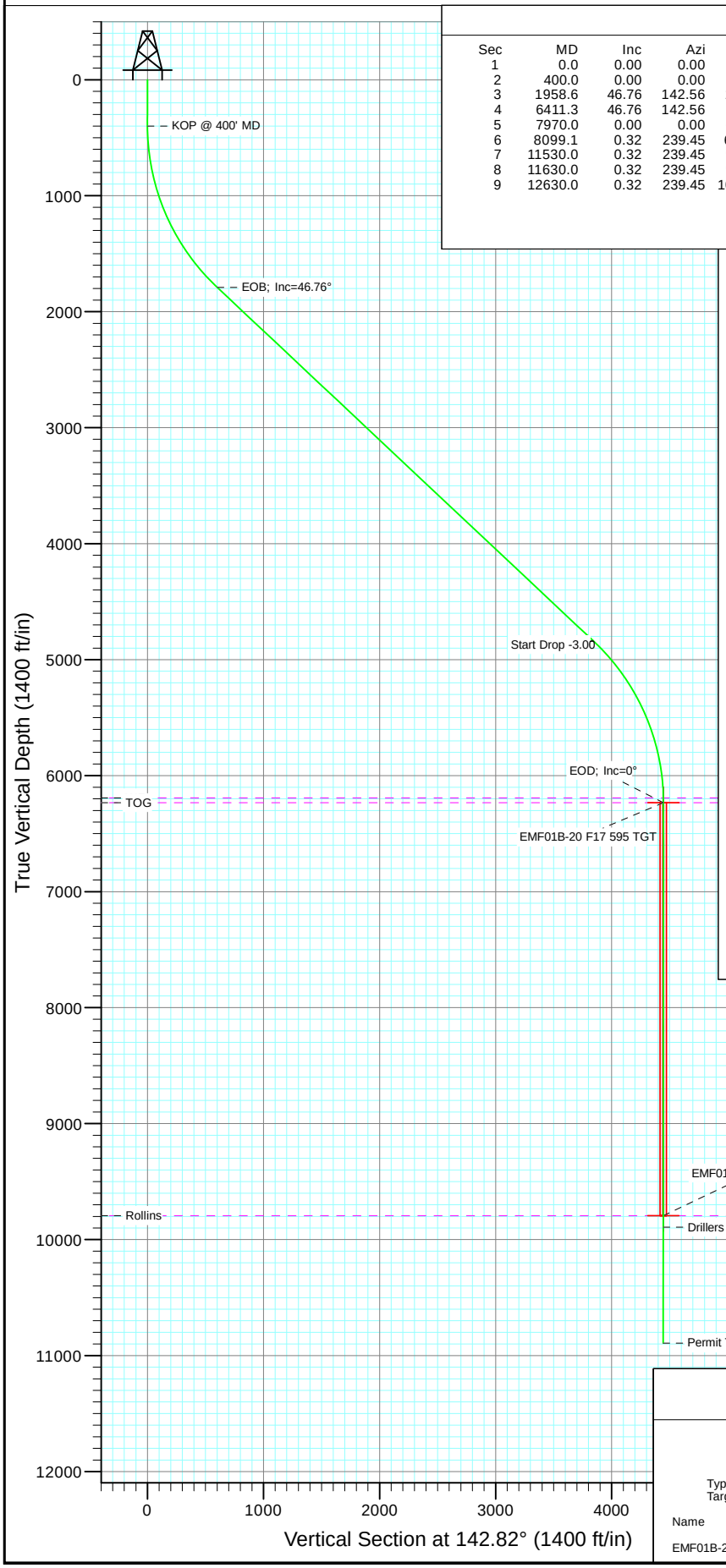
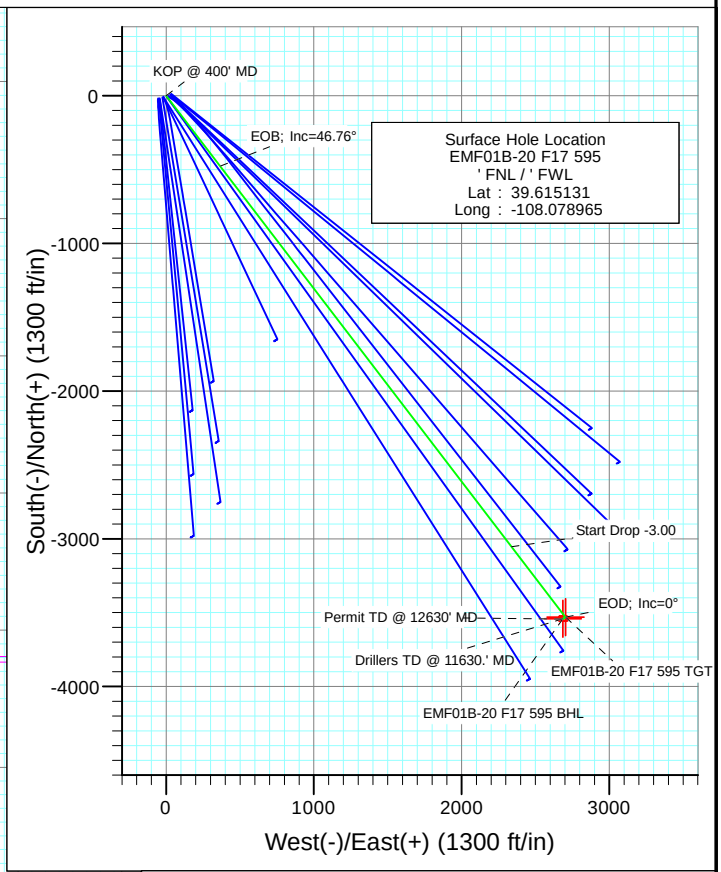
Project: North Piceance
Site: F17 595 Pad
Well: EMF01B-20 F17 595
Wellbore: DD
Design: Plan #4

