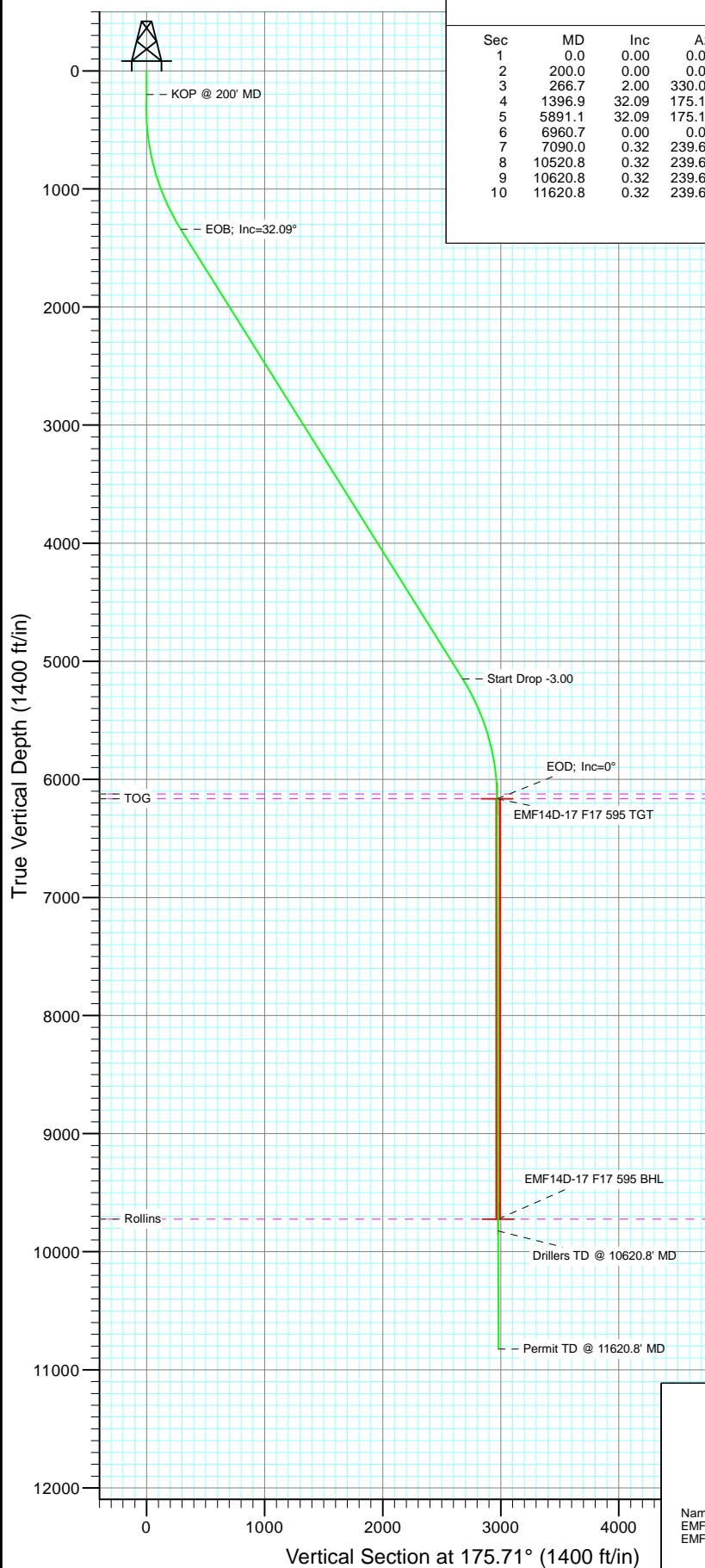
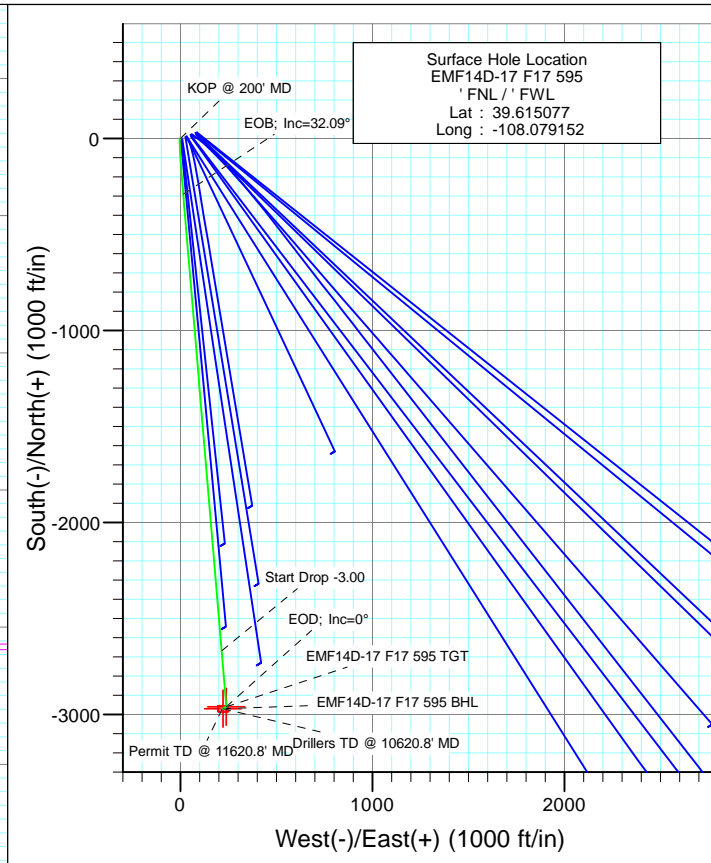




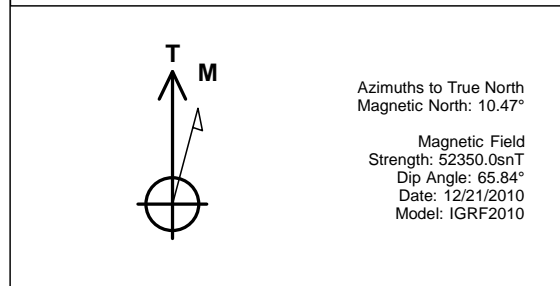
Project: North Piceance
Site: F17 595 Pad
Well: EMF14D-17 F17 595
Wellbore: DD
Design: Plan #4



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	200.0	0.00	0.00	200.0	0.0	0.0	0.00	0.00	0.0	
3	266.7	2.00	330.00	266.7	1.0	-0.6	3.00	330.00	-1.0	
4	1396.9	32.09	175.19	1341.8	-289.6	15.2	3.00	-156.09	289.9	
5	5891.1	32.09	175.19	5149.5	-2668.6	215.2	0.00	0.00	2677.2	
6	6960.7	0.00	0.00	6164.0	-2959.3	239.6	3.00	180.00	2968.9	EMF14D-17 F17 595 TGT
7	7090.0	0.32	239.63	6293.3	-2959.5	239.3	0.25	239.63	2969.1	
8	10520.8	0.32	239.63	9724.0	-2969.3	222.6	0.00	0.00	2977.6	EMF14D-17 F17 595 BHL
9	10620.8	0.32	239.63	9824.0	-2969.5	222.1	0.00	0.00	2977.8	
10	11620.8	0.32	239.63	10824.0	-2972.4	217.2	0.00	0.00	2980.3	



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
6124.0	6920.7	WF
6164.0	6960.7	TOG
9724.0	10520.8	Rollins



Plan #4 EMF14D-17 F17 595 KBE @ 6327.0ft North American Datum 1983 Well EMF14D-17 F17 595, True North							
Type Target	Target EMF14D-17 F17 595 BHL	Azimuth 175.71	Origin Type Slot	N/S 0.0	E/W 0.0	From TVD 0.0	
Name EMF14D-17 F17 595 TGT	TVD 6164.0	+N/-S -2959.3	+E/-W 239.6	Latitude 39.606953	Longitude -108.078301		
EMF14D-17 F17 595 BHL	9724.0	-2969.3	222.6	39.606926	-108.078362		

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14D-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:	EMF14D-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	EMF14D-17 F17 595					
Well Position	+N/-S	0.0 ft	Northing:	1,659,237.21 ft	Latitude:	39° 36' 54.28 N
	+E/-W	0.0 ft	Easting:	2,273,495.71 ft	Longitude:	108° 4' 44.95 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	175.71

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	
266.7	2.00	330.00	266.7	1.0	-0.6	3.00	3.00	0.00	330.00	
1,396.9	32.09	175.19	1,341.8	-289.6	15.2	3.00	2.66	-13.70	-156.09	
