161.6	5.0	4.8	-96.12	-43.6	-255.7	147.2	137.4	9.76	15.090	
1,300.0	1,258.8	1,294.0	1,255.5	5.6	5.5	-96.64	-35.7	-288.4	153.9	142.8	11.04	13.935	
1,400.0	1,352.4	1,393.8	1,349.4	6.3	6.1	-97.13	-27.9	-321.2	160.5	148.2	12.33	13.020	
1,500.0	1,446.0	1,493.6	1,443.3	6.9	6.7	-97.57	-20.0	-353.9	167.2	153.6	13.62	12.278	
1,600.0	1,539.6	1,593.3	1,537.2	7.6	7.4	-97.98	-12.1	-386.7	173.9	159.0	14.91	11.664	
1,700.0	1,633.2	1,693.1	1,631.1	8.3	8.0	-98.36	-4.2	-419.4	180.6	164.4	16.20	11.148	
1,800.0	1,726.8	1,792.9	1,725.0	8.9	8.7	-98.71	3.7	-452.2	187.3	169.8	17.49	10.709	
1,900.0	1,820.4	1,892.7	1,818.9	9.6	9.3	-99.04	11.6	-484.9	194.0	175.3	18.78	10.331	
2,000.0	1,914.0	1,992.4	1,912.8	10.3	9.9	-99.35	19.5	-517.7	200.8	180.7	20.07	10.002	
2,100.0	2,007.6	2,092.2	2,006.8	10.9	10.6	-99.63	27.4	-550.4	207.5	186.1	21.36	9.713	
2,200.0	2,101.2	2,192.0	2,100.7	11.6	11.2	-99.90	35.3	-583.2	214.2	191.6	22.65	9.457	
2,300.0	2,194.8	2,291.7	2,194.6	12.3	11.9	-100.15	43.2	-615.9	221.0	197.0	23.94	9.229	
2,400.0	2,288.4	2,391.5	2,288.5	12.9	12.5	-100.39	51.0	-648.7	227.7	202.5	25.23	9.025	
2,500.0	2,382.0	2,491.3	2,382.4	13.6	13.2	-100.61	58.9	-681.4	234.5	207.9	26.52	8.841	
2,600.0	2,475.6	2,591.0	2,476.3	14.3	13.8	-100.82	66.8	-714.2	241.2	213.4	27.81	8.674	
2,700.0	2,569.2	2,690.8	2,570.2	14.9	14.4	-101.02	74.7	-747.0	247.9	218.9	29.09	8.522	
2,800.0	2,662.8	2,790.6	2,664.1	15.6	15.1	-101.21	82.6	-779.7	254.7	224.3	30.38	8.384	
2,900.0	2,756.4	2,890.3	2,758.0	16.3	15.7	-101.39	90.5	-812.5	261.5	229.8	31.67	8.256	
3,000.0	2,850.0	2,990.1	2,851.9	16.9	16.4	-101.56	98.4	-845.2	268.2	235.3	32.95	8.139	
3,100.0	2,943.6	3,089.9	2,945.8	17.6	17.0	-101.72	106.3	-878.0	275.0	240.7	34.24	8.031	
3,200.0	3,037.2	3,189.6	3,039.7	18.3	17.6	-101.88	114.2	-910.7	281.7	246.2	35.52	7.931	
3,300.0	3,130.8	3,289.4	3,133.6	18.9	18.3	-102.02	122.1	-943.5	288.5	251.7	36.81	7.838	
3,400.0	3,224.4	3,389.2	3,227.6	19.6	18.9	-102.16	129.9	-976.2	295.3	257.2	38.09	7.751	
3,500.0	3,318.0	3,488.9	3,321.5	20.3	19.6	-102.30	137.8	-1,009.0	302.0	262.7	39.38	7.670	
3,600.0	3,411.6	3,588.7	3,415.4	20.9	20.2	-102.43	145.7	-1,041.7	308.8	268.2	40.66	7.595	
3,700.0	3,505.2	3,688.5	3,509.3	21.6	20.9	-102.55	153.6	-1,074.5	315.6	273.6	41.94	7.524	
3,800.0	3,598.8	3,788.2	3,603.2	22.3	21.5	-102.67	161.5	-1,107.2	322.4	279.1	43.23	7.457	
3,900.0	3,692.4	3,888.0	3,697.1	22.9	22.1	-102.78	169.4	-1,140.0	329.1	284.6	44.51	7.395	
4,000.0	3,786.0	3,987.8	3,791.0	23.6	22.8	-102.89	177.3	-1,172.7	335.9	290.1	45.79	7.335	
4,100.0	3,879.6	4,087.6	3,884.9	24.3	23.4	-102.99	185.2	-1,205.5	342.7	295.6	47.07	7.280	
4,200.0	3,973.2	4,187.3	3,978.8	25.0	24.1	-103.09	193.1	-1,238.3	349.5	301.1	48.36	7.227	
4,300.0	4,066.8	4,287.1	4,072.7	25.6	24.7	-103.18	201.0	-1,271.0	356.2	306.6	49.64	7.177	
4,400.0	4,160.4	4,386.9	4,166.6	26.3	25.4	-103.28	208.8	-1,303.8	363.0	312.1	50.92	7.129	
4,500.0	4,254.0	4,486.6	4,260.5	27.0	26.0	-103.37	216.7	-1,336.5	369.8	317.6	52.20	7.084	
4,600.0	4,347.6	4,586.4	4,354.4	27.6	26.6	-103.45	224.6	-1,369.3	376.6	323.1	53.48	7.041	
4,700.0	4,441.2	4,686.2	4,448.4	28.3	27.3	-103.53	232.5	-1,402.0	383.4	328.6	54.76	7.001	
4,800.0	4,534.8	4,785.9	4,542.3	29.0	27.9	-103.61	240.4	-1,434.8	390.1	334.1	56.04	6.962	
4,900.0	4,628.4	4,885.7	4,636.2	29.6	28.6	-103.69	248.3	-1,467.5	396.9	339.6	57.32	6.924	
5,000.0	4,722.0	4,985.5	4,730.1	30.3	29.2	-103.77	256.2	-1,500.3	403.7	345.1	58.60	6.889	
5,100.0	4,815.6	5,085.2	4,824.0	31.0	29.9	-103.84	264.1	-1,533.0	410.5	350.6	59.88	6.855	

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 Fee 17-9C (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 Fee 17-9C (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
5,200.0	4,909.2	5,185.0	4,917.9	31.6	30.5	-103.91	272.0	-1,565.8	417.3	356.1	61.16	6.823	
5,300.0	5,002.8	5,284.8	5,011.8	32.3	31.1	-103.97	279.9	-1,598.5	424.1	361.6	62.44	6.791	
5,400.0	5,096.4	5,384.5	5,105.7	33.0	31.8	-104.04	287.7	-1,631.3	430.9	367.1	63.72	6.762	
5,500.0	5,190.0	5,484.3	5,199.6	33.6	32.4	-104.10	295.6	-1,664.0	437.6	372.6	65.00	6.733	
5,600.0	5,283.6	5,584.1	5,293.5	34.3	33.1	-104.16	303.5	-1,696.8	444.4	378.2	66.28	6.705	
