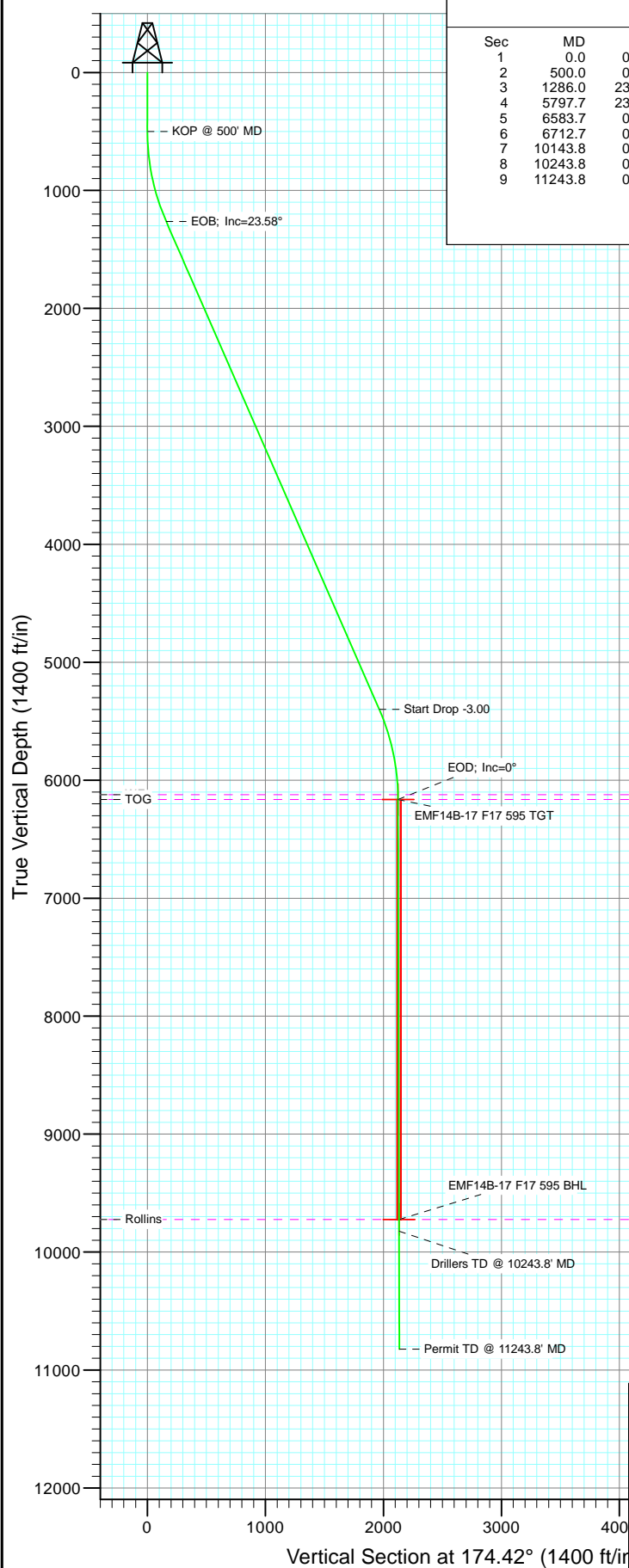
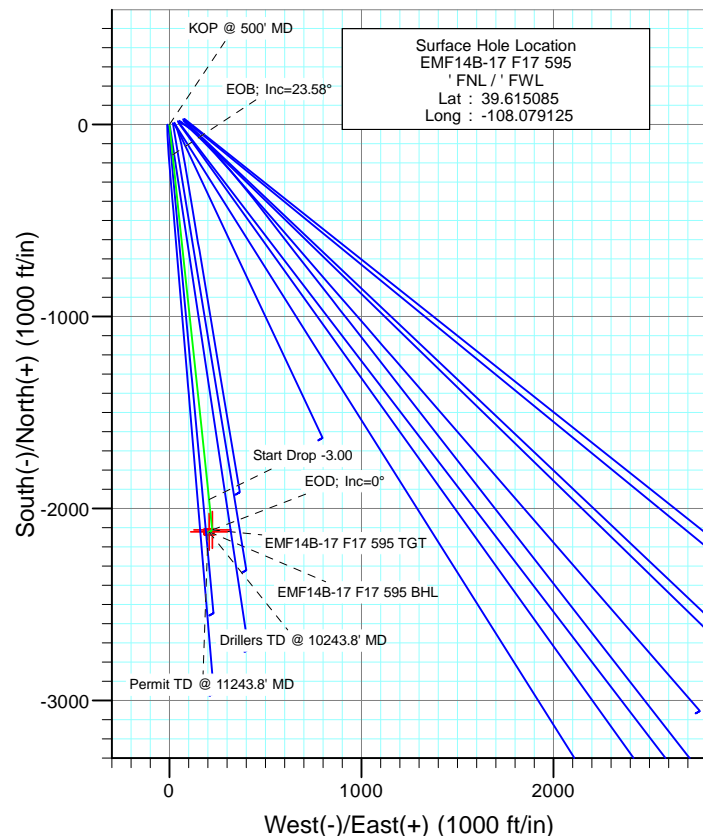




Project: North Piceance
Site: F17 595 Pad
Well: EMF14B-17 F17 595
Wellbore: DD
Design: Plan #4



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	500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.0	
3	1286.0	23.58	173.94	1264.0	-158.6	16.8	3.00	173.94	159.5	
4	5797.7	23.58	173.94	5399.0	-1953.3	207.3	0.00	0.00	1964.2	
5	6583.7	0.00	0.00	6163.0	-2111.9	224.1	3.00	180.00	2123.7	EMF14B-17 F17 595 TGT
6	6712.7	0.32	239.52	6292.0	-2112.1	223.8	0.25	239.52	2123.8	
7	10143.8	0.32	239.52	9723.0	-2121.9	207.1	0.00	0.00	2132.0	EMF14B-17 F17 595 BHL
8	10243.8	0.32	239.52	9823.0	-2122.2	206.7	0.00	0.00	2132.2	
9	11243.8	0.32	239.52	10823.0	-2125.0	201.8	0.00	0.00	2134.6	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
6123.0	6543.7	WF
6163.0	6583.7	TOG
9723.0	10143.8	Rollins



Azimuths to True North
Magnetic North: 10.47°

Magnetic Field
Strength: 52350.0snT
Dip Angle: 65.84°
Date: 12/21/2010
Model: IGRF2010

Plan #4 EMF14B-17 F17 595 KBE @ 6327.0ft North American Datum 1983 Well EMF14B-17 F17 595, True North						
Type	Target	Azimuth	Origin	Type	N/S	E/W
Target	EMF14B-17 F17 595 BHL	174.42	Slot		0.0	0.0
						From
						TVD
Name	Target	TVD	+N/-S	+E/-W	Latitude	Longitude
EMF14B-17 F17 595 TGT		6163.0	-2111.9	224.1	39.609287	-108.078330
EMF14B-17 F17 595 BHL		9723.0	-2121.9	207.1	39.609260	-108.078390

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14B-17 F17 595
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6327.0ft
Project:	North Piceance	MD Reference:	KBE @ 6327.0ft
Site:	F17 595 Pad	North Reference:	True
Well:	EMF14B-17 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	EMF14B-17 F17 595					
Well Position	+N/-S	0.0 ft	Northing:	1,659,239.80 ft	Latitude:	39° 36' 54.31 N
	+E/-W	0.0 ft	Easting:	2,273,503.28 ft	Longitude:	108° 4' 44.85 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)