5,891.1	32.09	175.19	5,149.5	-2,668.6	215.2	0.00	0.00	0.00	0.00	
6,960.7	0.00	0.00	6,164.0	-2,959.3	239.6	3.00	-3.00	0.00	180.00	EMF14D-17 F17 595
7,090.0	0.32	239.63	6,293.3	-2,959.5	239.3	0.25	0.25	-93.10	239.63	
10,520.8	0.32	239.63	9,724.0	-2,969.3	222.6	0.00	0.00	0.00	0.00	EMF14D-17 F17 595
10,620.8	0.32	239.63	9,824.0	-2,969.5	222.1	0.00	0.00	0.00	0.00	
11,620.8	0.32	239.63	10,824.0	-2,972.4	217.2	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 EMF14D-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:	EMF14D-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	KOP @ 200' MD
266.7	2.00	330.00	266.7	1.0	-0.6	-1.0	3.00	3.00	
300.0	1.16	309.53	300.0	1.7	-1.1	-1.8	3.00	-2.52	
400.0	2.32	194.36	399.9	0.4	-2.4	-0.6	3.00	1.16	
500.0	5.23	182.79	499.7	-6.1	-3.1	5.9	3.00	2.92	
600.0	8.21	179.53	599.0	-17.8	-3.3	17.5	3.00	2.98	
700.0	11.20	178.00	697.6	-34.7	-2.9	34.3	3.00	2.99	
800.0	14.19	177.11	795.1	-56.6	-1.9	56.3	3.00	2.99	
900.0	17.19	176.52	891.4	-83.6	-0.4	83.3	3.00	3.00	
1,000.0	20.19	176.11	986.1	-115.6	1.6	115.4	3.00	3.00	
1,100.0	23.18	175.79	1,079.0	-152.4	4.3	152.3	3.00	3.00	
1,200.0	26.18	175.55	1,169.9	-194.1	7.4	194.1	3.00	3.00	
1,300.0	29.18	175.35	1,258.4	-240.4	11.1	240.5	3.00	3.00	
1,396.9	32.09	175.19	1,341.8	-289.6	15.2	289.9	3.00	3.00	EOB; Inc=32.09°
1,400.0	32.09	175.19	1,344.4	-291.2	15.3	291.6	0.00	0.00	
1,500.0	32.09	175.19	1,429.1	-344.2	19.8	344.7	0.00	0.00	
1,600.0	32.09	175.19	1,513.8	-397.1	24.2	397.8	0.00	0.00	
1,700.0	32.09	175.19	1,598.6	-450.0	28.7	450.9	0.00	0.00	
1,800.0	32.09	175.19	1,683.3	-503.0	33.1	504.0	0.00	0.00	
1,900.0	32.09	175.19	1,768.0	-555.9	37.6	557.2	0.00	0.00	
2,000.0	32.09	175.19	1,852.7	-608.8	42.0	610.3	0.00	0.00	
2,100.0	32.09	175.19	1,937.5	-661.8	46.5	663.4	0.00	0.00	
2,200.0	32.09	175.19	2,022.2	-714.7	50.9	716.5	0.00	0.00	
2,300.0	32.09	175.19	2,106.9	-767.6	55.4	769.6	0.00	0.00	