5,700.0	5,377.2	5,683.8	5,387.4	35.0	33.7	-104.22	311.4	-1,729.5	451.2	383.7	67.56	6.679	
5,800.0	5,470.8	5,783.6	5,481.3	35.6	34.4	-104.28	319.3	-1,762.3	458.0	389.2	68.84	6.653	
5,900.0	5,564.4	5,883.4	5,575.3	36.3	35.0	-104.34	327.2	-1,795.1	464.8	394.7	70.12	6.629	
6,000.0	5,658.0	5,983.2	5,669.2	37.0	35.6	-104.39	335.1	-1,827.8	471.6	400.2	71.39	6.605	
6,100.0	5,751.6	6,082.9	5,763.1	37.6	36.3	-104.44	343.0	-1,860.6	478.4	405.7	72.67	6.583	
6,200.0	5,845.2	6,182.7	5,857.0	38.3	36.9	-104.50	350.9	-1,893.3	485.2	411.2	73.95	6.561	
6,300.0	5,938.8	6,282.5	5,950.9	39.0	37.6	-104.55	358.8	-1,926.1	492.0	416.7	75.23	6.539	
6,400.0	6,032.4	6,382.2	6,044.8	39.7	38.2	-104.59	366.6	-1,958.8	498.7	422.2	76.51	6.519	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-153.08	-102.3	-52.0	114.8				
100.0	100.0	100.0	100.0	0.1	0.1	-153.08	-102.3	-52.0	114.8	114.5	0.27	421.546	
200.0	200.0	200.0	200.0	0.3	0.3	-153.08	-102.3	-52.0	114.8	114.2	0.62	184.722	CC, ES
300.0	300.0	297.9	297.8	0.5	0.5	-87.75	-102.1	-54.5	115.6	114.6	0.98	117.635	
400.0	399.6	395.7	395.4	0.7	0.7	-87.99	-101.3	-61.9	118.0	116.6	1.41	83.488	
500.0	498.8	493.5	492.4	1.0	1.0	-88.37	-100.0	-74.4	122.1	120.1	1.96	62.178	
600.0	597.1	591.2	588.5	1.4	1.3	-88.85	-98.2	-91.7	127.7	125.0	2.66	47.942	
700.0	694.3	688.8	683.4	1.8	1.8	-89.40	-95.8	-113.8	135.0	131.4	3.53	38.181	
800.0	790.2	786.1	777.0	2.4	2.3	-89.97	-93.0	-140.7	143.8	139.2	4.59	31.356	
900.0	884.4	884.1	869.6	3.0	2.9	-90.68	-89.7	-172.2	154.1	148.3	5.79	26.638	
1,000.0	978.0	983.4	963.3	3.6	3.5	-91.85	-86.2	-205.3	164.9	157.8	7.03	23.445	
1,100.0	1,071.6	1,082.8	1,056.9	4.3	4.1	-92.88	-82.8	-238.3	175.7	167.4	8.29	21.184	
1,200.0	1,165.2	1,182.2	1,150.6	5.0	4.7	-93.79	-79.3	-271.4	186.5	177.0	9.56	19.507	
1,300.0	1,258.8	1,281.5	1,244.2	5.6	5.4	-94.60	-75.8	-304.4	197.4	186.6	10.84	18.218	
1,400.0	1,352.4	1,380.9	1,337.9	6.3	6.0	-95.33	-72.4	-337.5	208.4	196.2	12.12	17.199	
1,500.0	1,446.0	1,480.3	1,431.5	6.9	6.6	-95.98	-68.9	-370.5	219.3	205.9	13.39	16.374	
1,600.0	1,539.6	1,579.6	1,525.2	7.6	7.3	-96.58	-65.4	-403.6	230.3	215.6	14.68	15.693	
1,700.0	1,633.2	1,679.0	1,618.8	8.3	7.9	-97.11	-62.0	-436.7	241.3	225.4	15.96	15.123	
1,800.0	1,726.8	1,778.4	1,712.4	8.9	8.5	-97.60	-58.5	-469.7	252.3	235.1	17.24	14.638	
1,900.0	1,820.4	1,877.8	1,806.1	9.6	9.2	-98.05	-55.0	-502.8	263.4	244.9	18.52	14.222	
2,000.0	1,914.0	1,977.1	1,899.7	10.3	9.8	-98.47	-51.5	-535.8	274.4	254.6	19.80	13.860	
2,100.0	2,007.6	2,076.5	1,993.4	10.9	10.4	-98.85	-48.1	-568.9	285.5	264.4	21.08	13.543	
2,200.0	2,101.2	2,175.9	2,087.0	11.6	11.1	-99.20	-44.6	-601.9	296.6	274.2	22.36	13.262	
2,300.0	2,194.8	2,275.2	2,180.7	12.3	11.7	-99.53	-41.1	-635.0	307.7	284.0	23.64	13.013	
2,400.0	2,288.4	2,374.6	2,274.3	12.9	12.3	-99.83	-37.7	-668.0	318.8	293.9	24.92	12.790	
2,500.0	2,382.0	2,474.0	2,368.0	13.6	13.0	-100.12	-34.2	-701.1	329.9	303.7	26.20	12.590	
2,600.0	2,475.6	2,573.3	2,461.6	14.3	13.6	-100.38	-30.7	-734.1	341.0	313.5	27.48	12.408	
2,700.0	2,569.2	2,672.7	2,555.3	14.9	14.2	-100.63	-27.3	-767.2	352.2	323.4	28.76	12.243	
2,800.0	2,662.8	2,772.1	2,648.9	15.6	14.9	-100.86	-23.8	-800.2	363.3	333.2	30.04	12.093	
2,900.0	2,756.4	2,871.4	2,742.6	16.3	15.5	-101.08	-20.3	-833.3	374.4	343.1	31.32	11.955	
3,000.0	2,850.0	2,970.8	2,836.2	16.9	16.1	-101.29	-16.9	-866.3	385.6	353.0	32.60	11.828	
3,100.0	2,943.6	3,070.2	2,929.9	17.6	16.8	-101.49	-13.4	-899.4	396.7	362.8	33.88	11.711	
3,200.0	3,037.2	3,169.5	3,023.5	18.3	17.4	-101.67	-9.9	-932.4	407.9	372.7	35.15	11.603	
3,300.0	3,130.8	3,268.9	3,117.1	18.9	18.0	-101.85	-6.4	-965.5	419.0	382.6	36.43	11.502	
3,400.0	3,224.4	3,368.3	3,210.8	19.6	18.7	-102.01	-3.0	-998.5	430.2	392.5	37.71	11.409	
3,500.0	3,318.0	3,467.6	3,304.4	20.3	19.3	-102.17	0.5	-1,031.6	441.3	402.4	38.98	11.321	
3,600.0	3,411.6	3,567.0	3,398.1	20.9	19.9	-102.32	4.0	-1,064.6	452.5	412.2	40.26	11.240	
3,700.0	3,505.2	3,666.4	3,491.7	21.6	20.6	-102.46	7.4	-1,097.7	463.7	422.1	41.53	11.164	
3,800.0	3,598.8	3,765.7	3,585.4	22.3	21.2	-102.60	10.9	-1,130.7	474.8	432.0	42.81	11.092	
3,900.0	3,692.4	3,865.1	3,679.0	22.9	21.8	-102.73	14.4	-1,163.8	486.0	441.9	44.08	11.025	