	IGRF2010	12/21/2010	10.47	65.84	52,350

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	174.42

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	
500.0	0.00	0.00	500.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,286.0	23.58	173.94	1,264.0	-158.6	16.8	3.00	3.00	0.00	173.94	
5,797.7	23.58	173.94	5,399.0	-1,953.3	207.3	0.00	0.00	0.00	0.00	
6,583.7	0.00	0.00	6,163.0	-2,111.9	224.1	3.00	-3.00	0.00	180.00	EMF14B-17 F17 595
6,712.7	0.32	239.52	6,292.0	-2,112.1	223.8	0.25	0.25	-93.38	239.52	
10,143.8	0.32	239.52	9,723.0	-2,121.9	207.1	0.00	0.00	0.00	0.00	EMF14B-17 F17 595
10,243.8	0.32	239.52	9,823.0	-2,122.2	206.7	0.00	0.00	0.00	0.00	
11,243.8	0.32	239.52	10,823.0	-2,125.0	201.8	0.00	0.00	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14B-17 F17 595
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6327.0ft
Project:	North Piceance	MD Reference:	KBE @ 6327.0ft
Site:	F17 595 Pad	North Reference:	True
Well:	EMF14B-17 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	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	KOP @ 500' MD
600.0	3.00	173.94	600.0	-2.6	0.3	2.6	3.00	3.00	
700.0	6.00	173.94	699.6	-10.4	1.1	10.5	3.00	3.00	
800.0	9.00	173.94	798.8	-23.4	2.5	23.5	3.00	3.00	
900.0	12.00	173.94	897.1	-41.5	4.4	41.7	3.00	3.00	
1,000.0	15.00	173.94	994.3	-64.7	6.9	65.1	3.00	3.00	
1,100.0	18.00	173.94	1,090.2	-93.0	9.9	93.5	3.00	3.00	
1,200.0	21.00	173.94	1,184.4	-126.1	13.4	126.8	3.00	3.00	
1,286.0	23.58	173.94	1,264.0	-158.6	16.8	159.5	3.00	3.00	EOB; Inc=23.58°
1,300.0	23.58	173.94	1,276.8	-164.1	17.4	165.1	0.00	0.00	
1,400.0	23.58	173.94	1,368.5	-203.9	21.6	205.1	0.00	0.00	
1,500.0	23.58	173.94	1,460.1	-243.7	25.9	245.1	0.00	0.00	
1,600.0	23.58	173.94	1,551.8	-283.5	30.1	285.1	0.00	0.00	
1,700.0	23.58	173.94	1,643.4	-323.3	34.3	325.1	0.00	0.00	
1,800.0	23.58	173.94	1,735.1	-363.0	38.5	365.1	0.00	0.00	
1,900.0	23.58	173.94	1,826.7	-402.8	42.7	405.1	0.00	0.00	
