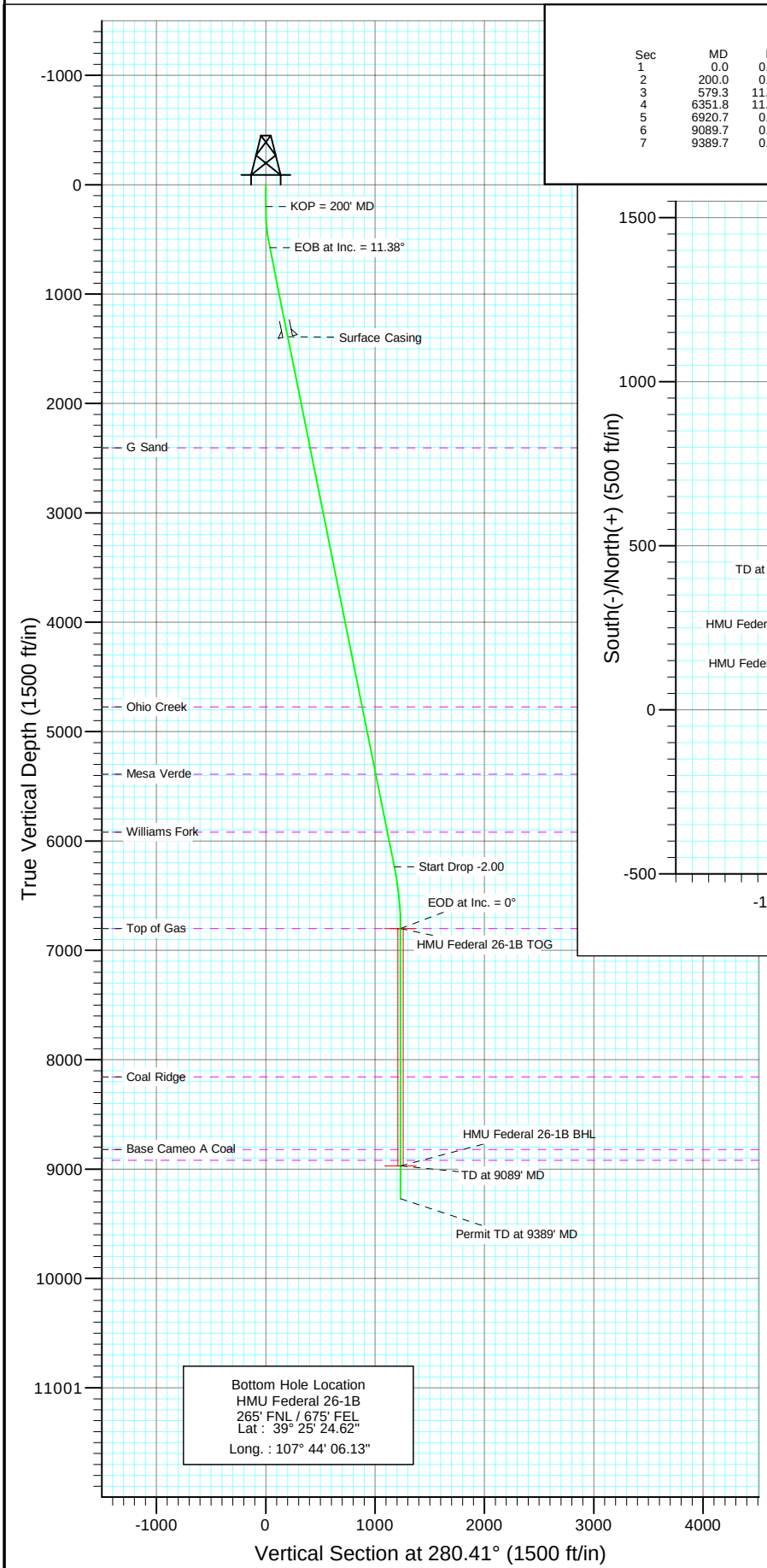
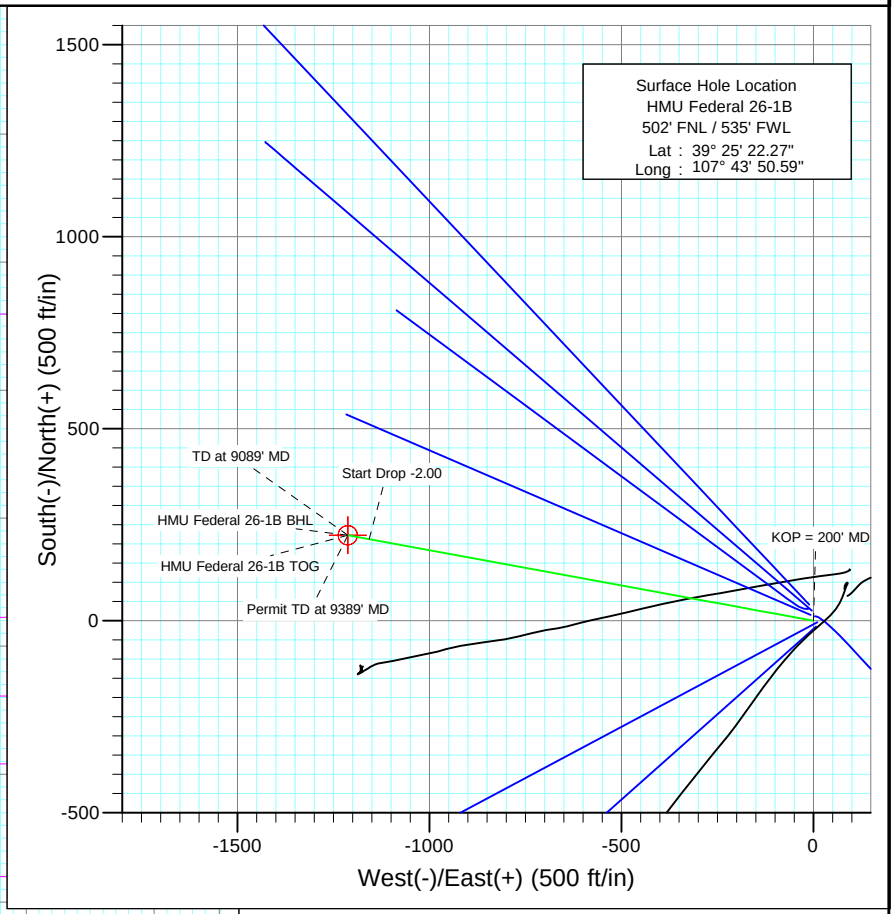
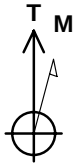
Project: Mamm Creek
Site: (D25W)
Well: HMU Federal 26-1B
Wellbore: DD
Design: Plan #2

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	579.3	11.38	280.41	576.8	6.8	-36.9	3.00	280.41	37.5	
4	6351.8	11.38	280.41	6235.8	212.5	-1157.0	0.00	0.00	1176.3	
5	6920.7	0.00	0.00	6801.0	222.6	-1212.4	2.00	180.00	1232.6	HMU Federal 26-1B TOG
6	9089.7	0.00	0.00	8970.0	222.6	-1212.4	0.00	0.00	1232.6	HMU Federal 26-1B BHL
7	9389.7	0.00	0.00	9270.0	222.6	-1212.4	0.00	0.00	1232.6	







Azimuths to True North
Magnetic North: 10.30°

Magnetic Field
Strength: 52346.2snT
Dip Angle: 65.76°
Date: 8/25/2010
Model: IGRF200510

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2406.0	2445.2	G Sand
4775.0	4861.6	Ohio Creek
5390.0	5489.0	Mesa Verde
5919.0	6028.6	Williams Fork
6801.0	6920.7	Top of Gas
8157.0	8276.7	Coal Ridge
8820.0	8939.7	Base Cameo A Coal
8919.0	9038.7	Rollins

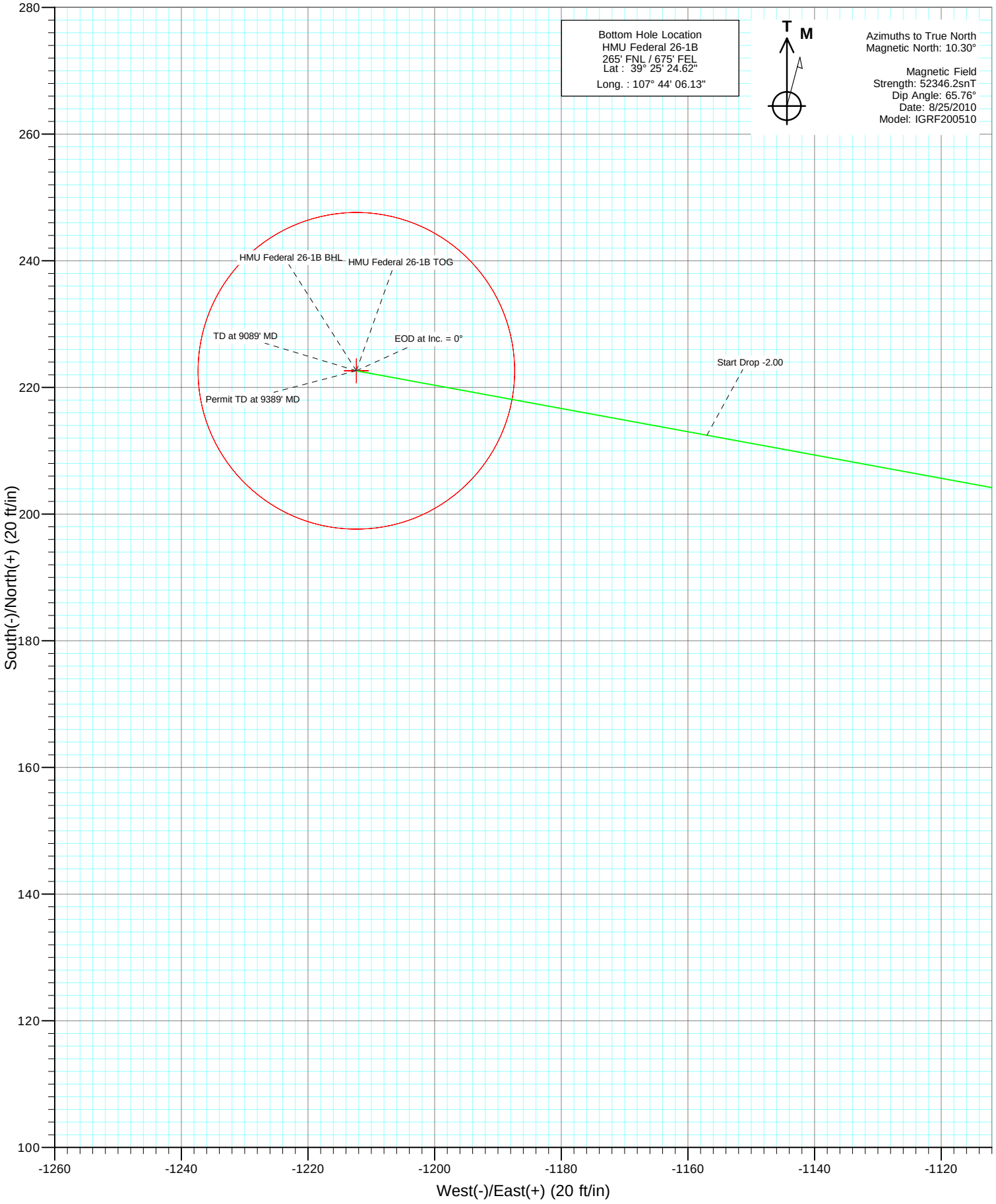
DESIGN DETAILS: Plan #2
Job #10xxx: KR
WELL @ 7250.0ft (Original Well Elev)

Target	Azimuth	Origin	N/S	E/W	From TVD
HMU Federal 26-1B BHL	280.41	Slot	0.0	0.0	0.0

ENCANA

Project: Mamm Creek
Site: (D25W)
Well: HMU Federal 26-1B
Wellbore: DD
Design: Plan #2

CATHEDRAL



Cathedral Energy Services

Planning Report

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site:	(D25W)	**North Reference:**	True
Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

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

Site	(D25W)				
Site Position:		**Northing:**	1,586,700.90 ft	**Latitude:**	39.423009
From:	Lat/Long	**Easting:**	2,369,887.50 ft	**Longitude:**	-107.730782
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-1.41 °

Well	HMU Federal 26-1B				
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,586,658.92 ft	**Latitude:**	39.422894
	+E/-W	0.0 ft	**Easting:**	2,369,897.09 ft	**Longitude:**	-107.730744
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	7,228.0 ft

Wellbore	DD			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	8/25/2010	10.30	65.76	52,346

Design	Plan #2				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0
Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**	
	0.0	0.0	0.0	280.41	