4,000.0	3,786.0	3,964.5	3,772.7	23.6	22.5	-102.85	17.8	-1,196.8	497.2	451.8	45.36	10.961	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 Fee 17-9C (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 Fee 17-9C (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	-143.65	-114.0	-83.9	141.5				
100.0	100.0	100.0	100.0	0.1	0.1	-143.65	-114.0	-83.9	141.5	141.3	0.27	519.804	
200.0	200.0	200.0	200.0	0.3	0.3	-143.65	-114.0	-83.9	141.5	140.9	0.62	227.779	CC, ES
300.0	300.0	295.6	295.6	0.5	0.5	-78.43	-114.1	-86.3	142.5	141.6	0.98	146.021	
400.0	399.6	391.2	390.9	0.7	0.7	-79.00	-114.3	-93.4	145.6	144.2	1.39	104.727	
500.0	498.8	486.6	485.6	1.0	1.0	-79.90	-114.6	-105.3	150.6	148.7	1.91	78.997	
600.0	597.1	581.9	579.3	1.4	1.3	-81.04	-115.0	-121.9	157.8	155.2	2.56	61.622	
700.0	694.3	676.9	671.9	1.8	1.7	-82.34	-115.6	-143.1	167.0	163.7	3.37	49.511	
800.0	790.2	771.5	763.1	2.4	2.2	-83.71	-116.3	-168.7	178.4	174.1	4.36	40.917	
900.0	884.4	867.3	853.9	3.0	2.8	-85.22	-117.1	-199.0	191.8	186.3	5.50	34.888	
1,000.0	978.0	966.1	947.2	3.6	3.4	-87.15	-118.0	-231.3	205.9	199.2	6.71	30.699	
1,100.0	1,071.6	1,064.9	1,040.6	4.3	4.0	-88.84	-118.9	-263.6	220.1	212.2	7.93	27.742	
1,200.0	1,165.2	1,163.7	1,133.9	5.0	4.6	-90.32	-119.8	-295.9	234.5	225.3	9.17	25.559	
1,300.0	1,258.8	1,262.4	1,227.3	5.6	5.2	-91.63	-120.6	-328.2	249.0	238.6	10.42	23.892	
1,400.0	1,352.4	1,361.2	1,320.6	6.3	5.8	-92.80	-121.5	-360.5	263.7	252.0	11.68	22.583	
1,500.0	1,446.0	1,460.0	1,414.0	6.9	6.4	-93.84	-122.4	-392.8	278.4	265.5	12.93	21.530	
1,600.0	1,539.6	1,558.8	1,507.4	7.6	7.0	-94.78	-123.3	-425.1	293.2	279.1	14.19	20.667	
1,700.0	1,633.2	1,657.6	1,600.7	8.3	7.6	-95.63	-124.2	-457.4	308.1	292.7	15.45	19.949	
1,800.0	1,726.8	1,756.4	1,694.1	8.9	8.3	-96.40	-125.0	-489.7	323.1	306.4	16.70	19.342	
1,900.0	1,820.4	1,855.2	1,787.4	9.6	8.9	-97.10	-125.9	-522.0	338.1	320.1	17.96	18.823	
2,000.0	1,914.0	1,954.0	1,880.8	10.3	9.5	-97.74	-126.8	-554.3	353.1	333.9	19.22	18.375	
2,100.0	2,007.6	2,052.7	1,974.1	10.9	10.1	-98.33	-127.7	-586.6	368.2	347.8	20.48	17.985	
2,200.0	2,101.2	2,151.5	2,067.5	11.6	10.7	-98.87	-128.6	-618.9	383.4	361.6	21.73	17.642	
2,300.0	2,194.8	2,250.3	2,160.8	12.3	11.3	-99.37	-129.4	-651.2	398.5	375.5	22.99	17.338	
2,400.0	2,288.4	2,349.1	2,254.2	12.9	12.0	-99.84	-130.3	-683.5	413.7	389.5	24.24	17.067	
2,500.0	2,382.0	2,447.9	2,347.5	13.6	12.6	-100.27	-131.2	-715.8	428.9	403.4	25.49	16.825	
2,600.0	2,475.6	2,546.7	2,440.9	14.3	13.2	-100.67	-132.1	-748.1	444.2	417.4	26.75	16.607	
2,700.0	2,569.2	2,645.5	2,534.2	14.9	13.8	-101.05	-133.0	-780.4	459.4	431.4	28.00	16.409	
2,800.0	2,662.8	2,744.2	2,627.6	15.6	14.4	-101.40	-133.8	-812.7	474.7	445.4	29.25	16.229	
2,900.0	2,756.4	2,843.0	2,720.9	16.3	15.0	-101.73	-134.7	-845.0	490.0	459.5	30.50	16.065	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	87.65	1.1	26.8	26.9				
100.0	100.0	100.0	100.0	0.1	0.1	87.65	1.1	26.8	26.9	26.6	0.27	98.626	
200.0	200.0	200.0	200.0	0.3	0.3	87.65	1.1	26.8	26.9	26.2	0.62	43.218	CC
300.0	300.0	301.1	301.0	0.5	0.5	151.87	2.8	24.8	27.2	26.2	0.98	27.824	ES
400.0	399.6	402.1	401.7	0.7	0.7	148.46	7.8	18.5	28.3	27.0	1.37	20.732	
500.0	498.8	503.1	501.8	1.0	1.0	143.38	16.2	8.2	30.4	28.6	1.84	16.539	
600.0	597.1	604.0	601.0	1.4	1.4	137.39	27.9	-6.3	33.6	31.2	2.46	13.664	
700.0	694.3	704.7	698.9	1.8	1.8	131.26	42.8	-24.7	38.2	34.9	3.29	11.600	
800.0	790.2	805.4	795.3	2.4	2.4	125.56	60.9	-47.1	44.1	39.8	4.35	10.146	
900.0	884.4	905.8	889.9	3.0	3.0	120.56	82.2	-73.4	51.5	45.9	5.62	9.159	
1,000.0	978.0	1,005.6	982.5	3.6	3.7	115.24	105.5	-102.2	59.2	52.2	7.01	8.445	
1,100.0	1,071.6	1,105.2	1,074.9	4.3	4.4	111.07	128.8	-131.0	67.3	58.9	8.41	8.004	
1,200.0	1,165.2	1,204.7	1,167.3	5.0	5.1	107.81	152.1	-159.8	75.7	65.9	9.80	7.721	
1,300.0	1,258.8	1,304.3	1,259.8	5.6	5.8	105.20	175.4	-188.6	84.3	73.1	11.19	7.532	
1,400.0	1,352.4	1,403.9	1,352.2	6.3	6.4	103.08	198.7	-217.4	93.0	80.4	12.56	7.401	
1,500.0	1,446.0	1,503.4	1,444.6	6.9	7.1	101.32	222.0	-246.2	101.8	87.9	13.93	7.307	
1,600.0	1,539.6	1,603.0	1,537.0	7.6	7.8	99.84	245.3	-275.0	110.7	95.4	15.29	7.238	
1,700.0	1,633.2	1,702.6	1,629.4	8.3	8.5	98.59	268.6	-303.8	119.7	103.0	16.65	7.187	