CATHEDRAL

SECTION DETAILS

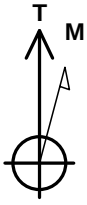
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.0	
3	1958.6	46.76	142.56	1791.3	-477.6	365.6	3.00	142.56	601.5	
4	6411.3	46.76	142.56	4841.7	-3053.2	2337.4	0.00	0.00	3845.1	
5	7970.0	0.00	0.00	6233.0	-3530.8	2703.0	3.00	180.00	4446.6	EMF01B-20 F17 595 TGT
6	8099.1	0.32	239.45	6362.1	-3531.0	2702.7	0.25	239.45	4446.5	
7	11530.0	0.32	239.45	9793.0	-3540.8	2686.0	0.00	0.00	4444.3	EMF01B-20 F17 595 BHL
8	11630.0	0.32	239.45	9893.0	-3541.1	2685.6	0.00	0.00	4444.3	
9	12630.0	0.32	239.45	10893.0	-3543.9	2680.7	0.00	0.00	4443.6	





FORMATION TOP DETAILS

TVDPath	MDPath	Formation
6193.0	7930.0	WF
6233.0	7970.0	TOG
9793.0	11530.0	Rollins



Azimuths to True North
Magnetic North: 10.48°

Magnetic Field
Strength: 52411.0snT
Dip Angle: 65.85°
Date: 9/2/2010
Model: IGRF200510

Plan #4
EMF01B-20 F17 595
105XXX; LR

KBE2 @ 6327.0ft
North American Datum 1983
Well EMF01B-20 F17 595, True North

Type	Target	Azimuth	Origin Type	N/S	E/W	From TVD
Target	EMF01B-20 F17 595 BHL	142.82	Slot	0.0	0.0	0.0

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
	6233.0	-3530.8	2703.0	39.605437	-108.069372
EMF01B-20 F17 595 BHL	9793.0	-3540.8	2686.0	39.605410	-108.069432

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well EMF01B-20 F17 595
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE2 @ 6327.0ft
Project:	North Piceance	**MD Reference:**	KBE2 @ 6327.0ft
Site:	F17 595 Pad	**North Reference:**	True
Well:	EMF01B-20 F17 595	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #4		