2,000.0	23.58	173.94	1,918.4	-442.6	47.0	445.1	0.00	0.00	
2,100.0	23.58	173.94	2,010.0	-482.4	51.2	485.1	0.00	0.00	
2,200.0	23.58	173.94	2,101.7	-522.2	55.4	525.1	0.00	0.00	
2,300.0	23.58	173.94	2,193.3	-561.9	59.6	565.1	0.00	0.00	
2,400.0	23.58	173.94	2,285.0	-601.7	63.9	605.1	0.00	0.00	
2,500.0	23.58	173.94	2,376.6	-641.5	68.1	645.1	0.00	0.00	
2,600.0	23.58	173.94	2,468.3	-681.3	72.3	685.1	0.00	0.00	
2,700.0	23.58	173.94	2,559.9	-721.1	76.5	725.1	0.00	0.00	
2,800.0	23.58	173.94	2,651.6	-760.8	80.7	765.1	0.00	0.00	
2,900.0	23.58	173.94	2,743.2	-800.6	85.0	805.1	0.00	0.00	
3,000.0	23.58	173.94	2,834.9	-840.4	89.2	845.1	0.00	0.00	
3,100.0	23.58	173.94	2,926.5	-880.2	93.4	885.1	0.00	0.00	
3,200.0	23.58	173.94	3,018.2	-920.0	97.6	925.1	0.00	0.00	
3,300.0	23.58	173.94	3,109.8	-959.7	101.8	965.1	0.00	0.00	
3,400.0	23.58	173.94	3,201.5	-999.5	106.1	1,005.1	0.00	0.00	
3,500.0	23.58	173.94	3,293.1	-1,039.3	110.3	1,045.1	0.00	0.00	
3,600.0	23.58	173.94	3,384.8	-1,079.1	114.5	1,085.1	0.00	0.00	
3,700.0	23.58	173.94	3,476.4	-1,118.9	118.7	1,125.1	0.00	0.00	
3,800.0	23.58	173.94	3,568.1	-1,158.6	122.9	1,165.1	0.00	0.00	
3,900.0	23.58	173.94	3,659.7	-1,198.4	127.2	1,205.1	0.00	0.00	
4,000.0	23.58	173.94	3,751.4	-1,238.2	131.4	1,245.1	0.00	0.00	
4,100.0	23.58	173.94	3,843.0	-1,278.0	135.6	1,285.1	0.00	0.00	
4,200.0	23.58	173.94	3,934.7	-1,317.7	139.8	1,325.1	0.00	0.00	
4,300.0	23.58	173.94	4,026.3	-1,357.5	144.1	1,365.1	0.00	0.00	
4,400.0	23.58	173.94	4,118.0	-1,397.3	148.3	1,405.1	0.00	0.00	
4,500.0	23.58	173.94	4,209.6	-1,437.1	152.5	1,445.1	0.00	0.00	
4,600.0	23.58	173.94	4,301.3	-1,476.9	156.7	1,485.1	0.00	0.00	
4,700.0	23.58	173.94	4,392.9	-1,516.6	160.9	1,525.1	0.00	0.00	
4,800.0	23.58	173.94	4,484.6	-1,556.4	165.2	1,565.1	0.00	0.00	
4,900.0	23.58	173.94	4,576.2	-1,596.2	169.4	1,605.1	0.00	0.00	
5,000.0	23.58	173.94	4,667.9	-1,636.0	173.6	1,645.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14B-17 F17 595