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	
579.3	11.38	280.41	576.8	6.8	-36.9	3.00	3.00	0.00	280.41	
6,351.8	11.38	280.41	6,235.8	212.5	-1,157.0	0.00	0.00	0.00	0.00	
6,920.7	0.00	0.00	6,801.0	222.6	-1,212.4	2.00	-2.00	0.00	180.00	HMU Federal 26-1B T
9,089.7	0.00	0.00	8,970.0	222.6	-1,212.4	0.00	0.00	0.00	0.00	HMU Federal 26-1B E
9,389.7	0.00	0.00	9,270.0	222.6	-1,212.4	0.00	0.00	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site:	(D25W)	**North Reference:**	True
Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
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	280.41	300.0	0.5	-2.6	2.6	3.00	3.00	
400.0	6.00	280.41	399.6	1.9	-10.3	10.5	3.00	3.00	
500.0	9.00	280.41	498.8	4.2	-23.1	23.5	3.00	3.00	
579.3	11.38	280.41	576.8	6.8	-36.9	37.5	3.00	3.00	EOB at Inc. = 11.38°
600.0	11.38	280.41	597.1	7.5	-40.9	41.6	0.00	0.00	
700.0	11.38	280.41	695.1	11.1	-60.3	61.4	0.00	0.00	
800.0	11.38	280.41	793.2	14.6	-79.7	81.1	0.00	0.00	
900.0	11.38	280.41	891.2	18.2	-99.2	100.8	0.00	0.00	
1,000.0	11.38	280.41	989.2	21.8	-118.6	120.5	0.00	0.00	
1,100.0	11.38	280.41	1,087.3	25.3	-138.0	140.3	0.00	0.00	
1,200.0	11.38	280.41	1,185.3	28.9	-157.4	160.0	0.00	0.00	
1,300.0	11.38	280.41	1,283.3	32.5	-176.8	179.7	0.00	0.00	
1,400.0	11.38	280.41	1,381.4	36.0	-196.2	199.4	0.00	0.00	
1,408.0	11.38	280.41	1,389.2	36.3	-197.7	201.0	0.00	0.00	Surface Casing
1,500.0	11.38	280.41	1,479.4	39.6	-215.6	219.2	0.00	0.00	
1,600.0	11.38	280.41	1,577.5	43.1	-235.0	238.9	0.00	0.00	
1,700.0	11.38	280.41	1,675.5	46.7	-254.4	258.6	0.00	0.00	
1,800.0	11.38	280.41	1,773.5	50.3	-273.8	278.4	0.00	0.00	
1,900.0	11.38	280.41	1,871.6	53.8	-293.2	298.1	0.00	0.00	
2,000.0	11.38	280.41	1,969.6	57.4	-312.6	317.8	0.00	0.00	
2,100.0	11.38	280.41	2,067.6	61.0	-332.0	337.5	0.00	0.00	
2,200.0	11.38	280.41	2,165.7	64.5	-351.4	357.3	0.00	0.00	
2,300.0	11.38	280.41	2,263.7	68.1	-370.8	377.0	0.00	0.00	
2,400.0	11.38	280.41	2,361.7	71.7	-390.2	396.7	0.00	0.00	
2,445.2	11.38	280.41	2,406.0	73.3	-399.0	405.6	0.00	0.00	G Sand
2,500.0	11.38	280.41	2,459.8	75.2	-409.6	416.5	0.00	0.00	
2,600.0	11.38	280.41	2,557.8	78.8	-429.0	436.2	0.00	0.00	
2,700.0	11.38	280.41	2,655.8	82.3	-448.4	455.9	0.00	0.00	
2,800.0	11.38	280.41	2,753.9	85.9	-467.8	475.6	0.00	0.00	
2,900.0	11.38	280.41	2,851.9	89.5	-487.2	495.4	0.00	0.00	
3,000.0	11.38	280.41	2,949.9	93.0	-506.6	515.1	0.00	0.00	
3,100.0	11.38	280.41	3,048.0	96.6	-526.0	534.8	0.00	0.00	
3,200.0	11.38	280.41	3,146.0	100.2	-545.4	554.6	0.00	0.00	
3,300.0	11.38	280.41	3,244.0	103.7	-564.8	574.3	0.00	0.00	
3,400.0	11.38	280.41	3,342.1	107.3	-584.2	594.0	0.00	0.00	
3,500.0	11.38	280.41	3,440.1	110.8	-603.6	613.7	0.00	0.00	
3,600.0	11.38	280.41	3,538.1	114.4	-623.0	633.5	0.00	0.00	
3,700.0	11.38	280.41	3,636.2	118.0	-642.4	653.2	0.00	0.00	
3,800.0	11.38	280.41	3,734.2	121.5	-661.9	672.9	0.00	0.00	
3,900.0	11.38	280.41	3,832.3	125.1	-681.3	692.6	0.00	0.00	
4,000.0	11.38	280.41	3,930.3	128.7	-700.7	712.4	0.00	0.00	
4,100.0	11.38	280.41	4,028.3	132.2	-720.1	732.1	0.00	0.00	
4,200.0	11.38	280.41	4,126.4	135.8	-739.5	751.8	0.00	0.00	
4,300.0	11.38	280.41	4,224.4	139.4	-758.9	771.6	0.00	0.00	
4,400.0	11.38	280.41	4,322.4	142.9	-778.3	791.3	0.00	0.00	
4,500.0	11.38	280.41	4,420.5	146.5	-797.7	811.0	0.00	0.00	
4,600.0	11.38	280.41	4,518.5	150.0	-817.1	830.7	0.00	0.00	
4,700.0	11.38	280.41	4,616.5	153.6	-836.5	850.5	0.00	0.00	
4,800.0	11.38	280.41	4,714.6	157.2	-855.9	870.2	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site:	(D25W)	**North Reference:**	True
Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,861.6	11.38	280.41	4,775.0	159.4	-867.8	882.4	0.00	0.00	Ohio Creek
4,900.0	11.38	280.41	4,812.6	160.7	-875.3	889.9	0.00	0.00	
5,000.0	11.38	280.41	4,910.6	164.3	-894.7	909.7	0.00	0.00	
5,100.0	11.38	280.41	5,008.7	167.9	-914.1	929.4	0.00	0.00	
5,200.0	11.38	280.41	5,106.7	171.4	-933.5	949.1	0.00	0.00	
5,300.0	11.38	280.41	5,204.7	175.0	-952.9	968.8	0.00	0.00	
5,400.0	11.38	280.41	5,302.8	178.5	-972.3	988.6	0.00	0.00	
5,489.0	11.38	280.41	5,390.0	181.7	-989.6	1,006.1	0.00	0.00	Mesa Verde
5,500.0	11.38	280.41	5,400.8	182.1	-991.7	1,008.3	0.00	0.00	
5,600.0	11.38	280.41	5,498.8	185.7	-1,011.1	1,028.0	0.00	0.00	
5,700.0	11.38	280.41	5,596.9	189.2	-1,030.5	1,047.7	0.00	0.00	
5,800.0	11.38	280.41	5,694.9	192.8	-1,049.9	1,067.5	0.00	0.00	
5,900.0	11.38	280.41	5,792.9	196.4	-1,069.3	1,087.2	0.00	0.00	
6,000.0	11.38	280.41	5,891.0	199.9	-1,088.7	1,106.9	0.00	0.00	
6,028.6	11.38	280.41	5,919.0	200.9	-1,094.3	1,112.6	0.00	0.00	Williams Fork
6,100.0	11.38	280.41	5,989.0	203.5	-1,108.1	1,126.7	0.00	0.00	
6,200.0	11.38	280.41	6,087.0	207.0	-1,127.5	1,146.4	0.00	0.00	
6,300.0	11.38	280.41	6,185.1	210.6	-1,146.9	1,166.1	0.00	0.00	
6,351.8	11.38	280.41	6,235.8	212.5	-1,157.0	1,176.3	0.00	0.00	Start Drop -2.00
6,400.0	10.41	280.41	6,283.2	214.1	-1,166.0	1,185.4	2.00	-2.00	
6,500.0	8.41	280.41	6,381.8	217.1	-1,182.0	1,201.8	2.00	-2.00	
6,600.0	6.41	280.41	6,481.0	219.4	-1,194.7	1,214.7	2.00	-2.00	
6,700.0	4.41	280.41	6,580.6	221.1	-1,204.0	1,224.1	2.00	-2.00	
6,800.0	2.41	280.41	6,680.4	222.2	-1,209.9	1,230.1	2.00	-2.00	
6,900.0	0.41	280.41	6,780.3	222.6	-1,212.3	1,232.6	2.00	-2.00	
6,920.7	0.00	0.00	6,801.0	222.6	-1,212.4	1,232.6	2.00	-2.00	EOD at Inc. = 0° - Top of Gas - HMU Federal 2(
7,000.0	0.00	0.00	6,880.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,100.0	0.00	0.00	6,980.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,200.0	0.00	0.00	7,080.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,300.0	0.00	0.00	7,180.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,400.0	0.00	0.00	7,280.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,500.0	0.00	0.00	7,380.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,600.0	0.00	0.00	7,480.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,700.0	0.00	0.00	7,580.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,800.0	0.00	0.00	7,680.3	222.6	-1,212.4	1,232.6	0.00	0.00	
7,900.0	0.00	0.00	7,780.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,000.0	0.00	0.00	7,880.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,100.0	0.00	0.00	7,980.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,200.0	0.00	0.00	8,080.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,276.7	0.00	0.00	8,157.0	222.6	-1,212.4	1,232.6	0.00	0.00	Coal Ridge
8,300.0	0.00	0.00	8,180.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,400.0	0.00	0.00	8,280.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,500.0	0.00	0.00	8,380.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,600.0	0.00	0.00	8,480.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,700.0	0.00	0.00	8,580.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,800.0	0.00	0.00	8,680.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,900.0	0.00	0.00	8,780.3	222.6	-1,212.4	1,232.6	0.00	0.00	
8,939.7	0.00	0.00	8,820.0	222.6	-1,212.4	1,232.6	0.00	0.00	Base Cameo A Coal
9,000.0	0.00	0.00	8,880.3	222.6	-1,212.4	1,232.6	0.00	0.00	
9,038.7	0.00	0.00	8,919.0	222.6	-1,212.4	1,232.6	0.00	0.00	Rollins
9,089.7	0.00	0.00	8,970.0	222.6	-1,212.4	1,232.6	0.00	0.00	TD at 9089' MD - HMU Federal 26-1B BHL
9,100.0	0.00	0.00	8,980.3	222.6	-1,212.4	1,232.6	0.00	0.00	

Database:	EDM 5000.1 US Multi Users DB	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Project:	Mamm Creek	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site:	(D25W)	**North Reference:**	True
Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,200.0	0.00	0.00	9,080.3	222.6	-1,212.4	1,232.6	0.00	0.00	
9,300.0	0.00	0.00	9,180.3	222.6	-1,212.4	1,232.6	0.00	0.00	
9,389.7	0.00	0.00	9,270.0	222.6	-1,212.4	1,232.6	0.00	0.00	Permit TD at 9389' 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
HMU Federal 26-1B TO(- plan hits target center - Point	0.00	0.00	6,801.0	222.6	-1,212.4	1,586,911.24	2,368,690.56	39.423506	-107.735036
HMU Federal 26-1B BHI - plan hits target center - Circle (radius 25.0)	0.00	0.00	8,970.0	222.6	-1,212.4	1,586,911.24	2,368,690.56	39.423506	-107.735036

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
1,408.0	1,389.2	Surface Casing	5.500	6.000

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,445.2	2,406.0	G Sand			
4,861.6	4,775.0	Ohio Creek			
5,489.0	5,390.0	Mesa Verde			
6,028.6	5,919.0	Williams Fork			
6,920.7	6,801.0	Top of Gas			
8,276.7	8,157.0	Coal Ridge			
8,939.7	8,820.0	Base Cameo A Coal			
9,038.7	8,919.0	Rollins			

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
579.3	576.8	6.8	-36.9	EOB at Inc. = 11.38°
6,351.8	6,235.8	212.5	-1,157.0	Start Drop -2.00
6,920.7	6,801.0	222.6	-1,212.4	EOD at Inc. = 0°
9,089.7	8,970.0	222.6	-1,212.4	TD at 9089' MD
9,389.7	9,270.0	222.6	-1,212.4	Permit TD at 9389' MD

EnCana Oil & Gas (USA) Inc

Mamm Creek
(D25W)
HMU Federal 26-1B
DD
Plan #2

Anticollision Report

09 September, 2010

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference	Plan #2

Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	Stations	**Error Model:**	Systematic Ellipse
Depth Range:	0.0 to 999,999.0ft	**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** 9/9/2010

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	9,389.7	Plan #2 (DD)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
(D25W)						
HMU 25-3D (Existing) - Excel Drilling - Surveys	0.0	0.0	109.8			
HMU 25-3D (Existing) - Excel Drilling - Surveys	100.0	99.4	110.1	109.8	373.486	ES
HMU 25-3D (Existing) - Excel Drilling - Surveys	1,000.0	970.2	247.1	243.4	66.881	SF
HMU 26-1C (Existing) - Baker Hughes (Inteq) - Surveys	2,706.1	2,728.9	100.4	89.4	9.165	CC
HMU 26-1C (Existing) - Baker Hughes (Inteq) - Surveys	2,800.0	2,821.1	101.2	89.3	8.485	ES
HMU 26-1C (Existing) - Baker Hughes (Inteq) - Surveys	3,800.0	3,817.6	144.5	120.1	5.921	SF
HMU Federal 24-13A1 - DD - Plan #2	200.0	200.0	255.3	254.6	410.809	CC, ES
HMU Federal 24-13A1 - DD - Plan #2	1,300.0	1,231.4	489.3	483.0	77.719	SF
HMU Federal 24-13D1 - DD - Plan #2	200.0	200.0	260.2	259.6	418.828	CC, ES
HMU Federal 24-13D1 - DD - Plan #2	1,400.0	1,347.2	492.3	485.8	76.051	SF
HMU Federal 24-13D2 - DD - Plan #2	200.0	200.0	250.0	249.4	402.408	CC, ES
HMU Federal 24-13D2 - DD - Plan #2	1,900.0	1,871.6	496.9	489.8	69.827	SF
HMU Federal 24-14A1 - DD - Plan #2	200.0	200.0	256.1	255.5	412.153	CC, ES
HMU Federal 24-14A1 - DD - Plan #2	1,000.0	849.8	476.0	472.2	124.851	SF
HMU Federal 24-14A2 - DD - Plan #2	200.0	200.0	246.3	245.7	396.388	CC, ES
HMU Federal 24-14A2 - DD - Plan #2	1,200.0	1,066.3	469.1	464.5	102.754	SF
HMU Federal 24-14A3 - DD - Plan #2	200.0	200.0	252.4	251.8	406.268	CC, ES
HMU Federal 24-14A3 - DD - Plan #2	1,000.0	870.0	475.5	471.7	127.100	SF
HMU Federal 25-3C - DD - Plan #2	200.0	200.0	250.5	249.8	403.109	CC, ES
HMU Federal 25-3C - DD - Plan #2	1,300.0	1,250.1	480.0	475.2	100.004	SF
HMU Federal 26-1D - DD - Plan #2	200.0	200.0	11.0	10.4	17.663	CC, ES
HMU Federal 26-1D - DD - Plan #2	400.0	400.5	15.6	14.3	11.288	SF
HMU Federal 26-8B1 - DD - Plan #2	200.0	200.0	16.7	16.1	26.941	CC, ES
HMU Federal 26-8B1 - DD - Plan #2	400.0	399.1	25.8	24.4	18.389	SF
HMU Fee 23-16B1 - DD - Plan #1	200.0	200.0	43.1	42.4	69.297	CC, ES
HMU Fee 23-16B1 - DD - Plan #1	800.0	783.1	93.8	89.8	23.616	SF
HMU Fee 23-16B2 - DD - Plan #1	381.4	381.1	25.2	23.9	19.352	CC
HMU Fee 23-16B2 - DD - Plan #1	400.0	399.6	25.2	23.9	18.371	ES
HMU Fee 23-16B2 - DD - Plan #1	1,300.0	1,296.3	110.1	102.5	14.469	SF
HMU Fee 23-16C1 - DD - Plan #1	200.0	200.0	16.7	16.1	26.941	CC, ES
HMU Fee 23-16C1 - DD - Plan #1	9,389.7	9,397.2	314.8	260.9	5.840	SF
HMU Fee 23-16D - DD - Plan #1	404.8	402.7	32.7	31.3	23.266	CC, ES
HMU Fee 23-16D - DD - Plan #1	5,500.0	5,471.7	494.1	453.8	12.245	SF
HMU Fee 25-6B - DD - Plan #1	100.0	100.0	243.1	242.8	892.892	CC
HMU Fee 25-6B - DD - Plan #1	200.0	200.0	243.1	242.5	391.267	ES
HMU Fee 25-6B - DD - Plan #1	1,100.0	1,013.1	440.8	436.3	97.809	SF
HMU Fee 25-6D - DD - Plan #1	200.0	200.0	11.6	10.9	18.611	CC, ES
HMU Fee 25-6D - DD - Plan #1	300.0	299.6	13.5	12.5	13.774	SF
MCU 26-8C (Existing) - Excel Drilling - Surveys	0.0	0.0	115.8			
MCU 26-8C (Existing) - Excel Drilling - Surveys	100.0	99.5	116.0	115.7	391.400	ES
MCU 26-8C (Existing) - Excel Drilling - Surveys	3,000.0	2,985.9	493.0	474.3	26.409	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU 25-3D (Existing) - Excel Drilling - Surveys