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

Site	F17 595 Pad				
Site Position:		**Northing:**	1,659,259.22 ft	**Latitude:**	39° 36' 54.52 N
From:	Lat/Long	**Easting:**	2,273,585.37 ft	**Longitude:**	108° 4' 43.81 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	-1.63 °

Well	EMF01B-20 F17 595					
Well Position	**+N/-S**	0.0 ft	**Northing:**	1,659,255.19 ft	**Latitude:**	39° 36' 54.47 N
	+E/-W	0.0 ft	**Easting:**	2,273,548.73 ft	**Longitude:**	108° 4' 44.28 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	6,305.0 ft

Wellbore	DD			
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	9/2/2010	10.48	65.85	52,411

Design	Plan #4			
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	142.82

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	
400.0	0.00	0.00	400.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,958.6	46.76	142.56	1,791.3	-477.6	365.6	3.00	3.00	0.00	142.56	
6,411.3	46.76	142.56	4,841.7	-3,053.2	2,337.4	0.00	0.00	0.00	0.00	
7,970.0	0.00	0.00	6,233.0	-3,530.8	2,703.0	3.00	-3.00	0.00	180.00	EMF01B-20 F17 595
8,099.1	0.32	239.45	6,362.1	-3,531.0	2,702.7	0.25	0.25	-93.36	239.45	
11,530.0	0.32	239.45	9,793.0	-3,540.8	2,686.0	0.00	0.00	0.00	0.00	EMF01B-20 F17 595
11,630.0	0.32	239.45	9,893.0	-3,541.1	2,685.6	0.00	0.00	0.00	0.00	
12,630.0	0.32	239.45	10,893.0	-3,543.9	2,680.7	0.00	0.00	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well EMF01B-20 F17 595
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE2 @ 6327.0ft
Project:	North Piceance	**MD Reference:**	KBE2 @ 6327.0ft
Site:	F17 595 Pad	**North Reference:**	True
Well:	EMF01B-20 F17 595	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #4		