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6327.0ft
Project:	North Piceance	MD Reference:	KBE @ 6327.0ft
Site:	F17 595 Pad	North Reference:	True
Well:	EMF14B-17 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	23.58	173.94	4,759.5	-1,675.8	177.8	1,685.1	0.00	0.00	
5,200.0	23.58	173.94	4,851.2	-1,715.5	182.0	1,725.1	0.00	0.00	
5,300.0	23.58	173.94	4,942.8	-1,755.3	186.3	1,765.1	0.00	0.00	
5,400.0	23.58	173.94	5,034.5	-1,795.1	190.5	1,805.1	0.00	0.00	
5,500.0	23.58	173.94	5,126.1	-1,834.9	194.7	1,845.1	0.00	0.00	
5,600.0	23.58	173.94	5,217.8	-1,874.7	198.9	1,885.1	0.00	0.00	
5,700.0	23.58	173.94	5,309.4	-1,914.4	203.1	1,925.1	0.00	0.00	
5,797.7	23.58	173.94	5,399.0	-1,953.3	207.3	1,964.2	0.00	0.00	Start Drop -3.00
5,800.0	23.51	173.94	5,401.1	-1,954.2	207.4	1,965.1	3.00	-3.00	
5,900.0	20.51	173.94	5,493.8	-1,991.5	211.3	2,002.6	3.00	-3.00	
6,000.0	17.51	173.94	5,588.3	-2,023.9	214.8	2,035.2	3.00	-3.00	
6,100.0	14.51	173.94	5,684.4	-2,051.3	217.7	2,062.7	3.00	-3.00	
6,200.0	11.51	173.94	5,781.9	-2,073.7	220.0	2,085.3	3.00	-3.00	
6,300.0	8.51	173.94	5,880.3	-2,091.0	221.9	2,102.6	3.00	-3.00	
6,400.0	5.51	173.94	5,979.6	-2,103.1	223.2	2,114.8	3.00	-3.00	
6,500.0	2.51	173.94	6,079.3	-2,110.1	223.9	2,121.8	3.00	-3.00	
6,543.7	1.20	173.94	6,123.0	-2,111.5	224.1	2,123.2	3.00	-3.00	WF
6,583.7	0.00	0.00	6,163.0	-2,111.9	224.1	2,123.7	3.00	-3.00	EOD; Inc=0° - TOG - EMF14B-17 F17 595 TGT
6,600.0	0.04	239.52	6,179.3	-2,111.9	224.1	2,123.7	0.25	0.25	
6,700.0	0.29	239.52	6,279.3	-2,112.0	223.8	2,123.8	0.25	0.25	
6,712.7	0.32	239.52	6,292.0	-2,112.1	223.8	2,123.8	0.25	0.25	
6,800.0	0.32	239.52	6,379.3	-2,112.3	223.4	2,124.0	0.00	0.00	
6,900.0	0.32	239.52	6,479.3	-2,112.6	222.9	2,124.3	0.00	0.00	
7,000.0	0.32	239.52	6,579.3	-2,112.9	222.4	2,124.5	0.00	0.00	
7,100.0	0.32	239.52	6,679.3	-2,113.2	221.9	2,124.7	0.00	0.00	
7,200.0	0.32	239.52	6,779.3	-2,113.5	221.4	2,125.0	0.00	0.00	