2,400.0	32.09	175.19	2,191.6	-820.6	59.8	822.7	0.00	0.00	
2,500.0	32.09	175.19	2,276.4	-873.5	64.3	875.9	0.00	0.00	
2,600.0	32.09	175.19	2,361.1	-926.4	68.7	929.0	0.00	0.00	
2,700.0	32.09	175.19	2,445.8	-979.4	73.2	982.1	0.00	0.00	
2,800.0	32.09	175.19	2,530.5	-1,032.3	77.6	1,035.2	0.00	0.00	
2,900.0	32.09	175.19	2,615.3	-1,085.2	82.1	1,088.3	0.00	0.00	
3,000.0	32.09	175.19	2,700.0	-1,138.2	86.5	1,141.5	0.00	0.00	
3,100.0	32.09	175.19	2,784.7	-1,191.1	91.0	1,194.6	0.00	0.00	
3,200.0	32.09	175.19	2,869.4	-1,244.0	95.4	1,247.7	0.00	0.00	
3,300.0	32.09	175.19	2,954.2	-1,297.0	99.9	1,300.8	0.00	0.00	
3,400.0	32.09	175.19	3,038.9	-1,349.9	104.3	1,353.9	0.00	0.00	
3,500.0	32.09	175.19	3,123.6	-1,402.8	108.8	1,407.0	0.00	0.00	
3,600.0	32.09	175.19	3,208.3	-1,455.8	113.2	1,460.2	0.00	0.00	
3,700.0	32.09	175.19	3,293.1	-1,508.7	117.7	1,513.3	0.00	0.00	
3,800.0	32.09	175.19	3,377.8	-1,561.6	122.1	1,566.4	0.00	0.00	
3,900.0	32.09	175.19	3,462.5	-1,614.6	126.6	1,619.5	0.00	0.00	
4,000.0	32.09	175.19	3,547.2	-1,667.5	131.0	1,672.6	0.00	0.00	
4,100.0	32.09	175.19	3,632.0	-1,720.4	135.5	1,725.8	0.00	0.00	
4,200.0	32.09	175.19	3,716.7	-1,773.4	139.9	1,778.9	0.00	0.00	
4,300.0	32.09	175.19	3,801.4	-1,826.3	144.4	1,832.0	0.00	0.00	
4,400.0	32.09	175.19	3,886.1	-1,879.3	148.8	1,885.1	0.00	0.00	
4,500.0	32.09	175.19	3,970.8	-1,932.2	153.3	1,938.2	0.00	0.00	
4,600.0	32.09	175.19	4,055.6	-1,985.1	157.7	1,991.4	0.00	0.00	
4,700.0	32.09	175.19	4,140.3	-2,038.1	162.2	2,044.5	0.00	0.00	
4,800.0	32.09	175.19	4,225.0	-2,091.0	166.6	2,097.6	0.00	0.00	
4,900.0	32.09	175.19	4,309.7	-2,143.9	171.1	2,150.7	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14D-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:	EMF14D-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
5,000.0	32.09	175.19	4,394.5	-2,196.9	175.5	2,203.8	0.00	0.00	
5,100.0	32.09	175.19	4,479.2	-2,249.8	180.0	2,256.9	0.00	0.00	
5,200.0	32.09	175.19	4,563.9	-2,302.7	184.4	2,310.1	0.00	0.00	