1,800.0	1,726.8	1,802.1	1,721.8	8.9	9.2	97.51	291.9	-332.6	128.7	110.7	18.00	7.148	
1,900.0	1,820.4	1,901.7	1,814.3	9.6	9.9	96.57	315.2	-361.4	137.7	118.4	19.35	7.118	
2,000.0	1,914.0	2,001.2	1,906.7	10.3	10.6	95.75	338.5	-390.2	146.8	126.1	20.69	7.094	
2,100.0	2,007.6	2,100.8	1,999.1	10.9	11.3	95.02	361.8	-419.0	155.9	133.9	22.03	7.076	
2,200.0	2,101.2	2,200.4	2,091.5	11.6	12.0	94.37	385.1	-447.8	165.0	141.7	23.37	7.061	
2,300.0	2,194.8	2,299.9	2,183.9	12.3	12.7	93.79	408.4	-476.6	174.2	149.5	24.71	7.050	
2,400.0	2,288.4	2,399.5	2,276.4	12.9	13.4	93.27	431.7	-505.4	183.4	157.3	26.04	7.040	
2,500.0	2,382.0	2,499.1	2,368.8	13.6	14.1	92.80	455.0	-534.2	192.5	165.2	27.38	7.033	
2,600.0	2,475.6	2,598.6	2,461.2	14.3	14.8	92.37	478.3	-563.0	201.7	173.0	28.71	7.026	
2,700.0	2,569.2	2,698.2	2,553.6	14.9	15.4	91.98	501.6	-591.8	210.9	180.9	30.04	7.021	
2,800.0	2,662.8	2,797.8	2,646.0	15.6	16.1	91.62	524.9	-620.6	220.1	188.8	31.37	7.017	
2,900.0	2,756.4	2,897.3	2,738.4	16.3	16.8	91.29	548.2	-649.4	229.4	196.7	32.70	7.014	
3,000.0	2,850.0	2,996.9	2,830.9	16.9	17.5	90.99	571.5	-678.2	238.6	204.6	34.03	7.011	
3,100.0	2,943.6	3,096.5	2,923.3	17.6	18.2	90.71	594.8	-707.0	247.8	212.5	35.35	7.009	
3,200.0	3,037.2	3,196.0	3,015.7	18.3	18.9	90.45	618.1	-735.8	257.0	220.4	36.68	7.008	
3,300.0	3,130.8	3,295.6	3,108.1	18.9	19.6	90.20	641.4	-764.6	266.3	228.3	38.01	7.006	
3,400.0	3,224.4	3,395.2	3,200.5	19.6	20.3	89.98	664.7	-793.4	275.5	236.2	39.33	7.005	
3,500.0	3,318.0	3,494.7	3,292.9	20.3	21.0	89.76	688.0	-822.2	284.8	244.1	40.66	7.004	
3,600.0	3,411.6	3,594.3	3,385.4	20.9	21.7	89.57	711.3	-851.0	294.0	252.1	41.98	7.004	
3,700.0	3,505.2	3,693.9	3,477.8	21.6	22.4	89.38	734.6	-879.9	303.3	260.0	43.31	7.003	
3,800.0	3,598.8	3,793.4	3,570.2	22.3	23.1	89.20	757.9	-908.7	312.5	267.9	44.63	7.003	
3,900.0	3,692.4	3,893.0	3,662.6	22.9	23.8	89.04	781.2	-937.5	321.8	275.9	45.95	7.003	
4,000.0	3,786.0	3,992.6	3,755.0	23.6	24.5	88.88	804.5	-966.3	331.1	283.8	47.28	7.003	SF
4,100.0	3,879.6	4,092.1	3,847.4	24.3	25.2	88.73	827.8	-995.1	340.3	291.7	48.60	7.003	
4,200.0	3,973.2	4,191.7	3,939.9	25.0	25.9	88.59	851.1	-1,023.9	349.6	299.7	49.92	7.003	
4,300.0	4,066.8	4,291.3	4,032.3	25.6	26.6	88.46	874.4	-1,052.7	358.9	307.6	51.24	7.003	
4,400.0	4,160.4	4,390.8	4,124.7	26.3	27.3	88.34	897.7	-1,081.5	368.2	315.6	52.57	7.004	
4,500.0	4,254.0	4,490.4	4,217.1	27.0	28.0	88.22	921.0	-1,110.3	377.4	323.5	53.89	7.004	
4,600.0	4,347.6	4,590.0	4,309.5	27.6	28.6	88.10	944.3	-1,139.1	386.7	331.5	55.21	7.004	
4,700.0	4,441.2	4,689.5	4,401.9	28.3	29.3	87.99	967.6	-1,167.9	396.0	339.5	56.53	7.005	
4,800.0	4,534.8	4,789.1	4,494.4	29.0	30.0	87.89	990.9	-1,196.7	405.3	347.4	57.85	7.005	
4,900.0	4,628.4	4,888.7	4,586.8	29.6	30.7	87.79	1,014.2	-1,225.5	414.5	355.4	59.17	7.005	
5,000.0	4,722.0	4,988.2	4,679.2	30.3	31.4	87.70	1,037.5	-1,254.3	423.8	363.3	60.49	7.006	
5,100.0	4,815.6	5,087.8	4,771.6	31.0	32.1	87.60	1,060.8	-1,283.1	433.1	371.3	61.82	7.006	

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 Fee 17-9C (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 Fee 17-9C (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
5,200.0	4,909.2	5,187.4	4,864.0	31.6	32.8	87.52	1,084.1	-1,311.9	442.4	379.3	63.14	7.007	
5,300.0	5,002.8	5,286.9	4,956.4	32.3	33.5	87.43	1,107.4	-1,340.7	451.7	387.2	64.46	7.007	
5,400.0	5,096.4	5,386.5	5,048.9	33.0	34.2	87.35	1,130.7	-1,369.5	461.0	395.2	65.78	7.008	
5,500.0	5,190.0	5,486.1	5,141.3	33.6	34.9	87.28	1,154.0	-1,398.3	470.2	403.1	67.10	7.008	
5,600.0	5,283.6	5,585.6	5,233.7	34.3	35.6	87.20	1,177.3	-1,427.1	479.5	411.1	68.42	7.009	
5,700.0	5,377.2	5,685.2	5,326.1	35.0	36.3	87.13	1,200.6	-1,455.9	488.8	419.1	69.74	7.009	
5,800.0	5,470.8	5,784.8	5,418.5	35.6	37.0	87.06	1,223.9	-1,484.7	498.1	427.0	71.06	7.010	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	70.10	5.8	16.1	17.1				
100.0	100.0	100.0	100.0	0.1	0.1	70.10	5.8	16.1	17.1	16.8	0.27	62.881	
200.0	200.0	200.0	200.0	0.3	0.3	70.10	5.8	16.1	17.1	16.5	0.62	27.554	CC
300.0	300.0	300.6	300.5	0.5	0.5	134.92	7.1	13.8	17.3	16.3	0.98	17.633	ES
400.0	399.6	401.2	400.8	0.7	0.7	133.20	11.1	6.9	17.8	16.4	1.39	12.857	