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	KOP @ 400' MD
500.0	3.00	142.56	500.0	-2.1	1.6	2.6	3.00	3.00	
600.0	6.00	142.56	599.6	-8.3	6.4	10.5	3.00	3.00	
700.0	9.00	142.56	698.8	-18.7	14.3	23.5	3.00	3.00	
800.0	12.00	142.56	797.1	-33.1	25.4	41.7	3.00	3.00	
900.0	15.00	142.56	894.3	-51.7	39.6	65.1	3.00	3.00	
1,000.0	18.00	142.56	990.2	-74.2	56.8	93.5	3.00	3.00	
1,100.0	21.00	142.56	1,084.4	-100.7	77.1	126.9	3.00	3.00	
1,200.0	24.00	142.56	1,176.8	-131.1	100.4	165.1	3.00	3.00	
1,300.0	27.00	142.56	1,267.1	-165.3	126.5	208.2	3.00	3.00	
1,400.0	30.00	142.56	1,354.9	-203.2	155.5	255.9	3.00	3.00	
1,500.0	33.00	142.56	1,440.2	-244.7	187.3	308.1	3.00	3.00	
1,600.0	36.00	142.56	1,522.6	-289.6	221.7	364.7	3.00	3.00	
1,700.0	39.00	142.56	1,601.9	-338.0	258.7	425.6	3.00	3.00	
1,800.0	42.00	142.56	1,677.9	-389.5	298.2	490.6	3.00	3.00	
1,900.0	45.00	142.56	1,750.5	-444.2	340.0	559.4	3.00	3.00	
1,958.6	46.76	142.56	1,791.3	-477.6	365.6	601.5	3.00	3.00	EOB; Inc=46.76°
2,000.0	46.76	142.56	1,819.6	-501.5	383.9	631.6	0.00	0.00	
2,100.0	46.76	142.56	1,888.1	-559.4	428.2	704.5	0.00	0.00	
2,200.0	46.76	142.56	1,956.6	-617.2	472.5	777.3	0.00	0.00	
2,300.0	46.76	142.56	2,025.2	-675.0	516.8	850.1	0.00	0.00	
2,400.0	46.76	142.56	2,093.7	-732.9	561.1	923.0	0.00	0.00	
2,500.0	46.76	142.56	2,162.2	-790.7	605.4	995.8	0.00	0.00	
2,600.0	46.76	142.56	2,230.7	-848.6	649.6	1,068.7	0.00	0.00	
2,700.0	46.76	142.56	2,299.2	-906.4	693.9	1,141.5	0.00	0.00	
2,800.0	46.76	142.56	2,367.7	-964.3	738.2	1,214.4	0.00	0.00	
2,900.0	46.76	142.56	2,436.2	-1,022.1	782.5	1,287.2	0.00	0.00	
3,000.0	46.76	142.56	2,504.7	-1,080.0	826.8	1,360.1	0.00	0.00	
3,100.0	46.76	142.56	2,573.2	-1,137.8	871.0	1,432.9	0.00	0.00	
3,200.0	46.76	142.56	2,641.7	-1,195.6	915.3	1,505.8	0.00	0.00	
3,300.0	46.76	142.56	2,710.2	-1,253.5	959.6	1,578.6	0.00	0.00	
3,400.0	46.76	142.56	2,778.7	-1,311.3	1,003.9	1,651.5	0.00	0.00	
3,500.0	46.76	142.56	2,847.2	-1,369.2	1,048.2	1,724.3	0.00	0.00	
3,600.0	46.76	142.56	2,915.7	-1,427.0	1,092.5	1,797.2	0.00	0.00	
3,700.0	46.76	142.56	2,984.3	-1,484.9	1,136.7	1,870.0	0.00	0.00	
3,800.0	46.76	142.56	3,052.8	-1,542.7	1,181.0	1,942.8	0.00	0.00	
3,900.0	46.76	142.56	3,121.3	-1,600.5	1,225.3	2,015.7	0.00	0.00	
4,000.0	46.76	142.56	3,189.8	-1,658.4	1,269.6	2,088.5	0.00	0.00	
4,100.0	46.76	142.56	3,258.3	-1,716.2	1,313.9	2,161.4	0.00	0.00	
4,200.0	46.76	142.56	3,326.8	-1,774.1	1,358.2	2,234.2	0.00	0.00	
4,300.0	46.76	142.56	3,395.3	-1,831.9	1,402.4	2,307.1	0.00	0.00	
4,400.0	46.76	142.56	3,463.8	-1,889.8	1,446.7	2,379.9	0.00	0.00	
4,500.0	46.76	142.56	3,532.3	-1,947.6	1,491.0	2,452.8	0.00	0.00	
4,600.0	46.76	142.56	3,600.8	-2,005.4	1,535.3	2,525.6	0.00	0.00	
4,700.0	46.76	142.56	3,669.3	-2,063.3	1,579.6	2,598.5	0.00	0.00	
4,800.0	46.76	142.56	3,737.8	-2,121.1	1,623.8	2,671.3	0.00	0.00	
4,900.0	46.76	142.56	3,806.3	-2,179.0	1,668.1	2,744.2	0.00	0.00	
5,000.0	46.76	142.56	3,874.8	-2,236.8	1,712.4	2,817.0	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well EMF01B-20 F17 595
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE2 @ 6327.0ft
Project:	North Piceance	**MD Reference:**	KBE2 @ 6327.0ft
Site:	F17 595 Pad	**North Reference:**	True
Well:	EMF01B-20 F17 595	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #4		