5,300.0	32.09	175.19	4,648.6	-2,355.7	188.9	2,363.2	0.00	0.00	
5,400.0	32.09	175.19	4,733.4	-2,408.6	193.3	2,416.3	0.00	0.00	
5,500.0	32.09	175.19	4,818.1	-2,461.5	197.8	2,469.4	0.00	0.00	
5,600.0	32.09	175.19	4,902.8	-2,514.5	202.2	2,522.5	0.00	0.00	
5,700.0	32.09	175.19	4,987.5	-2,567.4	206.7	2,575.7	0.00	0.00	
5,800.0	32.09	175.19	5,072.3	-2,620.3	211.1	2,628.8	0.00	0.00	
5,891.1	32.09	175.19	5,149.4	-2,668.6	215.2	2,677.2	0.00	0.00	Start Drop -3.00
5,900.0	31.82	175.19	5,157.0	-2,673.2	215.6	2,681.9	2.99	-2.99	
6,000.0	28.82	175.19	5,243.3	-2,723.5	219.8	2,732.4	3.00	-3.00	
6,100.0	25.82	175.19	5,332.1	-2,769.3	223.6	2,778.2	3.00	-3.00	
6,200.0	22.82	175.19	5,423.3	-2,810.3	227.1	2,819.4	3.00	-3.00	
6,300.0	19.82	175.19	5,516.4	-2,846.5	230.1	2,855.8	3.00	-3.00	
6,400.0	16.82	175.19	5,611.3	-2,877.9	232.8	2,887.2	3.00	-3.00	
6,500.0	13.82	175.19	5,707.8	-2,904.2	235.0	2,913.6	3.00	-3.00	
6,600.0	10.82	175.19	5,805.4	-2,925.4	236.8	2,935.0	3.00	-3.00	
6,700.0	7.82	175.19	5,904.1	-2,941.6	238.1	2,951.2	3.00	-3.00	
6,800.0	4.82	175.19	6,003.5	-2,952.6	239.0	2,962.2	3.00	-3.00	
6,900.0	1.82	175.19	6,103.3	-2,958.3	239.5	2,968.0	3.00	-3.00	
6,920.7	1.20	175.19	6,124.0	-2,958.9	239.6	2,968.5	3.00	-3.00	WF
6,960.7	0.00	0.00	6,164.0	-2,959.3	239.6	2,968.9	3.00	-3.00	EOD; Inc=0° - TOG - EMF14D-17 F17 595 TGT
7,000.0	0.10	239.63	6,203.3	-2,959.3	239.6	2,968.9	0.25	0.25	
7,090.0	0.32	239.63	6,293.3	-2,959.5	239.3	2,969.1	0.25	0.25	
7,100.0	0.32	239.63	6,303.3	-2,959.5	239.2	2,969.1	0.00	0.00	
7,200.0	0.32	239.63	6,403.3	-2,959.8	238.7	2,969.4	0.00	0.00	
7,300.0	0.32	239.63	6,503.3	-2,960.1	238.3	2,969.6	0.00	0.00	
7,400.0	0.32	239.63	6,603.3	-2,960.4	237.8	2,969.8	0.00	0.00	
7,500.0	0.32	239.63	6,703.3	-2,960.6	237.3	2,970.1	0.00	0.00	
7,600.0	0.32	239.63	6,803.3	-2,960.9	236.8	2,970.3	0.00	0.00	
7,700.0	0.32	239.63	6,903.3	-2,961.2	236.3	2,970.6	0.00	0.00	