Offset Site Error: 0.0 ft

Survey Program: 238-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	53.86	64.7	88.7	109.8				
100.0	100.0	99.4	99.4	0.1	0.2	53.92	64.8	89.0	110.1	109.8	0.29	373.486	ES
200.0	200.0	198.8	198.8	0.3	0.3	54.08	65.0	89.8	110.9	110.3	0.63	176.623	
300.0	300.0	297.7	297.7	0.5	0.5	134.75	65.6	91.2	114.2	113.2	0.97	117.433	
400.0	399.6	396.0	396.0	0.7	0.7	137.17	66.9	93.2	122.3	121.0	1.34	91.358	
500.0	498.8	493.5	493.4	1.0	0.9	140.37	69.2	95.8	135.6	133.9	1.72	78.662	
579.3	576.8	570.0	569.8	1.3	1.0	143.11	71.6	98.3	150.1	148.0	2.04	73.551	
600.0	597.1	589.9	589.7	1.4	1.1	143.88	72.3	99.0	154.4	152.2	2.12	72.669	
700.0	695.1	685.8	685.4	1.7	1.3	147.00	76.1	102.7	175.8	173.3	2.52	69.694	
800.0	793.2	781.3	780.7	2.1	1.5	149.32	80.5	107.1	198.5	195.6	2.92	68.090	
900.0	891.2	876.5	875.6	2.5	1.7	151.07	85.5	112.1	222.3	219.0	3.30	67.262	
1,000.0	989.2	970.2	969.1	2.9	1.9	152.34	91.1	117.8	247.1	243.4	3.69	66.881	SF
1,100.0	1,087.3	1,062.5	1,060.8	3.3	2.1	153.22	97.7	124.4	273.4	269.3	4.08	66.956	
1,200.0	1,185.3	1,151.9	1,149.7	3.6	2.4	154.09	103.7	132.6	301.6	297.1	4.46	67.637	
1,300.0	1,283.3	1,237.4	1,234.4	4.0	2.6	154.94	109.2	142.9	332.4	327.6	4.82	68.987	
1,400.0	1,381.4	1,321.2	1,317.0	4.4	2.9	155.89	113.8	155.8	366.1	361.0	5.16	70.968	
1,500.0	1,479.4	1,408.3	1,402.7	4.8	3.1	157.17	116.0	171.6	402.1	396.6	5.48	73.424	
1,600.0	1,577.5	1,501.7	1,494.2	5.2	3.4	158.87	114.7	189.9	438.8	433.1	5.77	76.036	
1,700.0	1,675.5	1,599.1	1,589.5	5.6	3.7	160.96	108.6	209.0	475.4	469.3	6.05	78.617	

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
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Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU 26-1C (Existing) - Baker Hughes (Inteq) - Surveys

Offset Site Error: 0.0 ft

Survey Program: 170-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	35.19	133.5	94.2	163.4				
100.0	100.0	100.1	100.1	0.1	0.2	35.28	133.4	94.4	163.4	163.1	0.29	566.684	
200.0	200.0	200.0	200.0	0.3	0.3	35.55	132.9	94.9	163.3	162.7	0.62	262.744	
200.7	200.7	200.7	200.7	0.3	0.3	115.15	132.9	94.9	163.3	162.7	0.63	261.093	
300.0	300.0	301.6	301.6	0.5	0.5	116.38	132.1	95.8	164.4	163.4	0.98	167.291	
400.0	399.6	408.6	408.5	0.7	0.7	118.53	130.0	92.7	164.6	163.2	1.38	119.462	
468.2	467.3	479.2	478.9	0.9	0.8	120.43	128.0	88.2	164.5	162.8	1.67	98.234	
500.0	498.8	511.7	511.3	1.0	0.9	121.45	127.0	85.8	164.5	162.7	1.81	90.755	
579.3	576.8	592.4	591.7	1.3	1.1	124.33	124.6	78.5	165.6	163.4	2.19	75.629	
600.0	597.1	613.5	612.6	1.4	1.1	125.10	124.0	76.3	166.0	163.7	2.29	72.527	
700.0	695.1	716.8	715.1	1.7	1.4	128.26	122.0	63.4	167.4	164.6	2.78	60.290	
800.0	793.2	820.4	817.4	2.1	1.7	130.60	120.0	47.0	166.6	163.3	3.27	50.912	
900.0	891.2	925.0	920.1	2.5	2.1	132.47	117.5	27.6	163.6	159.8	3.77	43.349	
1,000.0	989.2	1,025.3	1,018.3	2.9	2.4	134.15	114.5	7.3	159.0	154.8	4.26	37.338	
1,100.0	1,087.3	1,125.9	1,116.6	3.3	2.8	135.85	111.6	-13.5	154.3	149.5	4.73	32.622	
1,200.0	1,185.3	1,226.8	1,215.1	3.6	3.3	137.61	108.2	-35.2	148.7	143.5	5.18	28.719	
1,300.0	1,283.3	1,325.5	1,311.6	4.0	3.7	139.54	105.0	-55.9	143.7	138.1	5.59	25.701	
1,400.0	1,381.4	1,426.2	1,409.9	4.4	4.1	141.64	101.6	-77.3	138.7	132.7	5.98	23.206	
1,500.0	1,479.4	1,526.4	1,507.7	4.8	4.5	144.08	97.6	-98.9	133.3	127.0	6.31	21.119	
1,600.0	1,577.5	1,625.7	1,604.6	5.2	4.9	146.63	93.7	-120.4	128.2	121.5	6.62	19.370	
1,700.0	1,675.5	1,725.0	1,701.5	5.6	5.3	149.35	90.0	-141.5	123.7	116.8	6.89	17.959	
1,800.0	1,773.5	1,824.8	1,799.1	6.0	5.7	152.36	86.2	-162.6	119.6	112.5	7.12	16.801	
1,900.0	1,871.6	1,923.5	1,895.5	6.4	6.1	155.71	82.2	-183.0	116.3	109.0	7.32	15.875	
2,000.0	1,969.6	2,024.3	1,994.1	6.8	6.5	159.15	78.4	-204.0	113.3	105.8	7.54	15.032	
2,100.0	2,067.6	2,123.4	2,090.9	7.1	7.0	162.69	74.7	-224.7	110.6	102.9	7.76	14.249	
2,200.0	2,165.7	2,223.8	2,189.0	7.5	7.4	166.49	70.9	-245.8	108.4	100.3	8.03	13.492	
2,300.0	2,263.7	2,323.9	2,286.6	7.9	7.8	170.41	67.0	-267.5	105.8	97.5	8.37	12.650	
2,400.0	2,361.7	2,423.0	2,383.4	8.3	8.2	174.25	63.6	-288.5	104.3	95.5	8.79	11.873	
2,500.0	2,459.8	2,523.7	2,481.7	8.7	8.7	178.38	59.9	-310.1	103.0	93.7	9.33	11.043	
2,600.0	2,557.8	2,624.0	2,579.3	9.1	9.1	-177.17	56.0	-332.7	101.3	91.2	10.03	10.094	
2,700.0	2,655.8	2,722.8	2,675.6	9.5	9.5	-172.67	52.1	-354.8	100.4	89.5	10.89	9.216	
2,706.1	2,661.9	2,728.9	2,681.5	9.5	9.6	-172.39	51.9	-356.1	100.4	89.4	10.95	9.165	CC
2,800.0	2,753.9	2,821.1	2,771.5	9.9	9.9	-167.93	47.5	-375.8	101.2	89.3	11.93	8.485	ES
2,900.0	2,851.9	2,920.4	2,868.5	10.3	10.3	-163.51	42.7	-395.9	103.9	90.8	13.07	7.952	
3,000.0	2,949.9	3,020.3	2,966.2	10.7	10.8	-159.22	37.9	-416.4	107.0	92.7	14.30	7.486	
3,100.0	3,048.0	3,120.4	3,064.0	11.1	11.2	-154.96	32.8	-437.3	110.4	94.8	15.62	7.068	
3,200.0	3,146.0	3,220.6	3,161.6	11.5	11.6	-150.77	27.8	-458.9	113.9	96.9	17.00	6.699	
3,300.0	3,244.0	3,320.2	3,258.8	11.8	12.0	-146.94	23.0	-480.5	117.6	99.3	18.35	6.411	
3,400.0	3,342.1	3,418.6	3,354.9	12.2	12.4	-143.63	18.3	-501.1	122.4	102.8	19.62	6.240	
3,500.0	3,440.1	3,518.5	3,452.7	12.6	12.9	-140.84	13.7	-521.3	128.0	107.2	20.81	6.152	
3,600.0	3,538.1	3,619.5	3,551.3	13.0	13.3	-138.02	9.2	-542.6	133.1	111.0	22.04	6.039	
3,700.0	3,636.2	3,718.3	3,647.5	13.4	13.7	-135.09	4.3	-564.1	138.5	115.2	23.29	5.947	
3,800.0	3,734.2	3,817.6	3,744.6	13.8	14.1	-132.79	-0.3	-584.7	144.5	120.1	24.41	5.921	SF
3,900.0	3,832.3	3,916.2	3,841.0	14.2	14.5	-130.81	-5.1	-604.7	151.3	125.8	25.47	5.941	
4,000.0	3,930.3	4,015.8	3,938.4	14.6	14.9	-128.84	-10.6	-624.9	158.8	132.2	26.54	5.981	
4,100.0	4,028.3	4,117.7	4,037.9	15.0	15.4	-126.93	-15.7	-646.2	165.6	138.0	27.62	5.996	
4,200.0	4,126.4	4,218.8	4,136.3	15.4	15.8	-124.80	-19.9	-668.9	171.3	142.5	28.75	5.957	
4,300.0	4,224.4	4,318.5	4,233.4	15.8	16.3	-122.78	-24.0	-691.5	176.9	147.0	29.83	5.928	
4,400.0	4,322.4	4,416.6	4,329.0	16.2	16.7	-121.13	-27.9	-713.1	182.9	152.1	30.85	5.930	
4,500.0	4,420.5	4,515.1	4,424.9	16.5	17.1	-119.44	-32.9	-734.9	190.1	158.3	31.87	5.966	
4,600.0	4,518.5	4,614.6	4,521.7	16.9	17.6	-117.79	-38.3	-757.0	197.7	164.9	32.89	6.013	
4,700.0	4,616.5	4,714.6	4,619.1	17.3	18.0	-116.30	-43.6	-779.1	205.4	171.5	33.87	6.065	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU 26-1C (Existing) - Baker Hughes (Inteq) - Surveys