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
5,100.0	46.76	142.56	3,943.4	-2,294.7	1,756.7	2,889.9	0.00	0.00	
5,200.0	46.76	142.56	4,011.9	-2,352.5	1,801.0	2,962.7	0.00	0.00	
5,300.0	46.76	142.56	4,080.4	-2,410.3	1,845.3	3,035.6	0.00	0.00	
5,400.0	46.76	142.56	4,148.9	-2,468.2	1,889.5	3,108.4	0.00	0.00	
5,500.0	46.76	142.56	4,217.4	-2,526.0	1,933.8	3,181.2	0.00	0.00	
5,600.0	46.76	142.56	4,285.9	-2,583.9	1,978.1	3,254.1	0.00	0.00	
5,700.0	46.76	142.56	4,354.4	-2,641.7	2,022.4	3,326.9	0.00	0.00	
5,800.0	46.76	142.56	4,422.9	-2,699.6	2,066.7	3,399.8	0.00	0.00	
5,900.0	46.76	142.56	4,491.4	-2,757.4	2,110.9	3,472.6	0.00	0.00	
6,000.0	46.76	142.56	4,559.9	-2,815.3	2,155.2	3,545.5	0.00	0.00	
6,100.0	46.76	142.56	4,628.4	-2,873.1	2,199.5	3,618.3	0.00	0.00	
6,200.0	46.76	142.56	4,696.9	-2,930.9	2,243.8	3,691.2	0.00	0.00	
6,300.0	46.76	142.56	4,765.4	-2,988.8	2,288.1	3,764.0	0.00	0.00	
6,400.0	46.76	142.56	4,833.9	-3,046.6	2,332.4	3,836.9	0.00	0.00	
6,411.3	46.76	142.56	4,841.7	-3,053.2	2,337.4	3,845.1	0.00	0.00	Start Drop -3.00
6,500.0	44.10	142.56	4,903.9	-3,103.3	2,375.8	3,908.3	3.00	-3.00	
6,600.0	41.10	142.56	4,977.5	-3,157.1	2,416.9	3,976.0	3.00	-3.00	
6,700.0	38.10	142.56	5,054.6	-3,207.7	2,455.7	4,039.7	3.00	-3.00	
6,800.0	35.10	142.56	5,134.8	-3,255.0	2,491.9	4,099.3	3.00	-3.00	
6,900.0	32.10	142.56	5,218.1	-3,298.9	2,525.5	4,154.6	3.00	-3.00	
7,000.0	29.10	142.56	5,304.2	-3,339.4	2,556.5	4,205.5	3.00	-3.00	
7,100.0	26.10	142.56	5,392.8	-3,376.1	2,584.6	4,251.9	3.00	-3.00	
7,200.0	23.10	142.56	5,483.7	-3,409.2	2,609.9	4,293.5	3.00	-3.00	
7,300.0	20.10	142.56	5,576.7	-3,438.4	2,632.3	4,330.3	3.00	-3.00	
7,400.0	17.10	142.56	5,671.5	-3,463.7	2,651.7	4,362.2	3.00	-3.00	
7,500.0	14.10	142.56	5,767.8	-3,485.1	2,668.0	4,389.1	3.00	-3.00	