500.0	498.8	501.7	500.5	1.0	1.0	130.56	17.7	-4.5	18.7	16.8	1.88	9.936	
600.0	597.1	602.3	599.3	1.4	1.4	127.27	26.9	-20.5	20.0	17.5	2.52	7.931	
700.0	694.3	702.8	697.0	1.8	1.8	123.66	38.7	-40.9	21.8	18.4	3.35	6.498	
800.0	790.2	803.3	793.3	2.4	2.4	119.98	53.0	-65.8	24.0	19.6	4.39	5.469	
900.0	884.4	903.8	888.0	3.0	3.0	116.39	69.8	-95.0	26.7	21.1	5.65	4.735	
1,000.0	978.0	1,003.8	980.9	3.6	3.7	110.11	88.3	-127.1	29.2	22.1	7.09	4.120	
1,100.0	1,071.6	1,103.7	1,073.6	4.3	4.4	104.59	106.9	-159.4	31.9	23.4	8.54	3.738	
1,200.0	1,165.2	1,203.7	1,166.4	5.0	5.1	99.97	125.4	-191.6	34.9	24.9	9.97	3.498	
1,300.0	1,258.8	1,303.6	1,259.1	5.6	5.8	96.10	144.0	-223.8	38.0	26.7	11.38	3.344	
1,400.0	1,352.4	1,403.5	1,351.9	6.3	6.5	92.83	162.5	-256.0	41.3	28.6	12.75	3.243	
1,500.0	1,446.0	1,503.4	1,444.6	6.9	7.2	90.05	181.1	-288.3	44.8	30.7	14.10	3.175	
1,600.0	1,539.6	1,603.3	1,537.3	7.6	7.9	87.67	199.6	-320.5	48.3	32.9	15.42	3.130	
1,700.0	1,633.2	1,703.3	1,630.1	8.3	8.6	85.62	218.2	-352.7	51.9	35.1	16.73	3.100	
1,800.0	1,726.8	1,803.2	1,722.8	8.9	9.3	83.83	236.7	-384.9	55.5	37.5	18.01	3.081	
1,900.0	1,820.4	1,903.1	1,815.6	9.6	10.0	82.27	255.3	-417.1	59.2	39.9	19.28	3.069	
2,000.0	1,914.0	2,003.0	1,908.3	10.3	10.7	80.89	273.8	-449.4	62.9	42.4	20.54	3.062	
2,100.0	2,007.6	2,102.9	2,001.1	10.9	11.4	79.66	292.4	-481.6	66.7	44.9	21.79	3.059	
2,200.0	2,101.2	2,202.9	2,093.8	11.6	12.1	78.57	311.0	-513.8	70.4	47.4	23.03	3.058	SF
2,300.0	2,194.8	2,302.8	2,186.6	12.3	12.8	77.59	329.5	-546.0	74.3	50.0	24.27	3.060	
2,400.0	2,288.4	2,402.7	2,279.3	12.9	13.5	76.70	348.1	-578.2	78.1	52.6	25.49	3.063	
2,500.0	2,382.0	2,502.6	2,372.0	13.6	14.2	75.90	366.6	-610.5	81.9	55.2	26.72	3.067	
2,600.0	2,475.6	2,602.5	2,464.8	14.3	14.9	75.17	385.2	-642.7	85.8	57.9	27.93	3.071	
2,700.0	2,569.2	2,702.5	2,557.5	14.9	15.6	74.50	403.7	-674.9	89.7	60.5	29.14	3.076	
2,800.0	2,662.8	2,802.4	2,650.3	15.6	16.3	73.88	422.3	-707.1	93.5	63.2	30.35	3.082	
2,900.0	2,756.4	2,902.3	2,743.0	16.3	17.0	73.32	440.8	-739.3	97.4	65.9	31.56	3.088	
3,000.0	2,850.0	3,002.2	2,835.8	16.9	17.7	72.80	459.4	-771.6	101.3	68.6	32.76	3.093	
3,100.0	2,943.6	3,102.1	2,928.5	17.6	18.4	72.32	477.9	-803.8	105.2	71.3	33.96	3.099	
3,200.0	3,037.2	3,202.1	3,021.3	18.3	19.1	71.87	496.5	-836.0	109.2	74.0	35.16	3.105	
3,300.0	3,130.8	3,302.0	3,114.0	18.9	19.8	71.45	515.0	-868.2	113.1	76.7	36.35	3.111	
3,400.0	3,224.4	3,401.9	3,206.7	19.6	20.5	71.07	533.6	-900.5	117.0	79.5	37.55	3.116	
3,500.0	3,318.0	3,501.8	3,299.5	20.3	21.2	70.70	552.1	-932.7	120.9	82.2	38.74	3.122	
3,600.0	3,411.6	3,601.7	3,392.2	20.9	21.9	70.36	570.7	-964.9	124.9	85.0	39.93	3.127	
3,700.0	3,505.2	3,701.7	3,485.0	21.6	22.6	70.04	589.3	-997.1	128.8	87.7	41.12	3.133	
3,800.0	3,598.8	3,801.6	3,577.7	22.3	23.3	69.74	607.8	-1,029.3	132.8	90.5	42.31	3.138	
3,900.0	3,692.4	3,901.5	3,670.5	22.9	24.0	69.46	626.4	-1,061.6	136.7	93.2	43.50	3.143	
4,000.0	3,786.0	4,001.4	3,763.2	23.6	24.7	69.19	644.9	-1,093.8	140.7	96.0	44.68	3.148	
4,100.0	3,879.6	4,101.3	3,856.0	24.3	25.4	68.94	663.5	-1,126.0	144.6	98.8	45.87	3.153	
4,200.0	3,973.2	4,201.3	3,948.7	25.0	26.1	68.70	682.0	-1,158.2	148.6	101.5	47.05	3.158	
4,300.0	4,066.8	4,301.2	4,041.4	25.6	26.8	68.47	700.6	-1,190.4	152.5	104.3	48.24	3.162	
4,400.0	4,160.4	4,401.1	4,134.2	26.3	27.6	68.26	719.1	-1,222.7	156.5	107.1	49.42	3.167	
4,500.0	4,254.0	4,501.0	4,226.9	27.0	28.3	68.05	737.7	-1,254.9	160.5	109.9	50.60	3.171	
4,600.0	4,347.6	4,600.9	4,319.7	27.6	29.0	67.86	756.2	-1,287.1	164.4	112.7	51.79	3.175	
4,700.0	4,441.2	4,700.9	4,412.4	28.3	29.7	67.67	774.8	-1,319.3	168.4	115.4	52.97	3.179	
4,800.0	4,534.8	4,800.8	4,505.2	29.0	30.4	67.50	793.3	-1,351.5	172.4	118.2	54.15	3.183	
4,900.0	4,628.4	4,900.7	4,597.9	29.6	31.1	67.33	811.9	-1,383.8	176.3	121.0	55.33	3.187	
5,000.0	4,722.0	5,000.6	4,690.7	30.3	31.8	67.16	830.4	-1,416.0	180.3	123.8	56.51	3.191	
5,100.0	4,815.6	5,100.5	4,783.4	31.0	32.5	67.01	849.0	-1,448.2	184.3	126.6	57.69	3.195	

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 Fee 17-9C (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 Fee 17-9C (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
5,200.0	4,909.2	5,200.5	4,876.1	31.6	33.2	66.86	867.6	-1,480.4	188.3	129.4	58.87	3.198	