Survey Program: 170-MWD

Offset Site Error: 0.0 ft

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
4,800.0	4,714.6	4,817.3	4,719.4	17.7	18.4	-115.18	-48.0	-801.0	212.4	177.6	34.79	6.106	
4,900.0	4,812.6	4,916.8	4,816.3	18.1	18.9	-113.91	-51.7	-823.3	218.7	182.9	35.75	6.117	
5,000.0	4,910.6	5,018.7	4,915.4	18.5	19.4	-112.53	-55.1	-846.9	224.6	187.9	36.71	6.118	
5,100.0	5,008.7	5,118.4	5,012.5	18.9	19.8	-111.38	-58.0	-869.4	230.2	192.6	37.63	6.118	
5,200.0	5,106.7	5,217.8	5,109.5	19.3	20.2	-110.58	-60.4	-890.8	235.8	197.3	38.48	6.127	
5,300.0	5,204.7	5,313.8	5,203.4	19.7	20.6	-110.09	-63.8	-910.3	242.5	203.2	39.28	6.174	
5,400.0	5,302.8	5,412.2	5,299.8	20.1	21.0	-109.69	-68.2	-929.8	250.4	210.3	40.08	6.247	
5,500.0	5,400.8	5,511.5	5,397.1	20.5	21.4	-109.37	-72.6	-949.2	258.3	217.4	40.87	6.320	
5,600.0	5,498.8	5,609.5	5,493.0	20.8	21.8	-109.08	-77.6	-968.1	266.8	225.1	41.65	6.405	
5,700.0	5,596.9	5,710.9	5,592.3	21.2	22.2	-108.64	-83.0	-988.6	275.5	233.0	42.49	6.485	
5,800.0	5,694.9	5,813.4	5,692.4	21.6	22.6	-108.11	-87.3	-1,009.8	283.0	239.7	43.31	6.533	
5,900.0	5,792.9	5,912.4	5,789.4	22.0	23.0	-107.90	-90.9	-1,029.1	290.1	246.0	44.09	6.580	
6,000.0	5,891.0	6,011.5	5,886.7	22.4	23.4	-107.82	-94.9	-1,047.8	297.7	252.8	44.85	6.638	
6,100.0	5,989.0	6,111.3	5,984.8	22.8	23.7	-107.92	-98.8	-1,065.7	305.3	259.7	45.57	6.698	
6,200.0	6,087.0	6,211.5	6,083.4	23.2	24.1	-108.13	-102.5	-1,083.0	312.8	266.5	46.29	6.757	
6,300.0	6,185.1	6,312.3	6,182.8	23.6	24.4	-108.45	-105.9	-1,099.8	320.0	273.1	46.98	6.812	
6,351.8	6,235.8	6,364.6	6,234.3	23.8	24.6	-108.66	-107.5	-1,108.3	323.7	276.3	47.33	6.838	
6,400.0	6,283.2	6,413.2	6,282.3	24.0	24.8	-108.88	-108.9	-1,116.0	326.8	279.2	47.65	6.859	
6,500.0	6,381.8	6,513.0	6,380.9	24.3	25.1	-108.95	-111.5	-1,131.4	332.5	284.2	48.27	6.887	
6,600.0	6,481.0	6,598.3	6,465.2	24.5	25.3	-108.65	-115.2	-1,143.9	338.8	290.0	48.82	6.940	
6,700.0	6,580.6	6,697.2	6,563.0	24.7	25.6	-108.01	-122.5	-1,156.5	347.3	298.0	49.34	7.039	
6,800.0	6,680.4	6,801.2	6,666.3	24.9	25.8	-107.27	-128.6	-1,167.0	353.6	303.8	49.78	7.104	
6,900.0	6,780.3	6,906.3	6,771.0	25.0	26.0	-106.45	-133.0	-1,174.6	357.7	307.6	50.12	7.137	
6,920.7	6,801.0	6,927.7	6,792.4	25.0	26.1	174.13	-133.6	-1,175.7	358.2	308.1	50.18	7.139	
7,000.0	6,880.3	7,007.6	6,872.1	25.1	26.2	174.78	-135.9	-1,179.6	360.1	309.7	50.41	7.144	
7,100.0	6,980.3	7,110.3	6,974.7	25.1	26.3	175.46	-138.2	-1,183.7	362.1	311.4	50.66	7.147	
7,200.0	7,080.3	7,214.9	7,079.3	25.2	26.4	175.75	-139.3	-1,185.5	362.9	312.0	50.86	7.136	
7,300.0	7,180.3	7,315.3	7,179.7	25.3	26.5	175.83	-139.5	-1,185.9	363.1	312.1	51.04	7.115	
7,400.0	7,280.3	7,416.5	7,280.9	25.4	26.6	175.86	-139.6	-1,186.2	363.2	311.9	51.21	7.091	
7,500.0	7,380.3	7,519.1	7,383.5	25.5	26.7	175.82	-139.0	-1,185.9	362.6	311.2	51.38	7.057	
7,600.0	7,480.3	7,620.8	7,485.1	25.6	26.7	175.69	-137.8	-1,185.2	361.5	310.0	51.54	7.014	
7,700.0	7,580.3	7,722.3	7,586.6	25.7	26.8	175.39	-136.1	-1,183.4	360.0	308.3	51.68	6.966	
7,800.0	7,680.3	7,822.5	7,686.8	25.8	26.8	174.97	-134.0	-1,181.0	358.1	306.3	51.80	6.913	
7,900.0	7,780.3	7,921.6	7,785.9	25.9	26.9	174.57	-132.2	-1,178.7	356.4	304.5	51.94	6.863	
8,000.0	7,880.3	8,020.5	7,884.7	26.0	27.0	174.31	-130.6	-1,177.1	355.0	302.9	52.09	6.816	
8,100.0	7,980.3	8,120.8	7,985.0	26.0	27.0	174.16	-129.3	-1,176.4	353.8	301.6	52.26	6.770	
8,200.0	8,080.3	8,223.0	8,087.2	26.1	27.1	174.14	-127.7	-1,176.4	352.2	299.8	52.45	6.715	
8,300.0	8,180.3	8,325.7	8,189.9	26.2	27.2	174.18	-125.3	-1,176.9	349.9	297.2	52.65	6.645	
8,400.0	8,280.3	8,427.0	8,291.1	26.3	27.3	174.25	-122.4	-1,177.6	347.0	294.1	52.86	6.564	
8,500.0	8,380.3	8,527.4	8,391.5	26.4	27.4	174.36	-119.1	-1,178.6	343.6	290.5	53.07	6.474	
8,600.0	8,480.3	8,624.5	8,488.5	26.5	27.5	174.49	-116.0	-1,179.7	340.3	287.1	53.28	6.388	
8,643.6	8,523.9	8,659.9	8,523.9	26.6	27.6	174.52	-115.6	-1,179.9	339.8	286.5	53.36	6.369	
8,700.0	8,580.3	8,703.0	8,567.0	26.6	27.6	174.50	-116.3	-1,179.7	340.7	287.3	53.45	6.374	
8,800.0	8,680.3	8,796.0	8,659.9	26.7	27.7	174.46	-121.3	-1,179.0	346.1	292.5	53.64	6.453	
8,900.0	8,780.3	8,894.1	8,757.7	26.8	27.8	174.52	-128.4	-1,178.7	353.4	299.5	53.85	6.562	
9,000.0	8,880.3	9,009.0	8,872.5	26.9	27.9	174.67	-133.0	-1,179.2	357.3	303.2	54.08	6.606	
9,089.7	8,970.0	9,104.0	8,967.5	27.0	28.0	174.52	-134.5	-1,178.1	358.7	304.5	54.24	6.615	
9,100.0	8,980.3	9,115.6	8,979.0	27.0	28.0	174.48	-134.5	-1,177.9	358.8	304.5	54.25	6.614	
9,200.0	9,080.3	9,217.7	9,081.2	27.1	28.1	174.04	-133.7	-1,175.2	358.2	303.8	54.41	6.585	
9,212.7	9,093.0	9,229.6	9,093.0	27.1	28.1	174.01	-133.6	-1,175.0	358.2	303.8	54.43	6.582	
9,300.0	9,180.3	9,314.2	9,177.6	27.2	28.2	173.90	-134.0	-1,174.3	358.7	304.1	54.60	6.570	
9,389.7	9,270.0	9,407.3	9,270.7	27.3	28.3	173.95	-134.6	-1,174.5	359.2	304.4	54.80	6.555	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 24-13A1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	46.59	175.4	185.4	255.3				
100.0	100.0	100.0	100.0	0.1	0.1	46.59	175.4	185.4	255.3	255.0	0.27	937.486	
200.0	200.0	200.0	200.0	0.3	0.3	46.59	175.4	185.4	255.3	254.6	0.62	410.809	CC, ES
300.0	300.0	291.5	291.5	0.5	0.5	126.19	177.6	185.4	258.4	257.5	0.96	267.819	
400.0	399.6	382.2	381.9	0.7	0.7	126.18	184.1	185.5	268.0	266.7	1.34	199.533	
500.0	498.8	470.3	469.4	1.0	0.9	126.22	194.4	186.0	284.2	282.4	1.78	159.434	
579.3	576.8	538.9	537.2	1.3	1.1	126.30	205.2	187.1	301.9	299.7	2.17	138.811	
600.0	597.1	556.7	554.6	1.4	1.2	126.44	208.4	187.5	307.1	304.8	2.28	134.635	
700.0	695.1	652.3	648.5	1.7	1.5	127.03	226.2	189.6	333.1	330.3	2.83	117.577	
800.0	793.2	748.8	743.3	2.1	1.8	127.55	244.3	191.8	359.1	355.7	3.40	105.659	
900.0	891.2	845.3	838.1	2.5	2.2	127.99	262.3	193.9	385.1	381.1	3.97	96.967	
1,000.0	989.2	941.8	932.9	2.9	2.5	128.38	280.4	196.1	411.1	406.6	4.55	90.381	
1,100.0	1,087.3	1,038.3	1,027.7	3.3	2.9	128.72	298.4	198.2	437.2	432.1	5.13	85.231	
1,200.0	1,185.3	1,134.8	1,122.5	3.6	3.3	129.03	316.5	200.4	463.3	457.5	5.71	81.101	
1,300.0	1,283.3	1,231.4	1,217.3	4.0	3.6	129.30	334.5	202.5	489.3	483.0	6.30	77.719	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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 24-13D1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	48.92	171.0	196.2	260.2				
100.0	100.0	100.0	100.0	0.1	0.1	48.92	171.0	196.2	260.2	260.0	0.27	955.787	
200.0	200.0	200.0	200.0	0.3	0.3	48.92	171.0	196.2	260.2	259.6	0.62	418.828	CC, ES
300.0	300.0	290.7	290.6	0.5	0.5	128.53	173.1	196.4	263.6	262.7	0.96	273.902	
400.0	399.6	380.7	380.4	0.7	0.7	128.56	179.5	197.3	273.8	272.5	1.34	204.513	
500.0	498.8	471.1	470.2	1.0	0.9	128.60	190.0	198.6	290.6	288.9	1.77	164.229	
579.3	576.8	548.5	546.9	1.3	1.1	128.92	200.2	199.9	307.2	305.1	2.16	141.983	
600.0	597.1	568.7	566.9	1.4	1.2	129.16	202.9	200.2	311.8	309.6	2.27	137.413	
700.0	695.1	666.0	663.4	1.7	1.4	130.22	215.8	201.9	334.1	331.4	2.79	119.963	
800.0	793.2	763.3	759.8	2.1	1.7	131.15	228.6	203.5	356.6	353.2	3.31	107.780	
900.0	891.2	860.6	856.2	2.5	2.0	131.97	241.5	205.1	379.0	375.2	3.83	98.862	
1,000.0	989.2	957.9	952.7	2.9	2.3	132.70	254.4	206.8	401.6	397.2	4.36	92.079	
1,100.0	1,087.3	1,055.2	1,049.1	3.3	2.5	133.34	267.2	208.4	424.2	419.3	4.89	86.761	
1,200.0	1,185.3	1,152.5	1,145.6	3.6	2.8	133.93	280.1	210.0	446.8	441.4	5.42	82.486	
1,300.0	1,283.3	1,249.8	1,242.0	4.0	3.1	134.46	293.0	211.7	469.5	463.6	5.95	78.978	
1,400.0	1,381.4	1,347.2	1,338.4	4.4	3.4	134.93	305.9	213.3	492.3	485.8	6.47	76.051	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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 24-13D2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	50.26	159.9	192.3	250.0				
100.0	100.0	100.0	100.0	0.1	0.1	50.26	159.9	192.3	250.0	249.8	0.27	918.314	
200.0	200.0	200.0	200.0	0.3	0.3	50.26	159.9	192.3	250.0	249.4	0.62	402.408	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	130.27	159.9	192.3	251.7	250.7	0.97	258.173	
400.0	399.6	399.6	399.6	0.7	0.7	131.49	159.9	192.3	256.9	255.5	1.35	190.471	
500.0	498.8	498.8	498.8	1.0	0.8	133.39	159.9	192.3	265.7	264.0	1.75	151.594	
579.3	576.8	576.8	576.8	1.3	1.0	135.28	159.9	192.3	275.6	273.5	2.09	131.651	
600.0	597.1	597.1	597.1	1.4	1.0	135.87	159.9	192.3	278.5	276.4	2.18	127.615	
700.0	695.1	695.1	695.1	1.7	1.2	138.53	159.9	192.3	293.2	290.5	2.61	112.354	
800.0	793.2	793.2	793.2	2.1	1.3	140.94	159.9	192.3	308.3	305.3	3.03	101.888	
900.0	891.2	891.2	891.2	2.5	1.5	143.13	159.9	192.3	324.0	320.6	3.43	94.384	
1,000.0	989.2	989.2	989.2	2.9	1.7	145.11	159.9	192.3	340.1	336.3	3.83	88.807	
1,100.0	1,087.3	1,087.3	1,087.3	3.3	1.9	146.91	159.9	192.3	356.6	352.3	4.22	84.542	
1,200.0	1,185.3	1,185.3	1,185.3	3.6	2.0	148.56	159.9	192.3	373.3	368.7	4.60	81.201	
1,300.0	1,283.3	1,283.3	1,283.3	4.0	2.2	150.06	159.9	192.3	390.4	385.4	4.97	78.532	
1,400.0	1,381.4	1,381.4	1,381.4	4.4	2.4	151.44	159.9	192.3	407.7	402.3	5.34	76.365	
1,500.0	1,479.4	1,479.4	1,479.4	4.8	2.5	152.70	159.9	192.3	425.2	419.5	5.70	74.578	