7,800.0	0.32	239.63	7,003.3	-2,961.5	235.8	2,970.8	0.00	0.00	
7,900.0	0.32	239.63	7,103.3	-2,961.8	235.3	2,971.1	0.00	0.00	
8,000.0	0.32	239.63	7,203.3	-2,962.1	234.9	2,971.3	0.00	0.00	
8,100.0	0.32	239.63	7,303.3	-2,962.4	234.4	2,971.6	0.00	0.00	
8,200.0	0.32	239.63	7,403.3	-2,962.6	233.9	2,971.8	0.00	0.00	
8,300.0	0.32	239.63	7,503.3	-2,962.9	233.4	2,972.1	0.00	0.00	
8,400.0	0.32	239.63	7,603.3	-2,963.2	232.9	2,972.3	0.00	0.00	
8,500.0	0.32	239.63	7,703.3	-2,963.5	232.4	2,972.6	0.00	0.00	
8,600.0	0.32	239.63	7,803.3	-2,963.8	231.9	2,972.8	0.00	0.00	
8,700.0	0.32	239.63	7,903.3	-2,964.1	231.4	2,973.1	0.00	0.00	
8,800.0	0.32	239.63	8,003.3	-2,964.3	231.0	2,973.3	0.00	0.00	
8,900.0	0.32	239.63	8,103.3	-2,964.6	230.5	2,973.6	0.00	0.00	
9,000.0	0.32	239.63	8,203.3	-2,964.9	230.0	2,973.8	0.00	0.00	
9,100.0	0.32	239.63	8,303.3	-2,965.2	229.5	2,974.1	0.00	0.00	
9,200.0	0.32	239.63	8,403.3	-2,965.5	229.0	2,974.3	0.00	0.00	
9,300.0	0.32	239.63	8,503.3	-2,965.8	228.5	2,974.6	0.00	0.00	
9,400.0	0.32	239.63	8,603.3	-2,966.1	228.0	2,974.8	0.00	0.00	
9,500.0	0.32	239.63	8,703.3	-2,966.3	227.6	2,975.1	0.00	0.00	
9,600.0	0.32	239.63	8,803.3	-2,966.6	227.1	2,975.3	0.00	0.00	
9,700.0	0.32	239.63	8,903.3	-2,966.9	226.6	2,975.6	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14D-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:	EMF14D-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
9,800.0	0.32	239.63	9,003.3	-2,967.2	226.1	2,975.8	0.00	0.00	
9,900.0	0.32	239.63	9,103.3	-2,967.5	225.6	2,976.0	0.00	0.00	
10,000.0	0.32	239.63	9,203.3	-2,967.8	225.1	2,976.3	0.00	0.00	
10,100.0	0.32	239.63	9,303.3	-2,968.1	224.6	2,976.5	0.00	0.00	
10,200.0	0.32	239.63	9,403.3	-2,968.3	224.1	2,976.8	0.00	0.00	
10,300.0	0.32	239.63	9,503.3	-2,968.6	223.7	2,977.0	0.00	0.00	
10,400.0	0.32	239.63	9,603.3	-2,968.9	223.2	2,977.3	0.00	0.00	
10,500.0	0.32	239.63	9,703.2	-2,969.2	222.7	2,977.5	0.00	0.00	