5,300.0	5,002.8	5,300.4	4,968.9	32.3	33.9	66.72	886.1	-1,512.7	192.2	132.2	60.05	3.202	
5,400.0	5,096.4	5,400.3	5,061.6	33.0	34.6	66.58	904.7	-1,544.9	196.2	135.0	61.23	3.205	
5,500.0	5,190.0	5,500.2	5,154.4	33.6	35.3	66.45	923.2	-1,577.1	200.2	137.8	62.40	3.208	
5,600.0	5,283.6	5,600.1	5,247.1	34.3	36.0	66.33	941.8	-1,609.3	204.2	140.6	63.58	3.211	
5,700.0	5,377.2	5,700.1	5,339.9	35.0	36.7	66.21	960.3	-1,641.5	208.2	143.4	64.76	3.214	
5,800.0	5,470.8	5,800.0	5,432.6	35.6	37.4	66.09	978.9	-1,673.8	212.1	146.2	65.94	3.217	
5,900.0	5,564.4	5,899.9	5,525.4	36.3	38.1	65.98	997.4	-1,706.0	216.1	149.0	67.11	3.220	
6,000.0	5,658.0	5,999.8	5,618.1	37.0	38.8	65.87	1,016.0	-1,738.2	220.1	151.8	68.29	3.223	
6,100.0	5,751.6	6,099.7	5,710.8	37.6	39.5	65.77	1,034.5	-1,770.4	224.1	154.6	69.47	3.226	
6,200.0	5,845.2	6,199.7	5,803.6	38.3	40.2	65.66	1,053.1	-1,802.6	228.1	157.4	70.64	3.229	
6,300.0	5,938.8	6,299.6	5,896.3	39.0	40.9	65.57	1,071.6	-1,834.9	232.1	160.2	71.82	3.231	
6,400.0	6,032.4	6,399.5	5,989.1	39.7	41.6	65.47	1,090.2	-1,867.1	236.1	163.1	73.00	3.234	
6,500.0	6,126.0	6,499.4	6,081.8	40.3	42.3	65.38	1,108.7	-1,899.3	240.0	165.9	74.17	3.236	
6,600.0	6,219.5	6,599.3	6,174.6	41.0	43.0	65.30	1,127.3	-1,931.5	244.0	168.7	75.35	3.239	
6,700.0	6,313.1	6,699.3	6,267.3	41.7	43.7	65.21	1,145.9	-1,963.8	248.0	171.5	76.52	3.241	
6,800.0	6,406.7	6,799.2	6,360.1	42.3	44.4	65.13	1,164.4	-1,996.0	252.0	174.3	77.70	3.243	
6,900.0	6,500.3	6,899.1	6,452.8	43.0	45.1	65.05	1,183.0	-2,028.2	256.0	177.1	78.87	3.246	
7,000.0	6,593.9	6,999.0	6,545.5	43.7	45.8	64.97	1,201.5	-2,060.4	260.0	179.9	80.05	3.248	
7,100.0	6,687.5	7,098.9	6,638.3	44.3	46.5	64.90	1,220.1	-2,092.6	264.0	182.7	81.22	3.250	
7,200.0	6,781.1	7,198.9	6,731.0	45.0	47.3	64.82	1,238.6	-2,124.9	268.0	185.6	82.40	3.252	
7,300.0	6,874.7	7,298.8	6,823.8	45.7	48.0	64.75	1,257.2	-2,157.1	272.0	188.4	83.57	3.254	
7,400.0	6,968.3	7,398.7	6,916.5	46.3	48.7	64.68	1,275.7	-2,189.3	275.9	191.2	84.75	3.256	
7,500.0	7,061.9	7,498.6	7,009.3	47.0	49.4	64.62	1,294.3	-2,221.5	279.9	194.0	85.92	3.258	
7,600.0	7,155.5	7,598.5	7,102.0	47.7	50.1	64.55	1,312.8	-2,253.7	283.9	196.8	87.10	3.260	
7,700.0	7,249.1	7,698.4	7,194.8	48.3	50.8	64.49	1,331.4	-2,286.0	287.9	199.6	88.27	3.262	
7,800.0	7,342.7	7,798.4	7,287.5	49.0	51.5	64.43	1,349.9	-2,318.2	291.9	202.5	89.45	3.264	
7,900.0	7,436.3	7,898.3	7,380.2	49.7	52.2	64.37	1,368.5	-2,350.4	295.9	205.3	90.62	3.265	
8,000.0	7,529.9	7,998.2	7,473.0	50.3	52.9	64.32	1,387.1	-2,382.6	299.9	208.1	91.79	3.267	
8,100.0	7,624.7	8,106.5	7,574.5	50.9	53.5	64.19	1,405.8	-2,415.3	304.1	211.3	92.75	3.279	
8,200.0	7,721.0	8,215.4	7,678.6	51.4	54.1	64.09	1,421.8	-2,443.0	307.6	214.1	93.54	3.288	
8,300.0	7,818.5	8,324.5	7,784.5	51.7	54.5	64.01	1,434.8	-2,465.6	310.5	216.3	94.17	3.297	
8,400.0	7,917.1	8,433.8	7,891.9	52.0	54.9	63.95	1,444.8	-2,483.0	312.7	218.0	94.66	3.303	
8,500.0	8,016.4	8,543.1	8,000.3	52.2	55.1	63.91	1,451.7	-2,495.0	314.2	219.2	94.99	3.307	
8,600.0	8,116.2	8,652.5	8,109.4	52.3	55.2	63.89	1,455.5	-2,501.6	315.0	219.8	95.18	3.309	
8,700.0	8,216.2	8,759.3	8,216.2	52.4	55.3	-1.53	1,456.4	-2,503.0	315.2	219.9	95.29	3.308	
8,800.0	8,316.2	8,859.3	8,316.2	52.4	55.3	-1.53	1,456.4	-2,503.0	315.2	219.8	95.40	3.304	
8,900.0	8,416.2	8,959.3	8,416.2	52.5	55.4	-1.53	1,456.4	-2,503.0	315.2	219.7	95.51	3.300	
9,000.0	8,516.2	9,059.3	8,516.2	52.5	55.4	-1.53	1,456.4	-2,503.0	315.2	219.6	95.62	3.296	
9,100.0	8,616.2	9,159.3	8,616.2	52.6	55.5	-1.53	1,456.4	-2,503.0	315.2	219.4	95.74	3.292	
9,200.0	8,716.2	9,259.3	8,716.2	52.6	55.5	-1.53	1,456.4	-2,503.0	315.2	219.3	95.86	3.288	
9,300.0	8,816.2	9,359.3	8,816.2	52.7	55.6	-1.53	1,456.4	-2,503.0	315.2	219.2	95.97	3.284	
9,400.0	8,916.2	9,459.3	8,916.2	52.8	55.6	-1.53	1,456.4	-2,503.0	315.2	219.1	96.09	3.280	
9,500.0	9,016.2	9,559.3	9,016.2	52.8	55.7	-1.53	1,456.4	-2,503.0	315.2	219.0	96.21	3.276	
9,600.0	9,116.2	9,659.3	9,116.2	52.9	55.8	-1.53	1,456.4	-2,503.0	315.2	218.8	96.33	3.272	
9,700.0	9,216.2	9,759.3	9,216.2	52.9	55.8	-1.53	1,456.4	-2,503.0	315.2	218.7	96.46	3.268	
9,800.0	9,316.2	9,859.3	9,316.2	53.0	55.9	-1.53	1,456.4	-2,503.0	315.2	218.6	96.58	3.263	