1,600.0	1,577.5	1,577.5	1,577.5	5.2	2.7	153.87	159.9	192.3	442.9	436.8	6.06	73.086	
1,700.0	1,675.5	1,675.5	1,675.5	5.6	2.9	154.95	159.9	192.3	460.7	454.3	6.41	71.827	
1,800.0	1,773.5	1,773.5	1,773.5	6.0	3.1	155.94	159.9	192.3	478.7	472.0	6.77	70.752	
1,900.0	1,871.6	1,871.6	1,871.6	6.4	3.2	156.87	159.9	192.3	496.9	489.8	7.12	69.827	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 24-14A1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	52.53	155.8	203.2	256.1				
100.0	100.0	100.0	100.0	0.1	0.1	52.53	155.8	203.2	256.1	255.8	0.27	940.553	
200.0	200.0	200.0	200.0	0.3	0.3	52.53	155.8	203.2	256.1	255.5	0.62	412.153	CC, ES
300.0	300.0	288.1	288.1	0.5	0.5	132.34	157.3	204.6	260.1	259.2	0.95	272.533	
400.0	399.6	375.3	375.1	0.7	0.7	132.95	161.6	208.8	272.2	270.9	1.31	208.366	
500.0	498.8	460.6	459.8	1.0	0.9	133.81	168.6	215.5	292.4	290.7	1.69	173.082	
579.3	576.8	526.3	524.7	1.3	1.1	134.57	175.8	222.5	314.0	312.0	2.02	155.758	
600.0	597.1	543.2	541.4	1.4	1.2	134.90	178.0	224.6	320.4	318.3	2.10	152.331	
700.0	695.1	623.4	619.9	1.7	1.5	136.23	189.5	235.6	353.7	351.2	2.52	140.136	
800.0	793.2	700.0	694.3	2.1	1.8	137.18	202.7	248.4	390.9	387.9	2.94	132.761	
900.0	891.2	776.8	768.1	2.5	2.2	137.87	218.1	263.2	431.7	428.4	3.38	127.797	
1,000.0	989.2	849.8	837.3	2.9	2.7	138.31	234.7	279.1	476.0	472.2	3.81	124.851	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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 24-14A2 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	54.02	144.7	199.3	246.3				
100.0	100.0	100.0	100.0	0.1	0.1	54.02	144.7	199.3	246.3	246.0	0.27	904.577	
200.0	200.0	200.0	200.0	0.3	0.3	54.02	144.7	199.3	246.3	245.7	0.62	396.388	CC, ES
300.0	300.0	300.0	300.0	0.5	0.5	134.02	144.7	199.3	248.1	247.1	0.97	254.626	
400.0	399.6	399.6	399.6	0.7	0.7	135.17	144.7	199.3	253.6	252.3	1.34	188.594	
500.0	498.8	498.8	498.8	1.0	0.8	136.98	144.7	199.3	263.1	261.3	1.74	151.024	
579.3	576.8	567.3	567.2	1.3	1.0	138.45	145.4	200.2	274.9	272.8	2.06	133.473	
600.0	597.1	584.9	584.9	1.4	1.0	138.91	145.9	200.8	278.8	276.6	2.14	130.114	
700.0	695.1	669.4	669.2	1.7	1.1	140.87	149.5	205.1	300.5	297.9	2.54	118.221	
800.0	793.2	752.7	751.9	2.1	1.3	142.37	155.6	211.9	326.6	323.6	2.94	111.072	
900.0	891.2	834.2	832.5	2.5	1.6	143.43	164.1	221.0	356.7	353.4	3.34	106.874	
1,000.0	989.2	913.8	910.6	2.9	1.8	144.11	174.8	232.2	390.7	386.9	3.74	104.513	
1,100.0	1,087.3	991.2	985.8	3.3	2.1	144.50	187.5	245.1	428.2	424.0	4.15	103.287	
1,200.0	1,185.3	1,066.3	1,058.0	3.6	2.5	144.67	201.9	259.7	469.1	464.5	4.57	102.754	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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 24-14A3 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	56.42	139.6	210.3	252.4				
100.0	100.0	100.0	100.0	0.1	0.1	56.42	139.6	210.3	252.4	252.2	0.27	927.125	
200.0	200.0	200.0	200.0	0.3	0.3	56.42	139.6	210.3	252.4	251.8	0.62	406.268	CC, ES
300.0	300.0	288.2	288.2	0.5	0.5	136.23	140.9	211.8	256.6	255.7	0.95	269.000	
400.0	399.6	375.5	375.2	0.7	0.7	136.83	144.9	216.4	269.1	267.8	1.30	206.649	
500.0	498.8	460.7	459.9	1.0	0.9	137.66	151.2	223.8	289.9	288.3	1.68	172.964	
579.3	576.8	526.3	524.7	1.3	1.1	138.39	157.7	231.4	312.2	310.2	1.99	156.761	
600.0	597.1	543.1	541.3	1.4	1.2	138.71	159.6	233.6	318.8	316.7	2.08	153.578	
700.0	695.1	623.0	619.5	1.7	1.5	139.99	170.0	245.7	353.0	350.6	2.48	142.332	
800.0	793.2	700.0	694.3	2.1	1.8	140.92	182.0	259.7	391.2	388.3	2.88	135.615	
900.0	891.2	779.7	770.9	2.5	2.2	141.63	196.3	276.5	432.8	429.5	3.30	131.121	
1,000.0	989.2	870.0	857.4	2.9	2.7	142.26	213.2	296.2	475.5	471.7	3.74	127.100	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 25-3C - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	60.21	124.4	217.4	250.5				
100.0	100.0	100.0	100.0	0.1	0.1	60.21	124.4	217.4	250.5	250.2	0.27	919.914	
200.0	200.0	200.0	200.0	0.3	0.3	60.21	124.4	217.4	250.5	249.8	0.62	403.109	CC, ES
300.0	300.0	289.6	289.5	0.5	0.5	140.30	124.4	219.5	254.5	253.6	0.96	265.934	
400.0	399.6	380.1	379.9	0.7	0.7	141.74	124.4	225.8	266.7	265.4	1.31	203.304	
500.0	498.8	484.4	483.7	1.0	0.9	144.66	120.8	234.8	283.5	281.7	1.73	163.590	
579.3	576.8	561.7	560.5	1.3	1.1	147.43	115.4	241.4	299.3	297.2	2.07	144.556	
600.0	597.1	581.5	580.2	1.4	1.1	148.20	114.0	243.1	303.9	301.7	2.16	140.862	
700.0	695.1	677.0	675.1	1.7	1.4	151.64	107.3	251.3	326.8	324.2	2.57	127.186	
800.0	793.2	772.5	770.0	2.1	1.6	154.64	100.5	259.5	350.7	347.8	2.97	118.205	
900.0	891.2	868.1	865.0	2.5	1.9	157.25	93.7	267.7	375.5	372.1	3.35	112.032	
1,000.0	989.2	963.6	959.9	2.9	2.1	159.55	87.0	275.9	400.9	397.1	3.72	107.625	
1,100.0	1,087.3	1,059.1	1,054.8	3.3	2.3	161.58	80.2	284.1	426.8	422.7	4.09	104.377	
1,200.0	1,185.3	1,154.6	1,149.7	3.6	2.6	163.37	73.4	292.3	453.2	448.8	4.45	101.915	
1,300.0	1,283.3	1,250.1	1,244.6	4.0	2.8	164.98	66.7	300.4	480.0	475.2	4.80	100.004	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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 26-1D - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	111.64	-4.0	10.2	11.0				
100.0	100.0	100.0	100.0	0.1	0.1	111.64	-4.0	10.2	11.0	10.7	0.27	40.308	
200.0	200.0	200.0	200.0	0.3	0.3	111.64	-4.0	10.2	11.0	10.4	0.62	17.663	CC, ES
300.0	300.0	300.3	300.3	0.5	0.5	-161.54	-5.3	7.9	11.9	11.0	0.98	12.216	
400.0	399.6	400.5	400.1	0.7	0.7	-146.21	-9.0	0.9	15.6	14.3	1.39	11.288	SF
500.0	498.8	500.3	499.1	1.0	1.0	-133.03	-15.1	-10.6	23.1	21.2	1.92	12.032	
579.3	576.8	579.1	576.7	1.3	1.3	-127.43	-21.4	-22.2	31.8	29.3	2.42	13.143	
600.0	597.1	599.7	597.0	1.4	1.3	-126.98	-23.0	-25.3	34.3	31.8	2.55	13.468	
700.0	695.1	698.9	694.8	1.7	1.6	-125.50	-30.9	-40.1	46.6	43.4	3.19	14.595	
800.0	793.2	798.1	792.6	2.1	2.0	-124.65	-38.9	-55.0	59.0	55.1	3.86	15.294	
900.0	891.2	897.3	890.4	2.5	2.3	-124.09	-46.8	-69.8	71.3	66.8	4.52	15.764	
1,000.0	989.2	996.6	988.2	2.9	2.7	-123.69	-54.7	-84.6	83.7	78.5	5.20	16.099	
1,100.0	1,087.3	1,095.8	1,086.0	3.3	3.0	-123.40	-62.6	-99.4	96.0	90.2	5.87	16.350	
1,200.0	1,185.3	1,195.0	1,183.8	3.6	3.3	-123.17	-70.5	-114.3	108.4	101.8	6.55	16.544	
1,300.0	1,283.3	1,294.3	1,281.6	4.0	3.7	-122.99	-78.5	-129.1	120.7	113.5	7.23	16.698	
1,400.0	1,381.4	1,393.5	1,379.4	4.4	4.0	-122.84	-86.4	-143.9	133.1	125.2	7.91	16.823	
1,500.0	1,479.4	1,492.7	1,477.2	4.8	4.4	-122.72	-94.3	-158.8	145.5	136.9	8.59	16.927	
1,600.0	1,577.5	1,592.0	1,575.0	5.2	4.7	-122.62	-102.2	-173.6	157.8	148.6	9.28	17.015	
1,700.0	1,675.5	1,691.2	1,672.8	5.6	5.0	-122.53	-110.2	-188.4	170.2	160.2	9.96	17.089	
1,800.0	1,773.5	1,790.4	1,770.6	6.0	5.4	-122.46	-118.1	-203.3	182.6	171.9	10.64	17.154	
1,900.0	1,871.6	1,889.7	1,868.4	6.4	5.7	-122.39	-126.0	-218.1	194.9	183.6	11.33	17.210	
2,000.0	1,969.6	1,988.9	1,966.2	6.8	6.1	-122.33	-133.9	-232.9	207.3	195.3	12.01	17.259	
2,100.0	2,067.6	2,088.1	2,064.0	7.1	6.4	-122.28	-141.9	-247.8	219.6	207.0	12.69	17.303	
2,200.0	2,165.7	2,187.4	2,161.8	7.5	6.8	-122.23	-149.8	-262.6	232.0	218.6	13.38	17.342	
2,300.0	2,263.7	2,286.6	2,259.6	7.9	7.1	-122.19	-157.7	-277.4	244.4	230.3	14.06	17.377	
2,400.0	2,361.7	2,385.8	2,357.4	8.3	7.4	-122.15	-165.6	-292.3	256.7	242.0	14.75	17.409	
2,500.0	2,459.8	2,485.1	2,455.2	8.7	7.8	-122.12	-173.6	-307.1	269.1	253.7	15.43	17.437	
2,600.0	2,557.8	2,584.3	2,553.0	9.1	8.1	-122.09	-181.5	-321.9	281.5	265.4	16.12	17.463	
2,700.0	2,655.8	2,683.5	2,650.8	9.5	8.5	-122.06	-189.4	-336.8	293.8	277.0	16.80	17.487	
2,800.0	2,753.9	2,782.8	2,748.5	9.9	8.8	-122.03	-197.3	-351.6	306.2	288.7	17.49	17.509	
2,900.0	2,851.9	2,882.0	2,846.3	10.3	9.2	-122.01	-205.3	-366.4	318.6	300.4	18.17	17.529	
3,000.0	2,949.9	2,981.2	2,944.1	10.7	9.5	-121.99	-213.2	-381.3	330.9	312.1	18.86	17.548	
3,100.0	3,048.0	3,080.5	3,041.9	11.1	9.8	-121.97	-221.1	-396.1	343.3	323.7	19.54	17.565	
3,200.0	3,146.0	3,179.7	3,139.7	11.5	10.2	-121.95	-229.0	-410.9	355.7	335.4	20.23	17.581	
3,300.0	3,244.0	3,278.9	3,237.5	11.8	10.5	-121.93	-236.9	-425.8	368.0	347.1	20.91	17.596	
3,400.0	3,342.1	3,378.2	3,335.3	12.2	10.9	-121.91	-244.9	-440.6	380.4	358.8	21.60	17.610	
3,500.0	3,440.1	3,477.4	3,433.1	12.6	11.2	-121.90	-252.8	-455.4	392.8	370.5	22.29	17.624	
3,600.0	3,538.1	3,576.6	3,530.9	13.0	11.6	-121.88	-260.7	-470.2	405.1	382.1	22.97	17.636	
3,700.0	3,636.2	3,675.9	3,628.7	13.4	11.9	-121.87	-268.6	-485.1	417.5	393.8	23.66	17.647	
3,800.0	3,734.2	3,775.1	3,726.5	13.8	12.2	-121.85	-276.6	-499.9	429.8	405.5	24.34	17.658	
3,900.0	3,832.3	3,874.3	3,824.3	14.2	12.6	-121.84	-284.5	-514.7	442.2	417.2	25.03	17.669	
4,000.0	3,930.3	3,973.6	3,922.1	14.6	12.9	-121.83	-292.4	-529.6	454.6	428.9	25.71	17.678	
4,100.0	4,028.3	4,072.8	4,019.9	15.0	13.3	-121.82	-300.3	-544.4	466.9	440.5	26.40	17.687	
4,200.0	4,126.4	4,172.0	4,117.7	15.4	13.6	-121.81	-308.3	-559.2	479.3	452.2	27.09	17.696	
4,300.0	4,224.4	4,271.3	4,215.5	15.8	14.0	-121.80	-316.2	-574.1	491.7	463.9	27.77	17.704	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Federal 26-8B1 - DD - Plan #2