7,600.0	11.10	142.56	5,865.3	-3,502.4	2,681.3	4,410.9	3.00	-3.00	
7,700.0	8.10	142.56	5,963.9	-3,515.6	2,691.4	4,427.5	3.00	-3.00	
7,800.0	5.10	142.56	6,063.3	-3,524.8	2,698.4	4,439.0	3.00	-3.00	
7,900.0	2.10	142.56	6,163.1	-3,529.8	2,702.2	4,445.3	3.00	-3.00	
7,930.0	1.20	142.56	6,193.0	-3,530.4	2,702.7	4,446.2	3.00	-3.00	WF
7,970.0	0.00	0.00	6,233.0	-3,530.8	2,703.0	4,446.6	3.00	-3.00	EOD; Inc=0° - TOG - EMF01B-20 F17 595 TGT
8,000.0	0.08	239.45	6,263.0	-3,530.8	2,703.0	4,446.6	0.25	0.25	
8,099.1	0.32	239.45	6,362.1	-3,531.0	2,702.7	4,446.5	0.25	0.25	
8,100.0	0.32	239.45	6,363.0	-3,531.0	2,702.7	4,446.5	0.00	0.00	
8,200.0	0.32	239.45	6,463.0	-3,531.2	2,702.2	4,446.5	0.00	0.00	
8,300.0	0.32	239.45	6,563.0	-3,531.5	2,701.7	4,446.4	0.00	0.00	
8,400.0	0.32	239.45	6,663.0	-3,531.8	2,701.2	4,446.4	0.00	0.00	
8,500.0	0.32	239.45	6,763.0	-3,532.1	2,700.7	4,446.3	0.00	0.00	
8,600.0	0.32	239.45	6,863.0	-3,532.4	2,700.3	4,446.2	0.00	0.00	
8,700.0	0.32	239.45	6,963.0	-3,532.7	2,699.8	4,446.2	0.00	0.00	
8,800.0	0.32	239.45	7,063.0	-3,533.0	2,699.3	4,446.1	0.00	0.00	
8,900.0	0.32	239.45	7,163.0	-3,533.2	2,698.8	4,446.0	0.00	0.00	
9,000.0	0.32	239.45	7,263.0	-3,533.5	2,698.3	4,446.0	0.00	0.00	
9,100.0	0.32	239.45	7,363.0	-3,533.8	2,697.8	4,445.9	0.00	0.00	
9,200.0	0.32	239.45	7,463.0	-3,534.1	2,697.3	4,445.8	0.00	0.00	
9,300.0	0.32	239.45	7,563.0	-3,534.4	2,696.9	4,445.8	0.00	0.00	
9,400.0	0.32	239.45	7,663.0	-3,534.7	2,696.4	4,445.7	0.00	0.00	
9,500.0	0.32	239.45	7,763.0	-3,535.0	2,695.9	4,445.6	0.00	0.00	
9,600.0	0.32	239.45	7,863.0	-3,535.3	2,695.4	4,445.6	0.00	0.00	
9,700.0	0.32	239.45	7,963.0	-3,535.5	2,694.9	4,445.5	0.00	0.00	
9,800.0	0.32	239.45	8,063.0	-3,535.8	2,694.4	4,445.4	0.00	0.00	