9,900.0	9,416.2	9,959.3	9,416.2	53.0	55.9	-1.53	1,456.4	-2,503.0	315.2	218.5	96.70	3.259	
10,000.0	9,516.2	10,059.3	9,516.2	53.1	56.0	-1.53	1,456.4	-2,503.0	315.2	218.3	96.83	3.255	
10,100.0	9,616.2	10,159.3	9,616.2	53.1	56.0	-1.53	1,456.4	-2,503.0	315.2	218.2	96.96	3.251	
10,200.0	9,716.2	10,259.3	9,716.2	53.2	56.1	-1.53	1,456.4	-2,503.0	315.2	218.1	97.08	3.246	
10,300.0	9,816.2	10,359.3	9,816.2	53.3	56.1	-1.53	1,456.4	-2,503.0	315.2	218.0	97.21	3.242	

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 Fee 17-9C (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 Fee 17-9C (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
10,400.0	9,916.2	10,459.3	9,916.2	53.3	56.2	-1.53	1,456.4	-2,503.0	315.2	217.8	97.34	3.238	
10,500.0	10,016.2	10,559.3	10,016.2	53.4	56.2	-1.53	1,456.4	-2,503.0	315.2	217.7	97.47	3.234	
10,600.0	10,116.2	10,659.3	10,116.2	53.4	56.3	-1.53	1,456.4	-2,503.0	315.2	217.6	97.60	3.229	
10,700.0	10,216.2	10,759.3	10,216.2	53.5	56.4	-1.53	1,456.4	-2,503.0	315.2	217.4	97.74	3.225	
10,762.8	10,279.0	10,822.1	10,279.0	53.5	56.4	-1.53	1,456.4	-2,503.0	315.2	217.4	97.82	3.222	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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	-154.27	-10.5	-5.1	11.7				
100.0	100.0	100.0	100.0	0.1	0.1	-154.27	-10.5	-5.1	11.7	11.4	0.27	43.010	
200.0	200.0	200.0	200.0	0.3	0.3	-154.27	-10.5	-5.1	11.7	11.1	0.62	18.847	CC, ES
300.0	300.0	299.5	299.5	0.5	0.5	-103.03	-12.3	-5.1	13.6	12.7	0.98	13.955	
400.0	399.6	399.0	398.9	0.7	0.7	-124.68	-16.7	-5.6	21.5	20.1	1.36	15.834	
500.0	498.8	499.4	499.1	1.0	0.9	-135.20	-19.5	-10.2	31.3	29.6	1.77	17.719	
600.0	597.1	600.3	599.6	1.4	1.1	-140.96	-19.7	-19.5	41.5	39.3	2.23	18.645	
700.0	694.3	701.9	700.1	1.8	1.3	-144.76	-17.3	-33.4	51.6	48.9	2.73	18.942	
800.0	790.2	804.0	800.4	2.4	1.7	-147.59	-12.3	-52.2	61.6	58.4	3.27	18.856	
900.0	884.4	906.7	900.0	3.0	2.1	-149.87	-4.6	-75.7	71.4	67.5	3.84	18.580	
1,000.0	978.0	1,008.5	997.6	3.6	2.7	-150.93	5.4	-103.3	78.5	74.0	4.47	17.568	
1,100.0	1,071.6	1,108.3	1,092.9	4.3	3.2	-151.52	15.7	-131.2	84.7	79.6	5.10	16.622	
1,200.0	1,165.2	1,208.1	1,188.1	5.0	3.7	-152.04	25.9	-159.0	91.0	85.2	5.72	15.893	
1,300.0	1,258.8	1,307.9	1,283.4	5.6	4.3	-152.49	36.2	-186.8	97.2	90.9	6.35	15.319	
1,400.0	1,352.4	1,407.7	1,378.7	6.3	4.8	-152.89	46.4	-214.7	103.5	96.5	6.97	14.855	
1,500.0	1,446.0	1,507.5	1,474.0	6.9	5.4	-153.24	56.7	-242.5	109.7	102.2	7.58	14.475	
1,600.0	1,539.6	1,607.3	1,569.3	7.6	5.9	-153.55	67.0	-270.3	116.0	107.8	8.19	14.158	
1,700.0	1,633.2	1,707.1	1,664.6	8.3	6.5	-153.83	77.2	-298.1	122.3	113.5	8.80	13.890	
1,800.0	1,726.8	1,806.9	1,759.9	8.9	7.0	-154.08	87.5	-326.0	128.5	119.1	9.41	13.661	
1,900.0	1,820.4	1,906.7	1,855.2	9.6	7.6	-154.31	97.7	-353.8	134.8	124.8	10.01	13.462	
2,000.0	1,914.0	2,006.5	1,950.5	10.3	8.1	-154.52	108.0	-381.6	141.1	130.5	10.62	13.290	
2,100.0	2,007.6	2,106.4	2,045.8	10.9	8.7	-154.71	118.2	-409.5	147.4	136.2	11.22	13.138	
2,200.0	2,101.2	2,206.2	2,141.1	11.6	9.3	-154.89	128.5	-437.3	153.7	141.8	11.82	13.003	
2,300.0	2,194.8	2,306.0	2,236.4	12.3	9.8	-155.05	138.7	-465.1	159.9	147.5	12.41	12.883	
2,400.0	2,288.4	2,405.8	2,331.7	12.9	10.4	-155.20	149.0	-492.9	166.2	153.2	13.01	12.776	
2,500.0	2,382.0	2,505.6	2,427.0	13.6	10.9	-155.34	159.3	-520.8	172.5	158.9	13.61	12.679	
2,600.0	2,475.6	2,605.4	2,522.2	14.3	11.5	-155.47	169.5	-548.6	178.8	164.6	14.20	12.591	
2,700.0	2,569.2	2,705.2	2,617.5	14.9	12.1	-155.59	179.8	-576.4	185.1	170.3	14.79	12.511	
2,800.0	2,662.8	2,805.0	2,712.8	15.6	12.6	-155.70	190.0	-604.3	191.4	176.0	15.38	12.439	
2,900.0	2,756.4	2,904.8	2,808.1	16.3	13.2	-155.81	200.3	-632.1	197.7	181.7	15.98	12.372	
3,000.0	2,850.0	3,004.6	2,903.4	16.9	13.8	-155.90	210.5	-659.9	203.9	187.4	16.57	12.310	
3,100.0	2,943.6	3,104.4	2,998.7	17.6	14.3	-156.00	220.8	-687.7	210.2	193.1	17.16	12.254	
3,200.0	3,037.2	3,204.2	3,094.0	18.3	14.9	-156.08	231.1	-715.6	216.5	198.8	17.75	12.201	
3,300.0	3,130.8	3,304.0	3,189.3	18.9	15.5	-156.17	241.3	-743.4	222.8	204.5	18.33	12.153	
3,400.0	3,224.4	3,403.8	3,284.6	19.6	16.0	-156.24	251.6	-771.2	229.1	210.2	18.92	12.107	