Offset Site Error: 0.0 ft

Survey Program: 0-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	155.04	-15.2	7.1	16.7				
100.0	100.0	100.0	100.0	0.1	0.1	155.04	-15.2	7.1	16.7	16.5	0.27	61.480	
200.0	200.0	200.0	200.0	0.3	0.3	155.04	-15.2	7.1	16.7	16.1	0.62	26.941	CC, ES
300.0	300.0	299.7	299.7	0.5	0.5	-124.21	-16.9	5.1	19.0	18.0	0.98	19.333	
400.0	399.6	399.1	398.7	0.7	0.7	-121.94	-22.1	-0.7	25.8	24.4	1.40	18.389	SF
500.0	498.8	497.8	496.6	1.0	1.0	-119.93	-30.6	-10.3	37.2	35.3	1.93	19.291	
579.3	576.8	575.5	573.1	1.3	1.3	-118.73	-39.6	-20.4	49.4	47.0	2.44	20.284	
600.0	597.1	595.7	592.9	1.4	1.3	-118.45	-42.3	-23.5	53.0	50.4	2.57	20.610	
700.0	695.1	692.6	687.2	1.7	1.8	-115.30	-57.2	-40.1	71.6	68.3	3.30	21.695	
800.0	793.2	790.3	781.5	2.1	2.2	-111.79	-74.0	-59.0	91.8	87.7	4.05	22.665	
900.0	891.2	888.1	876.0	2.5	2.7	-109.54	-90.9	-78.0	112.2	107.4	4.80	23.358	
1,000.0	989.2	985.9	970.5	2.9	3.2	-107.98	-107.7	-96.9	132.6	127.1	5.56	23.876	
1,100.0	1,087.3	1,083.8	1,064.9	3.3	3.7	-106.83	-124.6	-115.9	153.2	146.9	6.31	24.276	
1,200.0	1,185.3	1,181.6	1,159.4	3.6	4.1	-105.96	-141.5	-134.8	173.8	166.7	7.07	24.595	
1,300.0	1,283.3	1,279.4	1,253.9	4.0	4.6	-105.27	-158.3	-153.8	194.4	186.6	7.82	24.853	
1,400.0	1,381.4	1,377.2	1,348.4	4.4	5.1	-104.72	-175.2	-172.8	215.1	206.5	8.58	25.068	
1,500.0	1,479.4	1,475.1	1,442.8	4.8	5.6	-104.26	-192.1	-191.7	235.7	226.4	9.34	25.248	
1,600.0	1,577.5	1,572.9	1,537.3	5.2	6.0	-103.88	-209.0	-210.7	256.4	246.3	10.09	25.402	
1,700.0	1,675.5	1,670.7	1,631.8	5.6	6.5	-103.55	-225.8	-229.6	277.1	266.3	10.85	25.535	
1,800.0	1,773.5	1,768.5	1,726.3	6.0	7.0	-103.27	-242.7	-248.6	297.8	286.2	11.61	25.650	
1,900.0	1,871.6	1,866.4	1,820.8	6.4	7.5	-103.02	-259.6	-267.5	318.5	306.2	12.37	25.752	
2,000.0	1,969.6	1,964.2	1,915.2	6.8	8.0	-102.81	-276.4	-286.5	339.2	326.1	13.13	25.842	
2,100.0	2,067.6	2,062.0	2,009.7	7.1	8.4	-102.62	-293.3	-305.4	359.9	346.1	13.89	25.923	
2,200.0	2,165.7	2,159.8	2,104.2	7.5	8.9	-102.45	-310.2	-324.4	380.7	366.0	14.64	25.995	
2,300.0	2,263.7	2,257.7	2,198.7	7.9	9.4	-102.30	-327.0	-343.3	401.4	386.0	15.40	26.060	
2,400.0	2,361.7	2,355.5	2,293.1	8.3	9.9	-102.16	-343.9	-362.3	422.1	405.9	16.16	26.119	
2,500.0	2,459.8	2,453.3	2,387.6	8.7	10.4	-102.04	-360.8	-381.2	442.8	425.9	16.92	26.173	
2,600.0	2,557.8	2,551.1	2,482.1	9.1	10.8	-101.92	-377.6	-400.2	463.5	445.9	17.68	26.222	
2,700.0	2,655.8	2,649.0	2,576.6	9.5	11.3	-101.82	-394.5	-419.1	484.3	465.8	18.44	26.267	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 23-16B1 - 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	-14.26	41.7	-10.6	43.1				
100.0	100.0	100.0	100.0	0.1	0.1	-14.26	41.7	-10.6	43.1	42.8	0.27	158.139	
200.0	200.0	200.0	200.0	0.3	0.3	-14.26	41.7	-10.6	43.1	42.4	0.62	69.297	CC, ES
300.0	300.0	298.0	298.0	0.5	0.5	66.74	43.6	-12.3	44.2	43.2	0.98	45.296	
400.0	399.6	395.9	395.6	0.7	0.7	70.53	49.0	-17.5	47.9	46.5	1.38	34.722	
500.0	498.8	493.5	492.4	1.0	1.0	75.63	58.1	-26.0	54.3	52.4	1.88	28.894	
579.3	576.8	570.6	568.3	1.3	1.3	79.84	67.8	-35.2	61.7	59.3	2.38	25.916	
600.0	597.1	590.7	588.0	1.4	1.3	80.88	70.7	-37.9	63.9	61.4	2.52	25.409	
700.0	695.1	687.4	682.1	1.7	1.8	83.30	86.8	-53.0	77.1	73.9	3.23	23.912	
800.0	793.2	783.1	774.1	2.1	2.3	82.73	106.0	-71.2	93.8	89.8	3.97	23.616	SF
900.0	891.2	878.1	864.0	2.5	2.8	80.57	128.4	-92.2	113.7	109.0	4.71	24.154	
1,000.0	989.2	975.7	955.8	2.9	3.4	78.51	152.5	-114.9	135.0	129.6	5.44	24.797	
1,100.0	1,087.3	1,073.3	1,047.6	3.3	4.0	77.02	176.6	-137.6	156.4	150.2	6.18	25.322	
1,200.0	1,185.3	1,170.9	1,139.4	3.6	4.6	75.89	200.7	-160.4	177.9	171.0	6.91	25.755	
1,300.0	1,283.3	1,268.6	1,231.3	4.0	5.2	74.99	224.9	-183.1	199.4	191.8	7.64	26.117	
1,400.0	1,381.4	1,366.2	1,323.1	4.4	5.9	74.28	249.0	-205.8	221.0	212.6	8.36	26.423	
1,500.0	1,479.4	1,463.8	1,414.9	4.8	6.5	73.69	273.1	-228.5	242.6	233.5	9.09	26.687	
1,600.0	1,577.5	1,561.4	1,506.7	5.2	7.1	73.20	297.2	-251.2	264.2	254.4	9.82	26.914	
1,700.0	1,675.5	1,659.0	1,598.5	5.6	7.7	72.78	321.3	-273.9	285.9	275.3	10.54	27.114	
1,800.0	1,773.5	1,756.6	1,690.4	6.0	8.3	72.42	345.4	-296.6	307.5	296.2	11.27	27.289	
1,900.0	1,871.6	1,854.2	1,782.2	6.4	8.9	72.11	369.6	-319.3	329.2	317.2	11.99	27.445	
2,000.0	1,969.6	1,951.8	1,874.0	6.8	9.5	71.83	393.7	-342.0	350.8	338.1	12.72	27.585	
2,100.0	2,067.6	2,049.5	1,965.8	7.1	10.2	71.59	417.8	-364.7	372.5	359.1	13.44	27.710	
2,200.0	2,165.7	2,147.1	2,057.6	7.5	10.8	71.38	441.9	-387.4	394.2	380.0	14.17	27.823	
2,300.0	2,263.7	2,244.7	2,149.4	7.9	11.4	71.18	466.0	-410.2	415.9	401.0	14.89	27.926	
2,400.0	2,361.7	2,342.3	2,241.3	8.3	12.0	71.01	490.1	-432.9	437.6	421.9	15.62	28.019	
2,500.0	2,459.8	2,439.9	2,333.1	8.7	12.6	70.85	514.3	-455.6	459.3	442.9	16.34	28.105	
2,600.0	2,557.8	2,537.5	2,424.9	9.1	13.2	70.71	538.4	-478.3	480.9	463.9	17.06	28.184	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 23-16B2 - 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	-8.48	26.3	-3.9	26.6				
100.0	100.0	100.0	100.0	0.1	0.1	-8.48	26.3	-3.9	26.6	26.3	0.27	97.684	
200.0	200.0	200.0	200.0	0.3	0.3	-8.48	26.3	-3.9	26.6	26.0	0.62	42.806	
300.0	300.0	300.0	300.0	0.5	0.5	76.62	26.3	-3.9	25.9	24.9	0.98	26.440	
381.4	381.1	381.1	381.1	0.7	0.6	90.00	26.3	-3.9	25.2	23.9	1.30	19.352	CC
400.0	399.6	399.6	399.6	0.7	0.7	94.19	26.3	-3.9	25.2	23.9	1.37	18.371	ES
500.0	498.8	498.8	498.8	1.0	0.8	120.33	26.3	-3.9	29.2	27.5	1.79	16.340	
579.3	576.8	577.2	577.2	1.3	1.0	136.26	27.3	-5.1	37.9	35.8	2.09	18.107	
600.0	597.1	597.8	597.8	1.4	1.0	138.98	27.9	-5.8	40.6	38.5	2.17	18.739	
700.0	695.1	697.9	697.5	1.7	1.2	145.13	33.0	-11.7	53.4	50.8	2.58	20.731	
800.0	793.2	798.6	797.4	2.1	1.5	144.73	41.5	-21.6	64.2	61.1	3.07	20.873	
900.0	891.2	899.5	896.6	2.5	1.8	140.62	53.4	-35.5	72.9	69.2	3.71	19.635	
1,000.0	989.2	1,000.0	994.3	2.9	2.2	133.83	68.7	-53.3	80.5	76.0	4.54	17.737	
1,100.0	1,087.3	1,099.6	1,089.8	3.3	2.7	124.98	87.1	-74.8	88.4	82.8	5.55	15.919	
1,200.0	1,185.3	1,198.0	1,183.0	3.6	3.2	115.60	107.6	-98.7	98.2	91.5	6.61	14.841	
1,300.0	1,283.3	1,296.3	1,276.1	4.0	3.8	107.96	128.2	-122.8	110.1	102.5	7.61	14.469	SF
1,400.0	1,381.4	1,394.6	1,369.2	4.4	4.3	101.89	148.8	-146.8	123.7	115.2	8.54	14.484	
1,500.0	1,479.4	1,492.9	1,462.2	4.8	4.9	97.04	169.4	-170.8	138.4	129.0	9.41	14.703	
1,600.0	1,577.5	1,591.2	1,555.3	5.2	5.5	93.13	190.0	-194.9	153.8	143.6	10.24	15.024	
1,700.0	1,675.5	1,689.5	1,648.4	5.6	6.1	89.94	210.6	-218.9	169.9	158.8	11.04	15.392	
1,800.0	1,773.5	1,787.8	1,741.4	6.0	6.7	87.31	231.2	-242.9	186.3	174.5	11.81	15.776	
1,900.0	1,871.6	1,886.1	1,834.5	6.4	7.2	85.10	251.8	-267.0	203.1	190.6	12.57	16.159	
2,000.0	1,969.6	1,984.4	1,927.6	6.8	7.8	83.23	272.4	-291.0	220.2	206.8	13.32	16.533	
2,100.0	2,067.6	2,082.7	2,020.6	7.1	8.4	81.63	293.0	-315.1	237.4	223.3	14.05	16.891	
2,200.0	2,165.7	2,181.0	2,113.7	7.5	9.0	80.25	313.6	-339.1	254.8	240.0	14.78	17.232	
2,300.0	2,263.7	2,279.3	2,206.7	7.9	9.6	79.04	334.2	-363.1	272.3	256.8	15.51	17.555	
2,400.0	2,361.7	2,377.7	2,299.8	8.3	10.2	77.98	354.8	-387.2	289.9	273.7	16.23	17.859	
2,500.0	2,459.8	2,476.0	2,392.9	8.7	10.8	77.04	375.5	-411.2	307.6	290.7	16.95	18.146	
2,600.0	2,557.8	2,574.3	2,485.9	9.1	11.4	76.20	396.1	-435.2	325.4	307.7	17.67	18.417	
2,700.0	2,655.8	2,672.6	2,579.0	9.5	12.0	75.45	416.7	-459.3	343.2	324.8	18.38	18.671	
2,800.0	2,753.9	2,770.9	2,672.1	9.9	12.5	74.78	437.3	-483.3	361.1	342.0	19.09	18.911	
2,900.0	2,851.9	2,869.2	2,765.1	10.3	13.1	74.16	457.9	-507.3	379.0	359.2	19.81	19.137	
3,000.0	2,949.9	2,967.5	2,858.2	10.7	13.7	73.61	478.5	-531.4	397.0	376.5	20.52	19.350	
3,100.0	3,048.0	3,065.8	2,951.3	11.1	14.3	73.10	499.1	-555.4	415.0	393.8	21.23	19.552	
3,200.0	3,146.0	3,164.1	3,044.3	11.5	14.9	72.63	519.7	-579.5	433.0	411.1	21.93	19.742	
3,300.0	3,244.0	3,262.4	3,137.4	11.8	15.5	72.20	540.3	-603.5	451.1	428.4	22.64	19.922	
3,400.0	3,342.1	3,360.7	3,230.5	12.2	16.1	71.80	560.9	-627.5	469.2	445.8	23.35	20.093	
3,500.0	3,440.1	3,459.0	3,323.5	12.6	16.7	71.44	581.5	-651.6	487.3	463.2	24.06	20.255	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 23-16C1 - 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	-24.95	15.2	-7.1	16.7				
100.0	100.0	100.0	100.0	0.1	0.1	-24.95	15.2	-7.1	16.7	16.5	0.27	61.480	
200.0	200.0	200.0	200.0	0.3	0.3	-24.95	15.2	-7.1	16.7	16.1	0.62	26.941	CC, ES
300.0	300.0	299.3	299.3	0.5	0.5	55.97	16.2	-9.4	17.2	16.2	0.98	17.540	
400.0	399.6	398.7	398.3	0.7	0.7	59.58	19.3	-16.5	18.5	17.1	1.39	13.348	
500.0	498.8	498.0	496.8	1.0	1.0	64.51	24.4	-28.4	20.9	19.0	1.90	10.968	
579.3	576.8	576.6	574.2	1.3	1.3	68.66	29.8	-41.0	23.6	21.1	2.43	9.685	
600.0	597.1	597.2	594.3	1.4	1.4	69.49	31.5	-44.8	24.4	21.9	2.58	9.482	
700.0	695.1	697.0	691.9	1.7	1.7	71.05	39.9	-64.2	29.2	25.9	3.28	8.896	
800.0	793.2	796.9	789.5	2.1	2.1	72.14	48.2	-83.6	34.0	30.0	4.01	8.477	
900.0	891.2	896.8	887.1	2.5	2.6	72.95	56.6	-103.1	38.8	34.1	4.75	8.167	
1,000.0	989.2	996.7	984.8	2.9	3.0	73.59	65.0	-122.5	43.6	38.1	5.50	7.930	
1,100.0	1,087.3	1,096.5	1,082.4	3.3	3.4	74.10	73.4	-141.9	48.5	42.2	6.26	7.745	
1,200.0	1,185.3	1,196.4	1,180.0	3.6	3.8	74.52	81.8	-161.3	53.3	46.3	7.02	7.596	
1,300.0	1,283.3	1,296.3	1,277.6	4.0	4.2	74.86	90.2	-180.7	58.1	50.3	7.78	7.474	
1,400.0	1,381.4	1,396.2	1,375.2	4.4	4.6	75.16	98.5	-200.1	62.9	54.4	8.54	7.372	
1,500.0	1,479.4	1,496.1	1,472.8	4.8	5.0	75.41	106.9	-219.5	67.8	58.5	9.30	7.287	
1,600.0	1,577.5	1,596.0	1,570.5	5.2	5.4	75.63	115.3	-239.0	72.6	62.5	10.07	7.213	
1,700.0	1,675.5	1,695.8	1,668.1	5.6	5.8	75.82	123.7	-258.4	77.4	66.6	10.83	7.149	
1,800.0	1,773.5	1,795.7	1,765.7	6.0	6.2	75.99	132.1	-277.8	82.3	70.7	11.60	7.094	
1,900.0	1,871.6	1,895.6	1,863.3	6.4	6.7	76.14	140.5	-297.2	87.1	74.7	12.36	7.045	
2,000.0	1,969.6	1,995.5	1,960.9	6.8	7.1	76.28	148.8	-316.6	91.9	78.8	13.13	7.002	
2,100.0	2,067.6	2,095.4	2,058.6	7.1	7.5	76.40	157.2	-336.0	96.8	82.9	13.90	6.963	
2,200.0	2,165.7	2,195.3	2,156.2	7.5	7.9	76.51	165.6	-355.5	101.6	86.9	14.67	6.928	
2,300.0	2,263.7	2,295.1	2,253.8	7.9	8.3	76.61	174.0	-374.9	106.4	91.0	15.43	6.896	
2,400.0	2,361.7	2,395.0	2,351.4	8.3	8.7	76.70	182.4	-394.3	111.3	95.1	16.20	6.868	
2,500.0	2,459.8	2,494.9	2,449.0	8.7	9.1	76.78	190.8	-413.7	116.1	99.1	16.97	6.842	
2,600.0	2,557.8	2,594.8	2,546.6	9.1	9.6	76.86	199.1	-433.1	120.9	103.2	17.74	6.818	
2,700.0	2,655.8	2,694.7	2,644.3	9.5	10.0	76.93	207.5	-452.5	125.8	107.3	18.51	6.796	
2,800.0	2,753.9	2,794.6	2,741.9	9.9	10.4	76.99	215.9	-471.9	130.6	111.3	19.28	6.776	
2,900.0	2,851.9	2,894.4	2,839.5	10.3	10.8	77.05	224.3	-491.4	135.4	115.4	20.05	6.757	
3,000.0	2,949.9	2,994.3	2,937.1	10.7	11.2	77.11	232.7	-510.8	140.3	119.5	20.82	6.740	
3,100.0	3,048.0	3,094.2	3,034.7	11.1	11.6	77.16	241.1	-530.2	145.1	123.5	21.58	6.723	
3,200.0	3,146.0	3,194.1	3,132.4	11.5	12.0	77.21	249.4	-549.6	150.0	127.6	22.35	6.708	
3,300.0	3,244.0	3,294.0	3,230.0	11.8	12.5	77.26	257.8	-569.0	154.8	131.7	23.12	6.694	
3,400.0	3,342.1	3,393.8	3,327.6	12.2	12.9	77.30	266.2	-588.4	159.6	135.7	23.89	6.681	
3,500.0	3,440.1	3,493.7	3,425.2	12.6	13.3	77.34	274.6	-607.9	164.5	139.8	24.66	6.669	
3,600.0	3,538.1	3,593.6	3,522.8	13.0	13.7	77.38	283.0	-627.3	169.3	143.9	25.43	6.657	
3,700.0	3,636.2	3,693.5	3,620.4	13.4	14.1	77.42	291.3	-646.7	174.1	147.9	26.20	6.646	
3,800.0	3,734.2	3,793.4	3,718.1	13.8	14.5	77.45	299.7	-666.1	179.0	152.0	26.97	6.636	
3,900.0	3,832.3	3,893.3	3,815.7	14.2	14.9	77.49	308.1	-685.5	183.8	156.1	27.74	6.626	
4,000.0	3,930.3	3,993.1	3,913.3	14.6	15.4	77.52	316.5	-704.9	188.7	160.1	28.51	6.617	
4,100.0	4,028.3	4,093.0	4,010.9	15.0	15.8	77.55	324.9	-724.3	193.5	164.2	29.28	6.608	
4,200.0	4,126.4	4,192.9	4,108.5	15.4	16.2	77.58	333.3	-743.8	198.3	168.3	30.05	6.600	
4,300.0	4,224.4	4,292.8	4,206.2	15.8	16.6	77.60	341.6	-763.2	203.2	172.3	30.82	6.592	
4,400.0	4,322.4	4,392.7	4,303.8	16.2	17.0	77.63	350.0	-782.6	208.0	176.4	31.59	6.584	
4,500.0	4,420.5	4,492.6	4,401.4	16.5	17.4	77.65	358.4	-802.0	212.8	180.5	32.36	6.577	
4,600.0	4,518.5	4,592.4	4,499.0	16.9	17.8	77.67	366.8	-821.4	217.7	184.5	33.13	6.570	
4,700.0	4,616.5	4,692.3	4,596.6	17.3	18.3	77.70	375.2	-840.8	222.5	188.6	33.90	6.563	
4,800.0	4,714.6	4,792.2	4,694.3	17.7	18.7	77.72	383.6	-860.3	227.3	192.7	34.67	6.557	
4,900.0	4,812.6	4,892.1	4,791.9	18.1	19.1	77.74	391.9	-879.7	232.2	196.7	35.44	6.551	
5,000.0	4,910.6	4,992.0	4,889.5	18.5	19.5	77.76	400.3	-899.1	237.0	200.8	36.21	6.545	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 23-16C1 - DD - Plan #1 — **Offset Site Error:** 0.0 ft