7,300.0	0.32	239.52	6,879.3	-2,113.7	220.9	2,125.2	0.00	0.00	
7,400.0	0.32	239.52	6,979.3	-2,114.0	220.5	2,125.5	0.00	0.00	
7,500.0	0.32	239.52	7,079.3	-2,114.3	220.0	2,125.7	0.00	0.00	
7,600.0	0.32	239.52	7,179.3	-2,114.6	219.5	2,125.9	0.00	0.00	
7,700.0	0.32	239.52	7,279.3	-2,114.9	219.0	2,126.2	0.00	0.00	
7,800.0	0.32	239.52	7,379.3	-2,115.2	218.5	2,126.4	0.00	0.00	
7,900.0	0.32	239.52	7,479.3	-2,115.5	218.0	2,126.6	0.00	0.00	
8,000.0	0.32	239.52	7,579.3	-2,115.7	217.5	2,126.9	0.00	0.00	
8,100.0	0.32	239.52	7,679.3	-2,116.0	217.1	2,127.1	0.00	0.00	
8,200.0	0.32	239.52	7,779.3	-2,116.3	216.6	2,127.3	0.00	0.00	
8,300.0	0.32	239.52	7,879.3	-2,116.6	216.1	2,127.6	0.00	0.00	
8,400.0	0.32	239.52	7,979.3	-2,116.9	215.6	2,127.8	0.00	0.00	
8,500.0	0.32	239.52	8,079.3	-2,117.2	215.1	2,128.1	0.00	0.00	
8,600.0	0.32	239.52	8,179.3	-2,117.5	214.6	2,128.3	0.00	0.00	
8,700.0	0.32	239.52	8,279.3	-2,117.7	214.1	2,128.5	0.00	0.00	
8,800.0	0.32	239.52	8,379.3	-2,118.0	213.7	2,128.8	0.00	0.00	
8,900.0	0.32	239.52	8,479.3	-2,118.3	213.2	2,129.0	0.00	0.00	
9,000.0	0.32	239.52	8,579.2	-2,118.6	212.7	2,129.2	0.00	0.00	
9,100.0	0.32	239.52	8,679.2	-2,118.9	212.2	2,129.5	0.00	0.00	
9,200.0	0.32	239.52	8,779.2	-2,119.2	211.7	2,129.7	0.00	0.00	
9,300.0	0.32	239.52	8,879.2	-2,119.5	211.2	2,130.0	0.00	0.00	
9,400.0	0.32	239.52	8,979.2	-2,119.7	210.7	2,130.2	0.00	0.00	
9,500.0	0.32	239.52	9,079.2	-2,120.0	210.3	2,130.4	0.00	0.00	
9,600.0	0.32	239.52	9,179.2	-2,120.3	209.8	2,130.7	0.00	0.00	
9,700.0	0.32	239.52	9,279.2	-2,120.6	209.3	2,130.9	0.00	0.00	
9,800.0	0.32	239.52	9,379.2	-2,120.9	208.8	2,131.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14B-17 F17 595
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 6327.0ft
Project:	North Piceance	MD Reference:	KBE @ 6327.0ft
Site:	F17 595 Pad	North Reference:	True
Well:	EMF14B-17 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	239.52	9,479.2	-2,121.2	208.3	2,131.4	0.00	0.00	
