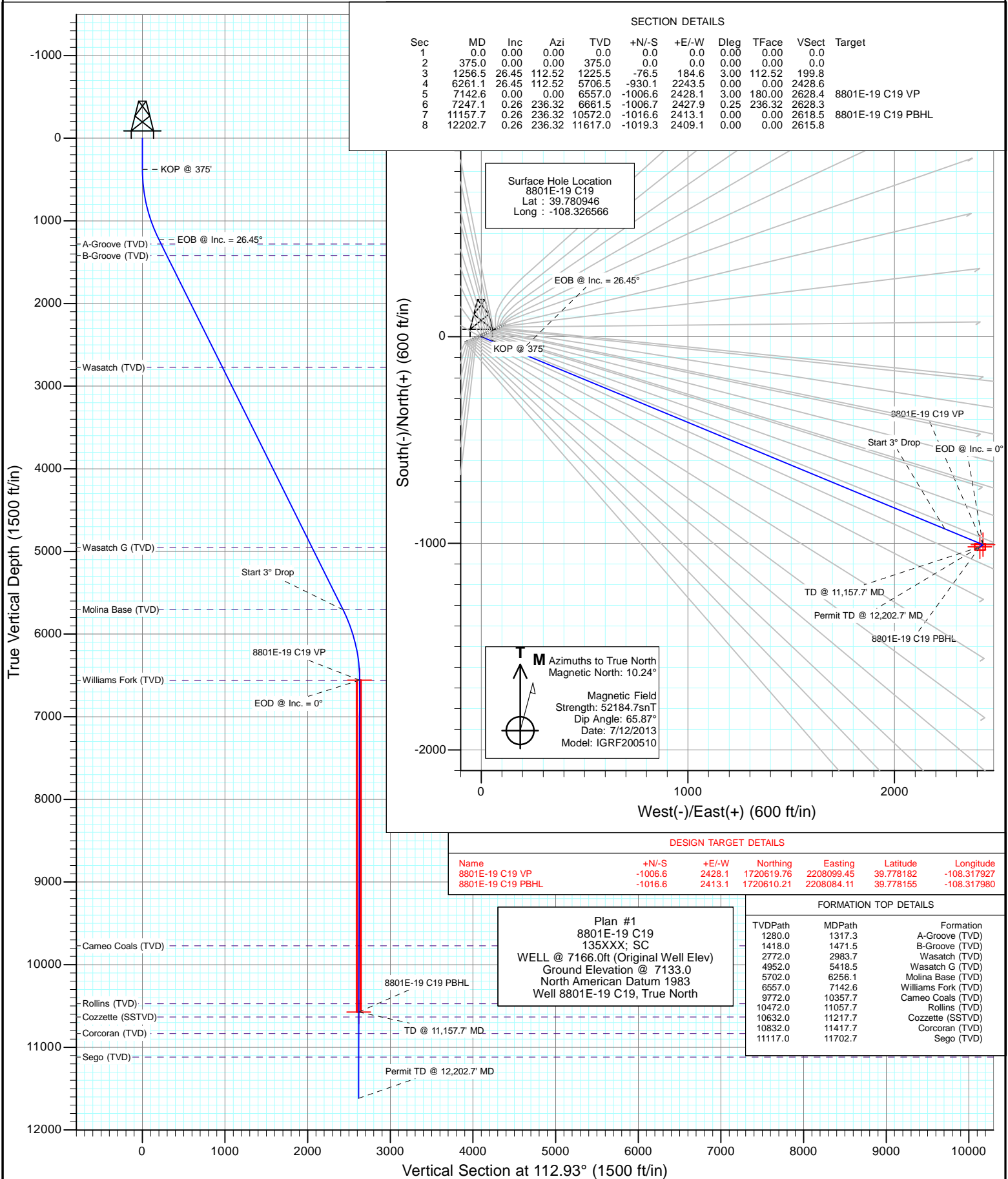