Survey Program: 0-MWD — **Offset Well Error:** 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
5,100.0	5,008.7	5,091.9	4,987.1	18.9	19.9	77.78	408.7	-918.5	241.9	204.9	36.98	6.540	
5,200.0	5,106.7	5,191.7	5,084.7	19.3	20.3	77.80	417.1	-937.9	246.7	208.9	37.75	6.535	
5,300.0	5,204.7	5,291.6	5,182.3	19.7	20.7	77.81	425.5	-957.3	251.5	213.0	38.52	6.530	
5,400.0	5,302.8	5,391.5	5,280.0	20.1	21.2	77.83	433.9	-976.7	256.4	217.1	39.29	6.525	
5,500.0	5,400.8	5,491.4	5,377.6	20.5	21.6	77.85	442.2	-996.2	261.2	221.1	40.06	6.520	
5,600.0	5,498.8	5,591.3	5,475.2	20.8	22.0	77.86	450.6	-1,015.6	266.0	225.2	40.83	6.515	
5,700.0	5,596.9	5,691.2	5,572.8	21.2	22.4	77.88	459.0	-1,035.0	270.9	229.3	41.60	6.511	
5,800.0	5,694.9	5,791.0	5,670.4	21.6	22.8	77.89	467.4	-1,054.4	275.7	233.3	42.37	6.507	
5,900.0	5,792.9	5,890.9	5,768.1	22.0	23.2	77.90	475.8	-1,073.8	280.6	237.4	43.14	6.503	
6,000.0	5,891.0	5,990.8	5,865.7	22.4	23.6	77.92	484.2	-1,093.2	285.4	241.5	43.91	6.499	
6,100.0	5,989.0	6,090.7	5,963.3	22.8	24.1	77.93	492.5	-1,112.7	290.2	245.6	44.68	6.495	
6,200.0	6,087.0	6,190.6	6,060.9	23.2	24.5	77.94	500.9	-1,132.1	295.1	249.6	45.46	6.492	
6,300.0	6,185.1	6,290.5	6,158.5	23.6	24.9	77.96	509.3	-1,151.5	299.9	253.7	46.23	6.488	
6,351.8	6,235.8	6,343.3	6,210.2	23.8	25.1	77.98	513.7	-1,161.7	302.4	255.7	46.62	6.485	
6,400.0	6,283.2	6,393.7	6,259.7	24.0	25.3	78.11	517.6	-1,170.6	304.4	257.4	46.99	6.478	
6,500.0	6,381.8	6,498.3	6,362.8	24.3	25.6	78.33	524.5	-1,186.7	308.1	260.4	47.65	6.466	
6,600.0	6,481.0	6,602.9	6,466.5	24.5	25.9	78.52	530.0	-1,199.3	311.0	262.8	48.18	6.454	
6,700.0	6,580.6	6,707.6	6,570.7	24.7	26.1	78.67	533.9	-1,208.5	313.0	264.4	48.61	6.439	
6,800.0	6,680.4	6,812.3	6,675.2	24.9	26.2	78.79	536.4	-1,214.1	314.3	265.3	48.92	6.423	
6,900.0	6,780.3	6,917.0	6,779.8	25.0	26.3	78.87	537.3	-1,216.2	314.7	265.6	49.13	6.405	
6,920.7	6,801.0	6,938.2	6,801.0	25.0	26.3	-0.71	537.3	-1,216.3	314.7	265.5	49.17	6.400	
7,000.0	6,880.3	7,017.5	6,880.3	25.1	26.4	-0.71	537.3	-1,216.3	314.7	265.4	49.31	6.382	
7,100.0	6,980.3	7,117.5	6,980.3	25.1	26.5	-0.71	537.3	-1,216.3	314.7	265.2	49.48	6.360	
7,200.0	7,080.3	7,217.5	7,080.3	25.2	26.6	-0.71	537.3	-1,216.3	314.7	265.0	49.66	6.337	
7,300.0	7,180.3	7,317.5	7,180.3	25.3	26.6	-0.71	537.3	-1,216.3	314.7	264.8	49.83	6.315	
7,400.0	7,280.3	7,417.5	7,280.3	25.4	26.7	-0.71	537.3	-1,216.3	314.7	264.7	50.01	6.292	
7,500.0	7,380.3	7,517.5	7,380.3	25.5	26.8	-0.71	537.3	-1,216.3	314.7	264.5	50.19	6.269	
7,600.0	7,480.3	7,617.5	7,480.3	25.6	26.9	-0.71	537.3	-1,216.3	314.7	264.3	50.38	6.247	
7,700.0	7,580.3	7,717.5	7,580.3	25.7	27.0	-0.71	537.3	-1,216.3	314.7	264.1	50.56	6.224	
7,800.0	7,680.3	7,817.5	7,680.3	25.8	27.1	-0.71	537.3	-1,216.3	314.7	263.9	50.75	6.201	
7,900.0	7,780.3	7,917.5	7,780.3	25.9	27.2	-0.71	537.3	-1,216.3	314.7	263.7	50.94	6.178	
8,000.0	7,880.3	8,017.5	7,880.3	26.0	27.3	-0.71	537.3	-1,216.3	314.7	263.6	51.12	6.155	
8,100.0	7,980.3	8,117.5	7,980.3	26.0	27.3	-0.71	537.3	-1,216.3	314.7	263.4	51.32	6.132	
8,200.0	8,080.3	8,217.5	8,080.3	26.1	27.4	-0.71	537.3	-1,216.3	314.7	263.2	51.51	6.109	
8,300.0	8,180.3	8,317.5	8,180.3	26.2	27.5	-0.71	537.3	-1,216.3	314.7	263.0	51.70	6.086	
8,400.0	8,280.3	8,417.5	8,280.3	26.3	27.6	-0.71	537.3	-1,216.3	314.7	262.8	51.90	6.063	
8,500.0	8,380.3	8,517.5	8,380.3	26.4	27.7	-0.71	537.3	-1,216.3	314.7	262.6	52.10	6.040	
8,600.0	8,480.3	8,617.5	8,480.3	26.5	27.8	-0.71	537.3	-1,216.3	314.7	262.4	52.30	6.017	
8,700.0	8,580.3	8,717.5	8,580.3	26.6	27.9	-0.71	537.3	-1,216.3	314.7	262.2	52.50	5.994	
8,800.0	8,680.3	8,817.5	8,680.3	26.7	28.0	-0.71	537.3	-1,216.3	314.7	262.0	52.70	5.971	
8,900.0	8,780.3	8,917.5	8,780.3	26.8	28.1	-0.71	537.3	-1,216.3	314.7	261.8	52.90	5.948	
9,000.0	8,880.3	9,017.5	8,880.3	26.9	28.2	-0.71	537.3	-1,216.3	314.7	261.6	53.11	5.925	
9,089.7	8,970.0	9,107.2	8,970.0	27.0	28.3	-0.71	537.3	-1,216.3	314.7	261.4	53.29	5.905	
9,100.0	8,980.3	9,117.5	8,980.3	27.0	28.3	-0.71	537.3	-1,216.3	314.7	261.4	53.32	5.902	
9,200.0	9,080.3	9,217.5	9,080.3	27.1	28.4	-0.71	537.3	-1,216.3	314.7	261.2	53.52	5.879	
9,300.0	9,180.3	9,317.5	9,180.3	27.2	28.5	-0.71	537.3	-1,216.3	314.7	260.9	53.73	5.856	
9,356.0	9,236.4	9,373.5	9,236.4	27.3	28.5	-0.71	537.3	-1,216.3	314.7	260.8	53.85	5.843	
9,389.7	9,270.0	9,397.2	9,260.0	27.3	28.6	-0.71	537.3	-1,216.3	314.8	260.9	53.91	5.840	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 23-16D - 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	-24.95	30.4	-14.1	33.5				
100.0	100.0	100.0	100.0	0.1	0.1	-24.95	30.4	-14.1	33.5	33.2	0.27	122.959	
200.0	200.0	200.0	200.0	0.3	0.3	-24.95	30.4	-14.1	33.5	32.9	0.62	53.881	
300.0	300.0	299.1	299.1	0.5	0.5	54.45	30.6	-16.7	33.3	32.3	0.98	33.914	
400.0	399.6	398.0	397.7	0.7	0.7	54.18	31.4	-24.2	32.7	31.3	1.38	23.641	
404.8	404.4	402.7	402.3	0.7	0.7	54.24	31.5	-24.7	32.7	31.3	1.41	23.266	CC, ES
500.0	498.8	496.3	495.3	1.0	1.0	58.04	35.5	-35.2	33.7	31.8	1.87	18.059	
579.3	576.8	574.1	572.0	1.3	1.2	64.22	41.7	-45.9	36.3	34.0	2.35	15.455	
600.0	597.1	594.4	592.0	1.4	1.3	65.99	43.7	-49.0	37.4	34.9	2.49	15.034	
700.0	695.1	692.9	688.4	1.7	1.7	71.65	55.6	-65.5	45.3	42.1	3.19	14.217	
800.0	793.2	792.5	785.7	2.1	2.0	75.19	68.2	-82.7	54.2	50.3	3.92	13.841	
900.0	891.2	892.1	882.9	2.5	2.4	77.73	80.9	-99.8	63.2	58.6	4.66	13.565	
1,000.0	989.2	991.6	980.2	2.9	2.8	79.62	93.6	-117.0	72.4	67.0	5.42	13.358	
1,100.0	1,087.3	1,091.2	1,077.4	3.3	3.3	81.09	106.2	-134.1	81.6	75.4	6.18	13.199	
1,200.0	1,185.3	1,190.7	1,174.7	3.6	3.7	82.27	118.9	-151.3	90.8	83.9	6.95	13.073	
1,300.0	1,283.3	1,290.3	1,271.9	4.0	4.1	83.22	131.5	-168.4	100.1	92.4	7.72	12.972	
1,400.0	1,381.4	1,389.8	1,369.2	4.4	4.5	84.02	144.2	-185.6	109.4	100.9	8.49	12.888	
1,500.0	1,479.4	1,489.4	1,466.4	4.8	4.9	84.69	156.9	-202.7	118.7	109.4	9.26	12.819	
1,600.0	1,577.5	1,589.0	1,563.7	5.2	5.3	85.26	169.5	-219.9	128.0	118.0	10.03	12.760	
1,700.0	1,675.5	1,688.5	1,660.9	5.6	5.7	85.75	182.2	-237.0	137.4	126.6	10.81	12.710	
1,800.0	1,773.5	1,788.1	1,758.2	6.0	6.1	86.18	194.9	-254.2	146.7	135.1	11.58	12.667	
1,900.0	1,871.6	1,887.6	1,855.4	6.4	6.6	86.56	207.5	-271.3	156.1	143.7	12.36	12.629	
2,000.0	1,969.6	1,987.2	1,952.7	6.8	7.0	86.90	220.2	-288.5	165.4	152.3	13.13	12.596	
2,100.0	2,067.6	2,086.7	2,049.9	7.1	7.4	87.20	232.8	-305.6	174.8	160.9	13.91	12.566	
2,200.0	2,165.7	2,186.3	2,147.1	7.5	7.8	87.47	245.5	-322.8	184.2	169.5	14.69	12.540	
2,300.0	2,263.7	2,285.9	2,244.4	7.9	8.2	87.71	258.2	-339.9	193.5	178.1	15.46	12.516	
2,400.0	2,361.7	2,385.4	2,341.6	8.3	8.6	87.93	270.8	-357.1	202.9	186.7	16.24	12.495	
2,500.0	2,459.8	2,485.0	2,438.9	8.7	9.0	88.14	283.5	-374.2	212.3	195.3	17.02	12.475	
2,600.0	2,557.8	2,584.5	2,536.1	9.1	9.5	88.32	296.1	-391.4	221.7	203.9	17.79	12.458	
2,700.0	2,655.8	2,684.1	2,633.4	9.5	9.9	88.49	308.8	-408.5	231.0	212.5	18.57	12.441	
2,800.0	2,753.9	2,783.6	2,730.6	9.9	10.3	88.65	321.5	-425.7	240.4	221.1	19.35	12.427	
2,900.0	2,851.9	2,883.2	2,827.9	10.3	10.7	88.79	334.1	-442.8	249.8	229.7	20.13	12.413	
3,000.0	2,949.9	2,982.8	2,925.1	10.7	11.1	88.93	346.8	-460.0	259.2	238.3	20.90	12.400	
3,100.0	3,048.0	3,082.3	3,022.4	11.1	11.5	89.05	359.5	-477.1	268.6	246.9	21.68	12.389	
3,200.0	3,146.0	3,181.9	3,119.6	11.5	11.9	89.17	372.1	-494.3	278.0	255.5	22.46	12.378	
3,300.0	3,244.0	3,281.4	3,216.9	11.8	12.4	89.28	384.8	-511.4	287.4	264.1	23.24	12.368	
3,400.0	3,342.1	3,381.0	3,314.1	12.2	12.8	89.38	397.4	-528.6	296.8	272.8	24.01	12.358	
3,500.0	3,440.1	3,480.5	3,411.4	12.6	13.2	89.47	410.1	-545.7	306.2	281.4	24.79	12.349	
3,600.0	3,538.1	3,580.1	3,508.6	13.0	13.6	89.56	422.8	-562.9	315.6	290.0	25.57	12.341	
3,700.0	3,636.2	3,679.6	3,605.9	13.4	14.0	89.65	435.4	-580.0	325.0	298.6	26.35	12.333	
3,800.0	3,734.2	3,779.2	3,703.1	13.8	14.4	89.73	448.1	-597.2	334.3	307.2	27.13	12.326	
3,900.0	3,832.3	3,878.8	3,800.4	14.2	14.8	89.80	460.7	-614.3	343.7	315.8	27.90	12.319	
4,000.0	3,930.3	3,978.3	3,897.6	14.6	15.3	89.88	473.4	-631.5	353.1	324.5	28.68	12.313	
4,100.0	4,028.3	4,077.9	3,994.9	15.0	15.7	89.94	486.1	-648.6	362.5	333.1	29.46	12.306	
4,200.0	4,126.4	4,177.4	4,092.1	15.4	16.1	90.01	498.7	-665.8	371.9	341.7	30.24	12.300	
4,300.0	4,224.4	4,277.0	4,189.3	15.8	16.5	90.07	511.4	-682.9	381.3	350.3	31.02	12.295	
4,400.0	4,322.4	4,376.5	4,286.6	16.2	16.9	90.13	524.1	-700.1	390.7	358.9	31.79	12.290	
4,500.0	4,420.5	4,476.1	4,383.8	16.5	17.3	90.18	536.7	-717.2	400.1	367.6	32.57	12.285	
4,600.0	4,518.5	4,575.7	4,481.1	16.9	17.8	90.24	549.4	-734.4	409.5	376.2	33.35	12.280	
4,700.0	4,616.5	4,675.2	4,578.3	17.3	18.2	90.29	562.0	-751.5	418.9	384.8	34.13	12.275	
4,800.0	4,714.6	4,774.8	4,675.6	17.7	18.6	90.34	574.7	-768.7	428.3	393.4	34.91	12.271	
4,900.0	4,812.6	4,874.3	4,772.8	18.1	19.0	90.38	587.4	-785.8	437.7	402.0	35.68	12.267	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 23-16D - 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
5,000.0	4,910.6	4,973.9	4,870.1	18.5	19.4	90.43	600.0	-803.0	447.1	410.7	36.46	12.263	
5,100.0	5,008.7	5,073.4	4,967.3	18.9	19.8	90.47	612.7	-820.1	456.5	419.3	37.24	12.259	
5,200.0	5,106.7	5,173.0	5,064.6	19.3	20.2	90.51	625.3	-837.2	465.9	427.9	38.02	12.255	
5,300.0	5,204.7	5,272.6	5,161.8	19.7	20.7	90.55	638.0	-854.4	475.3	436.5	38.80	12.252	
5,400.0	5,302.8	5,372.1	5,259.1	20.1	21.1	90.59	650.7	-871.5	484.7	445.2	39.58	12.248	
5,500.0	5,400.8	5,471.7	5,356.3	20.5	21.5	90.62	663.3	-888.7	494.1	453.8	40.35	12.245	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 25-6B - 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	58.09	128.5	206.4	243.1				
100.0	100.0	100.0	100.0	0.1	0.1	58.09	128.5	206.4	243.1	242.8	0.27	892.892	CC
200.0	200.0	200.0	200.0	0.3	0.3	58.09	128.5	206.4	243.1	242.5	0.62	391.267	ES
300.0	300.0	307.0	307.0	0.5	0.5	138.72	125.5	206.4	243.6	242.6	0.99	245.079	
400.0	399.6	406.9	406.5	0.7	0.7	141.49	117.5	206.8	246.0	244.7	1.39	176.718	
500.0	498.8	500.0	499.0	1.0	1.0	145.39	107.8	210.6	255.7	253.8	1.84	139.295	
579.3	576.8	566.1	564.4	1.3	1.2	148.64	99.7	215.9	269.6	267.4	2.20	122.451	
600.0	597.1	583.8	581.9	1.4	1.2	149.61	97.4	217.7	274.2	271.9	2.30	119.297	
700.0	695.1	667.6	664.1	1.7	1.5	154.14	85.7	228.0	299.5	296.7	2.77	108.061	
800.0	793.2	748.4	742.9	2.1	1.9	158.26	73.0	241.2	330.1	326.8	3.23	102.313	
900.0	891.2	833.0	824.5	2.5	2.2	162.17	58.5	257.7	365.3	361.6	3.67	99.604	
1,000.0	989.2	923.0	911.4	2.9	2.7	165.69	43.0	275.7	402.5	398.4	4.10	98.233	
1,100.0	1,087.3	1,013.1	998.3	3.3	3.1	168.63	27.5	293.7	440.8	436.3	4.51	97.809	SF
1,200.0	1,185.3	1,103.2	1,085.2	3.6	3.5	171.11	12.0	311.7	479.9	475.0	4.90	97.913	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - HMU Fee 25-6D - 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	15.75	11.1	3.1	11.6				
100.0	100.0	100.0	100.0	0.1	0.1	15.75	11.1	3.1	11.6	11.3	0.27	42.470	
200.0	200.0	200.0	200.0	0.3	0.3	15.75	11.1	3.1	11.6	10.9	0.62	18.611	CC, ES
300.0	300.0	299.6	299.5	0.5	0.5	117.42	11.1	5.7	13.5	12.5	0.98	13.774	SF
400.0	399.6	398.3	398.0	0.7	0.7	151.65	9.1	12.4	23.9	22.5	1.34	17.809	
500.0	498.8	494.5	493.6	1.0	1.0	170.63	3.2	21.8	45.3	43.6	1.68	27.014	
579.3	576.8	568.1	566.2	1.3	1.2	178.46	-3.9	31.0	69.5	67.6	1.94	35.818	
600.0	597.1	586.9	584.7	1.4	1.3	179.94	-6.1	33.6	76.8	74.8	2.01	38.172	
700.0	695.1	675.9	671.8	1.7	1.6	-174.79	-18.4	47.4	114.1	111.7	2.37	48.224	
800.0	793.2	761.7	754.8	2.1	2.0	-171.21	-33.3	62.9	155.3	152.6	2.73	56.867	
900.0	891.2	844.2	833.7	2.5	2.5	-168.52	-50.5	80.0	200.3	197.2	3.10	64.510	
1,000.0	989.2	923.3	908.3	2.9	3.0	-166.38	-69.6	98.2	248.7	245.2	3.48	71.502	
1,100.0	1,087.3	1,004.4	983.8	3.3	3.5	-164.55	-91.3	118.4	300.1	296.2	3.87	77.624	
1,200.0	1,185.3	1,089.7	1,062.9	3.6	4.1	-163.14	-114.4	139.9	351.9	347.7	4.26	82.518	
1,300.0	1,283.3	1,174.9	1,142.1	4.0	4.6	-162.09	-137.5	161.4	403.9	399.2	4.67	86.579	
1,400.0	1,381.4	1,260.1	1,221.3	4.4	5.2	-161.29	-160.5	182.8	456.0	450.9	5.07	90.006	