10,520.8	0.32	239.63	9,724.0	-2,969.3	222.6	2,977.6	0.00	0.00	Rollins - EMF14D-17 F17 595 BHL
10,600.0	0.32	239.63	9,803.2	-2,969.5	222.2	2,977.8	0.00	0.00	
10,620.8	0.32	239.63	9,824.0	-2,969.5	222.1	2,977.8	0.00	0.00	Drillers TD @ 10620.8' MD
10,700.0	0.32	239.63	9,903.2	-2,969.8	221.7	2,978.0	0.00	0.00	
10,800.0	0.32	239.63	10,003.2	-2,970.1	221.2	2,978.3	0.00	0.00	
10,900.0	0.32	239.63	10,103.2	-2,970.3	220.7	2,978.5	0.00	0.00	
11,000.0	0.32	239.63	10,203.2	-2,970.6	220.3	2,978.8	0.00	0.00	
11,100.0	0.32	239.63	10,303.2	-2,970.9	219.8	2,979.0	0.00	0.00	
11,200.0	0.32	239.63	10,403.2	-2,971.2	219.3	2,979.3	0.00	0.00	
11,300.0	0.32	239.63	10,503.2	-2,971.5	218.8	2,979.5	0.00	0.00	
11,400.0	0.32	239.63	10,603.2	-2,971.8	218.3	2,979.8	0.00	0.00	
11,500.0	0.32	239.63	10,703.2	-2,972.1	217.8	2,980.0	0.00	0.00	
11,600.0	0.32	239.63	10,803.2	-2,972.3	217.3	2,980.3	0.00	0.00	
11,620.8	0.32	239.63	10,824.0	-2,972.4	217.2	2,980.3	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									
EMF14D-17 F17 595 TC	0.00	0.00	6,164.0	-2,959.3	239.6	1,656,272.32	2,273,651.21	39° 36' 25.03 N	108° 4' 41.88 W
- plan hits target center									
- Point									
EMF14D-17 F17 595 BHL	0.00	0.00	9,724.0	-2,969.3	222.6	1,656,262.83	2,273,633.92	39° 36' 24.93 N	108° 4' 42.10 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 (°)	
6,920.7	6,124.0	WF		0.00		
6,960.7	6,164.0	TOG		0.00		
10,520.8	9,724.0	Rollins		0.00		

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well EMF14D-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:	EMF14D-17 F17 595	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #4		

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
200.0	200.0	0.0	0.0	KOP @ 200' MD
1,396.9	1,341.8	1.0	-0.6	EOB; Inc=32.09°
5,891.1	5,149.5	-289.6	15.2	Start Drop -3.00
6,960.7	6,164.0	-2,668.6	215.2	EOD; Inc=0°
10,620.8	9,824.0	-2,959.3	239.6	Drillers TD @ 10620.8' MD
11,620.8	10,824.0	-2,959.5	239.3	Permit TD @ 11620.8' MD