10,000.0	0.32	239.52	9,579.2	-2,121.5	207.8	2,131.6	0.00	0.00	
10,100.0	0.32	239.52	9,679.2	-2,121.7	207.4	2,131.9	0.00	0.00	
10,143.8	0.32	239.52	9,723.0	-2,121.9	207.1	2,132.0	0.00	0.00	Rollins - EMF14B-17 F17 595 BHL
10,200.0	0.32	239.52	9,779.2	-2,122.0	206.9	2,132.1	0.00	0.00	
10,243.8	0.32	239.52	9,823.0	-2,122.2	206.7	2,132.2	0.00	0.00	Drillers TD @ 10243.8' MD
10,300.0	0.32	239.52	9,879.2	-2,122.3	206.4	2,132.3	0.00	0.00	
10,400.0	0.32	239.52	9,979.2	-2,122.6	205.9	2,132.6	0.00	0.00	
10,500.0	0.32	239.52	10,079.2	-2,122.9	205.4	2,132.8	0.00	0.00	
10,600.0	0.32	239.52	10,179.2	-2,123.2	204.9	2,133.0	0.00	0.00	
10,700.0	0.32	239.52	10,279.2	-2,123.5	204.4	2,133.3	0.00	0.00	
10,800.0	0.32	239.52	10,379.2	-2,123.7	204.0	2,133.5	0.00	0.00	
10,900.0	0.32	239.52	10,479.2	-2,124.0	203.5	2,133.8	0.00	0.00	
11,000.0	0.32	239.52	10,579.2	-2,124.3	203.0	2,134.0	0.00	0.00	
11,100.0	0.32	239.52	10,679.2	-2,124.6	202.5	2,134.2	0.00	0.00	
11,200.0	0.32	239.52	10,779.2	-2,124.9	202.0	2,134.5	0.00	0.00	
11,243.8	0.32	239.52	10,823.0	-2,125.0	201.8	2,134.6	0.00	0.00	

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
EMF14B-17 F17 595 TC	0.00	0.00	6,163.0	-2,111.9	224.1	1,657,122.41	2,273,667.34	39° 36' 33.43 N	108° 4' 41.99 W
- plan hits target center									
- Point									
EMF14B-17 F17 595 BH	0.00	0.00	9,723.0	-2,121.9	207.1	1,657,112.91	2,273,650.11	39° 36' 33.34 N	108° 4' 42.20 W
- plan hits target center									
- Rectangle (sides W30.0 H50.0 D0.0)									

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
6,543.7	6,123.0	WF		0.00	
6,583.7	6,163.0	TOG		0.00	
10,143.8	9,723.0	Rollins		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	0.0	0.0	KOP @ 500' MD
1,286.0	1,264.0	-158.6	16.8	EOB; Inc=23.58°
5,797.7	5,399.0	-1,953.3	207.3	Start Drop -3.00
6,583.7	6,163.0	-2,111.9	224.1	EOD; Inc=0°
10,243.8	9,823.0	-2,112.1	223.8	Drillers TD @ 10243.8' MD
11,243.8	10,823.0	-2,121.9	207.1	Permit TD @ 11243.8' MD