3,500.0	3,318.0	3,503.6	3,379.9	20.3	16.6	-156.32	261.8	-799.1	235.4	215.9	19.51	12.065	
3,600.0	3,411.6	3,603.4	3,475.2	20.9	17.1	-156.39	272.1	-826.9	241.7	221.6	20.10	12.026	
3,700.0	3,505.2	3,703.2	3,570.5	21.6	17.7	-156.45	282.3	-854.7	248.0	227.3	20.68	11.989	
3,800.0	3,598.8	3,803.0	3,665.8	22.3	18.3	-156.52	292.6	-882.5	254.3	233.0	21.27	11.954	
3,900.0	3,692.4	3,902.8	3,761.1	22.9	18.8	-156.58	302.8	-910.4	260.6	238.7	21.86	11.922	
4,000.0	3,786.0	4,002.6	3,856.3	23.6	19.4	-156.64	313.1	-938.2	266.8	244.4	22.44	11.891	
4,100.0	3,879.6	4,102.4	3,951.6	24.3	20.0	-156.69	323.4	-966.0	273.1	250.1	23.03	11.862	
4,200.0	3,973.2	4,202.2	4,046.9	25.0	20.5	-156.74	333.6	-993.9	279.4	255.8	23.61	11.835	
4,300.0	4,066.8	4,302.0	4,142.2	25.6	21.1	-156.79	343.9	-1,021.7	285.7	261.5	24.20	11.809	
4,400.0	4,160.4	4,401.8	4,237.5	26.3	21.7	-156.84	354.1	-1,049.5	292.0	267.2	24.78	11.784	
4,500.0	4,254.0	4,501.6	4,332.8	27.0	22.2	-156.89	364.4	-1,077.4	298.3	272.9	25.36	11.761	
4,600.0	4,347.6	4,601.4	4,428.1	27.6	22.8	-156.93	374.6	-1,105.2	304.6	278.7	25.95	11.739	
4,700.0	4,441.2	4,701.2	4,523.4	28.3	23.3	-156.97	384.9	-1,133.0	310.9	284.4	26.53	11.718	
4,800.0	4,534.8	4,801.0	4,618.7	29.0	23.9	-157.01	395.1	-1,160.8	317.2	290.1	27.12	11.698	
4,900.0	4,628.4	4,900.8	4,714.0	29.6	24.5	-157.05	405.4	-1,188.7	323.5	295.8	27.70	11.678	
5,000.0	4,722.0	5,000.6	4,809.3	30.3	25.0	-157.09	415.7	-1,216.5	329.8	301.5	28.28	11.660	
5,100.0	4,815.6	5,100.4	4,904.6	31.0	25.6	-157.12	425.9	-1,244.3	336.1	307.2	28.87	11.643	

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 Fee 17-9C (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 Fee 17-9C (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
5,200.0	4,909.2	5,200.2	4,999.9	31.6	26.2	-157.16	436.2	-1,272.2	342.4	312.9	29.45	11.626	
5,300.0	5,002.8	5,300.0	5,095.2	32.3	26.7	-157.19	446.4	-1,300.0	348.7	318.6	30.03	11.610	
5,400.0	5,096.4	5,399.8	5,190.4	33.0	27.3	-157.22	456.7	-1,327.8	355.0	324.3	30.61	11.595	
5,500.0	5,190.0	5,499.6	5,285.7	33.6	27.9	-157.25	466.9	-1,355.6	361.3	330.1	31.20	11.580	
5,600.0	5,283.6	5,599.4	5,381.0	34.3	28.4	-157.28	477.2	-1,383.5	367.5	335.8	31.78	11.566	
5,700.0	5,377.2	5,699.2	5,476.3	35.0	29.0	-157.31	487.4	-1,411.3	373.8	341.5	32.36	11.552	
5,800.0	5,470.8	5,799.0	5,571.6	35.6	29.6	-157.34	497.7	-1,439.1	380.1	347.2	32.94	11.539	
5,900.0	5,564.4	5,898.8	5,666.9	36.3	30.1	-157.37	508.0	-1,467.0	386.4	352.9	33.52	11.527	
6,000.0	5,658.0	5,998.6	5,762.2	37.0	30.7	-157.39	518.2	-1,494.8	392.7	358.6	34.11	11.515	
6,100.0	5,751.6	6,098.4	5,857.5	37.6	31.3	-157.42	528.5	-1,522.6	399.0	364.3	34.69	11.503	
6,200.0	5,845.2	6,198.2	5,952.8	38.3	31.8	-157.44	538.7	-1,550.4	405.3	370.0	35.27	11.492	
6,300.0	5,938.8	6,298.0	6,048.1	39.0	32.4	-157.47	549.0	-1,578.3	411.6	375.8	35.85	11.481	
6,400.0	6,032.4	6,397.8	6,143.4	39.7	32.9	-157.49	559.2	-1,606.1	417.9	381.5	36.43	11.471	
6,500.0	6,126.0	6,497.6	6,238.7	40.3	33.5	-157.51	569.5	-1,633.9	424.2	387.2	37.01	11.461	
6,600.0	6,219.5	6,597.4	6,334.0	41.0	34.1	-157.54	579.7	-1,661.8	430.5	392.9	37.60	11.451	
6,700.0	6,313.1	6,697.2	6,429.3	41.7	34.6	-157.56	590.0	-1,689.6	436.8	398.6	38.18	11.441	
6,800.0	6,406.7	6,797.0	6,524.5	42.3	35.2	-157.58	600.3	-1,717.4	443.1	404.3	38.76	11.432	
6,900.0	6,500.3	6,896.8	6,619.8	43.0	35.8	-157.60	610.5	-1,745.2	449.4	410.0	39.34	11.424	
7,000.0	6,593.9	6,996.6	6,715.1	43.7	36.3	-157.62	620.8	-1,773.1	455.7	415.8	39.92	11.415	
7,100.0	6,687.5	7,096.4	6,810.4	44.3	36.9	-157.64	631.0	-1,800.9	462.0	421.5	40.50	11.407	
7,200.0	6,781.1	7,196.2	6,905.7	45.0	37.5	-157.65	641.3	-1,828.7	468.3	427.2	41.08	11.399	
7,300.0	6,874.7	7,296.0	7,001.0	45.7	38.0	-157.67	651.5	-1,856.6	474.6	432.9	41.66	11.391	SF
7,400.0	6,968.3	7,384.9	7,086.1	46.3	38.5	-157.74	660.4	-1,880.5	481.8	439.7	42.15	11.431	
7,500.0	7,061.9	7,471.3	7,169.5	47.0	38.9	-157.93	668.1	-1,901.5	491.7	449.2	42.47	11.577	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well MCU Fee 17-9C (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 Fee 17-9C (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 Fee 17-9C (M16W Pad)
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.44°