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 HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Offset Design (D25W) - MCU 26-8C (Existing) - Excel Drilling - Surveys

Offset Site Error: 0.0 ft

Survey Program: 264-MWD

Offset Well Error: 0.0 ft

Reference Measured Depth (ft)	Reference Vertical Depth (ft)	Offset Measured Depth (ft)	Offset Vertical Depth (ft)	Semi Major Axis Reference (ft)	Semi Major Axis Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning
0.0	0.0	0.0	0.0	0.0	0.0	44.25	83.0	80.8	115.8				
100.0	100.0	99.5	99.5	0.1	0.2	44.20	83.2	80.9	116.0	115.7	0.30	391.400	ES
200.0	200.0	199.0	199.0	0.3	0.3	44.05	83.8	81.1	116.6	116.0	0.63	184.774	
300.0	300.0	298.6	298.6	0.5	0.5	124.37	84.9	81.4	119.1	118.2	0.97	122.202	
400.0	399.6	398.0	397.9	0.7	0.7	126.71	86.6	81.6	125.0	123.6	1.35	92.312	
500.0	498.8	495.8	495.7	1.0	0.8	130.18	88.8	81.7	134.7	133.0	1.76	76.388	
579.3	576.8	572.3	572.2	1.3	1.0	133.36	91.6	82.4	146.5	144.4	2.11	69.556	
600.0	597.1	592.9	592.8	1.4	1.0	134.31	92.4	82.6	150.0	147.8	2.20	68.297	
700.0	695.1	690.5	690.3	1.7	1.2	138.50	95.4	83.9	167.2	164.6	2.61	63.947	
800.0	793.2	787.2	787.0	2.1	1.4	142.19	97.8	86.1	185.6	182.6	3.01	61.579	
900.0	891.2	887.0	886.8	2.5	1.5	145.60	99.2	88.6	204.5	201.1	3.40	60.191	
1,000.0	989.2	991.2	990.9	2.9	1.7	148.99	98.1	89.6	221.7	218.0	3.76	58.921	
1,100.0	1,087.3	1,091.3	1,091.0	3.3	1.9	151.88	96.2	89.0	237.8	233.7	4.11	57.792	
1,200.0	1,185.3	1,193.4	1,193.0	3.6	2.1	154.59	93.2	87.5	253.3	248.9	4.45	56.879	
1,300.0	1,283.3	1,295.2	1,294.6	4.0	2.2	157.56	87.3	85.0	267.7	262.9	4.77	56.102	
1,400.0	1,381.4	1,397.6	1,396.5	4.4	2.4	160.91	77.7	81.8	281.5	276.4	5.08	55.467	
1,500.0	1,479.4	1,501.5	1,499.5	4.8	2.6	164.60	64.7	77.0	294.3	288.9	5.38	54.679	
1,600.0	1,577.5	1,608.9	1,605.2	5.2	2.9	168.85	47.0	69.5	305.7	300.0	5.72	53.399	
1,700.0	1,675.5	1,726.4	1,719.7	5.6	3.2	173.58	25.5	55.3	313.6	307.4	6.14	51.039	
1,800.0	1,773.5	1,842.6	1,832.0	6.0	3.7	178.20	3.8	34.5	317.2	310.5	6.66	47.647	
1,900.0	1,871.6	1,951.5	1,935.6	6.4	4.2	-177.08	-18.0	8.8	317.0	309.7	7.29	43.455	
1,945.1	1,915.8	1,996.8	1,978.1	6.5	4.4	-174.85	-28.4	-2.8	316.8	309.2	7.62	41.565	
2,000.0	1,969.6	2,050.2	2,027.8	6.8	4.7	-172.05	-41.5	-17.0	317.1	309.1	8.07	39.303	
2,100.0	2,067.6	2,141.2	2,112.2	7.1	5.2	-166.99	-65.6	-41.3	320.2	311.2	8.96	35.714	
2,200.0	2,165.7	2,231.1	2,195.2	7.5	5.8	-161.93	-91.1	-64.3	327.9	317.9	9.98	32.857	
2,300.0	2,263.7	2,321.2	2,278.4	7.9	6.4	-157.03	-117.6	-86.6	339.8	328.7	11.08	30.673	
2,400.0	2,361.7	2,413.1	2,363.2	8.3	7.0	-152.35	-145.3	-108.6	355.5	343.3	12.23	29.078	
2,500.0	2,459.8	2,504.7	2,448.0	8.7	7.6	-148.17	-172.6	-129.9	373.9	360.6	13.36	27.994	
2,600.0	2,557.8	2,595.7	2,532.5	9.1	8.2	-144.49	-199.9	-149.8	395.3	380.8	14.45	27.350	
2,700.0	2,655.8	2,687.6	2,617.9	9.5	8.7	-141.18	-227.6	-169.5	418.7	403.2	15.52	26.977	
2,800.0	2,753.9	2,784.6	2,708.3	9.9	9.4	-138.14	-256.8	-189.4	443.9	427.3	16.58	26.769	
2,900.0	2,851.9	2,886.2	2,803.2	10.3	10.0	-135.35	-285.6	-211.2	468.2	450.6	17.65	26.536	
3,000.0	2,949.9	2,985.9	2,896.4	10.7	10.6	-132.86	-313.5	-233.1	493.0	474.3	18.67	26.409	SF

Company:	EnCana Oil & Gas (USA) Inc	**Local Co-ordinate Reference:**	Well HMU Federal 26-1B
Project:	Mamm Creek	**TVD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Reference Site:	(D25W)	**MD Reference:**	WELL @ 7250.0ft (Original Well Elev)
Site Error:	0.0ft	**North Reference:**	True
Reference Well:	HMU Federal 26-1B	**Survey Calculation Method:**	Minimum Curvature
Well Error:	0.0ft	**Output errors are at**	2.00 sigma
Reference Wellbore	DD	**Database:**	EDM 5000.1 US Multi Users DB
Reference Design:	Plan #2	**Offset TVD Reference:**	Offset Datum

Reference Depths are relative to WELL @ 7250.0ft (Original Well Elev)
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000 °

Coordinates are relative to: HMU Federal 26-1B
Coordinate System is US State Plane 1983, Colorado Central Zone
Grid Convergence at Surface is: -1.41°