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well EMF01B-20 F17 595
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE2 @ 6327.0ft
Project:	North Piceance	**MD Reference:**	KBE2 @ 6327.0ft
Site:	F17 595 Pad	**North Reference:**	True
Well:	EMF01B-20 F17 595	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #4		

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
9,900.0	0.32	239.45	8,163.0	-3,536.1	2,693.9	4,445.4	0.00	0.00	
10,000.0	0.32	239.45	8,263.0	-3,536.4	2,693.5	4,445.3	0.00	0.00	
10,100.0	0.32	239.45	8,363.0	-3,536.7	2,693.0	4,445.2	0.00	0.00	
10,200.0	0.32	239.45	8,463.0	-3,537.0	2,692.5	4,445.2	0.00	0.00	
10,300.0	0.32	239.45	8,563.0	-3,537.3	2,692.0	4,445.1	0.00	0.00	
10,400.0	0.32	239.45	8,663.0	-3,537.5	2,691.5	4,445.1	0.00	0.00	
10,500.0	0.32	239.45	8,763.0	-3,537.8	2,691.0	4,445.0	0.00	0.00	
10,600.0	0.32	239.45	8,863.0	-3,538.1	2,690.6	4,444.9	0.00	0.00	
10,700.0	0.32	239.45	8,963.0	-3,538.4	2,690.1	4,444.9	0.00	0.00	
10,800.0	0.32	239.45	9,063.0	-3,538.7	2,689.6	4,444.8	0.00	0.00	
10,900.0	0.32	239.45	9,163.0	-3,539.0	2,689.1	4,444.7	0.00	0.00	
11,000.0	0.32	239.45	9,263.0	-3,539.3	2,688.6	4,444.7	0.00	0.00	
11,100.0	0.32	239.45	9,363.0	-3,539.5	2,688.1	4,444.6	0.00	0.00	
11,200.0	0.32	239.45	9,463.0	-3,539.8	2,687.6	4,444.5	0.00	0.00	
11,300.0	0.32	239.45	9,563.0	-3,540.1	2,687.2	4,444.5	0.00	0.00	
11,400.0	0.32	239.45	9,663.0	-3,540.4	2,686.7	4,444.4	0.00	0.00	
11,500.0	0.32	239.45	9,763.0	-3,540.7	2,686.2	4,444.3	0.00	0.00	
11,530.0	0.32	239.45	9,793.0	-3,540.8	2,686.0	4,444.3	0.00	0.00	Rollins - EMF01B-20 F17 595 BHL
11,600.0	0.32	239.45	9,863.0	-3,541.0	2,685.7	4,444.3	0.00	0.00	
11,630.0	0.32	239.45	9,893.0	-3,541.1	2,685.6	4,444.3	0.00	0.00	Drillers TD @ 11630.' MD
11,700.0	0.32	239.45	9,963.0	-3,541.3	2,685.2	4,444.2	0.00	0.00	
11,800.0	0.32	239.45	10,063.0	-3,541.6	2,684.7	4,444.1	0.00	0.00	
11,900.0	0.32	239.45	10,163.0	-3,541.8	2,684.2	4,444.1	0.00	0.00	
12,000.0	0.32	239.45	10,263.0	-3,542.1	2,683.8	4,444.0	0.00	0.00	
12,100.0	0.32	239.45	10,363.0	-3,542.4	2,683.3	4,443.9	0.00	0.00	
12,200.0	0.32	239.45	10,463.0	-3,542.7	2,682.8	4,443.9	0.00	0.00	
12,300.0	0.32	239.45	10,563.0	-3,543.0	2,682.3	4,443.8	0.00	0.00	
12,400.0	0.32	239.45	10,663.0	-3,543.3	2,681.8	4,443.7	0.00	0.00	
12,500.0	0.32	239.45	10,763.0	-3,543.6	2,681.3	4,443.7	0.00	0.00	
12,600.0	0.32	239.45	10,863.0	-3,543.8	2,680.8	4,443.6	0.00	0.00	
12,630.0	0.32	239.45	10,893.0	-3,543.9	2,680.7	4,443.6	0.00	0.00	Permit TD @ 12630' 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
EMF01B-20 F17 595 BH - plan hits target center - Rectangle (sides W30.0 H50.0 D0.0)	0.00	0.00	9,793.0	-3,540.8	2,686.0	1,655,639.59	2,276,133.18	39° 36' 19.47 N	108° 4' 9.96 W
EMF01B-20 F17 595 TC - plan hits target center - Point	0.00	0.00	6,233.0	-3,530.8	2,703.0	1,655,649.12	2,276,150.42	39° 36' 19.57 N	108° 4' 9.74 W

Database:	USA EDM 5000 Multi Users DB	**Local Co-ordinate Reference:**	Well EMF01B-20 F17 595
Company:	EnCana Oil & Gas (USA) Inc	**TVD Reference:**	KBE2 @ 6327.0ft
Project:	North Piceance	**MD Reference:**	KBE2 @ 6327.0ft
Site:	F17 595 Pad	**North Reference:**	True
Well:	EMF01B-20 F17 595	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	DD		
Design:	Plan #4		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
7,930.0	6,193.0	WF		0.00	
7,970.0	6,233.0	TOG		0.00	
11,530.0	9,793.0	Rollins		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
400.0	400.0	0.0	0.0	KOP @ 400' MD
1,958.6	1,791.3	-477.6	365.6	EOB; Inc=46.76°
6,411.3	4,841.7	-3,053.2	2,337.4	Start Drop -3.00
7,970.0	6,233.0	-3,530.8	2,703.0	EOD; Inc=0°
11,630.0	9,893.0	-3,531.0	2,702.7	Drillers TD @ 11630.' MD
12,630.0	10,893.0	-3,540.8	2,686.0	Permit TD @ 12630' MD