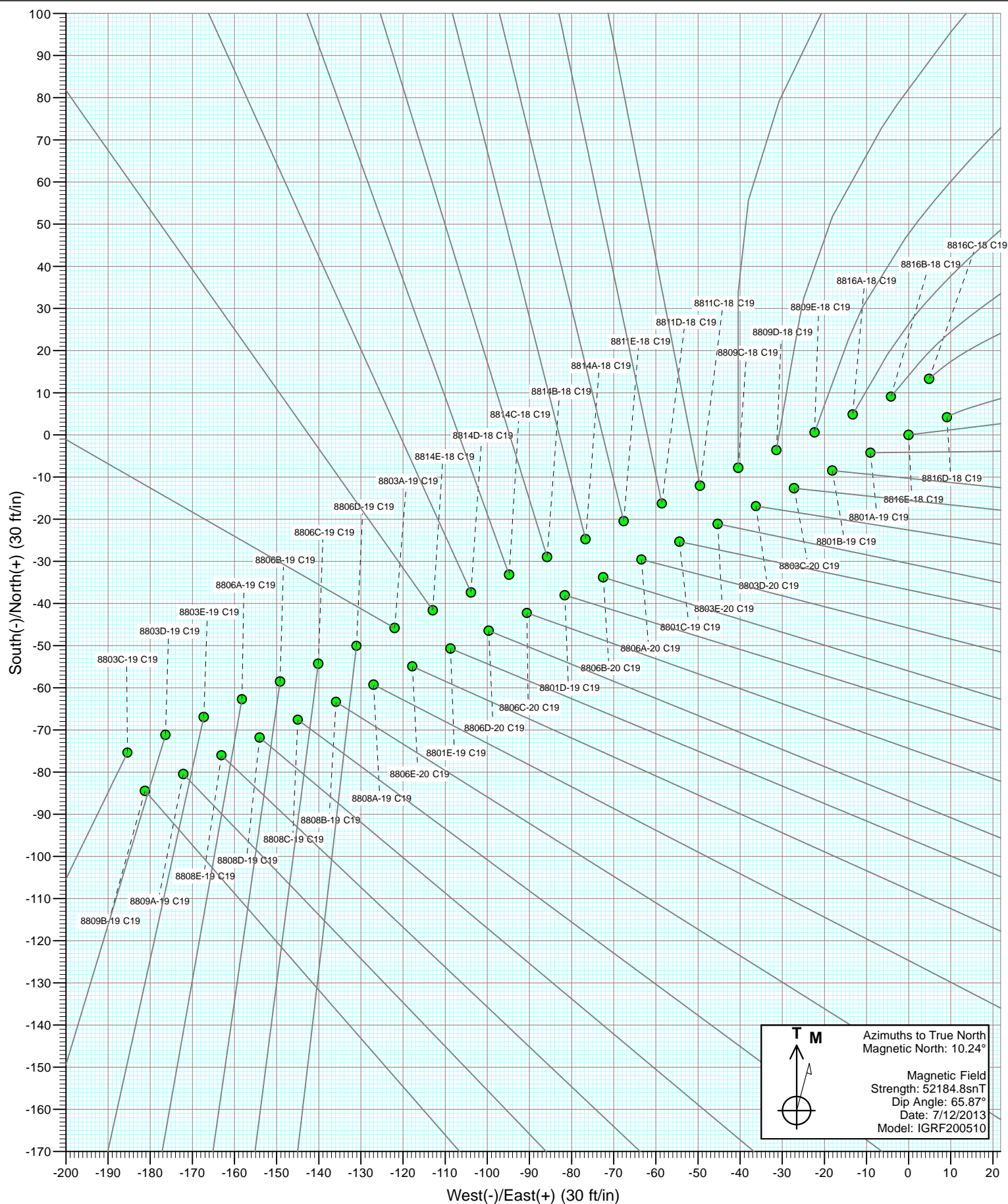




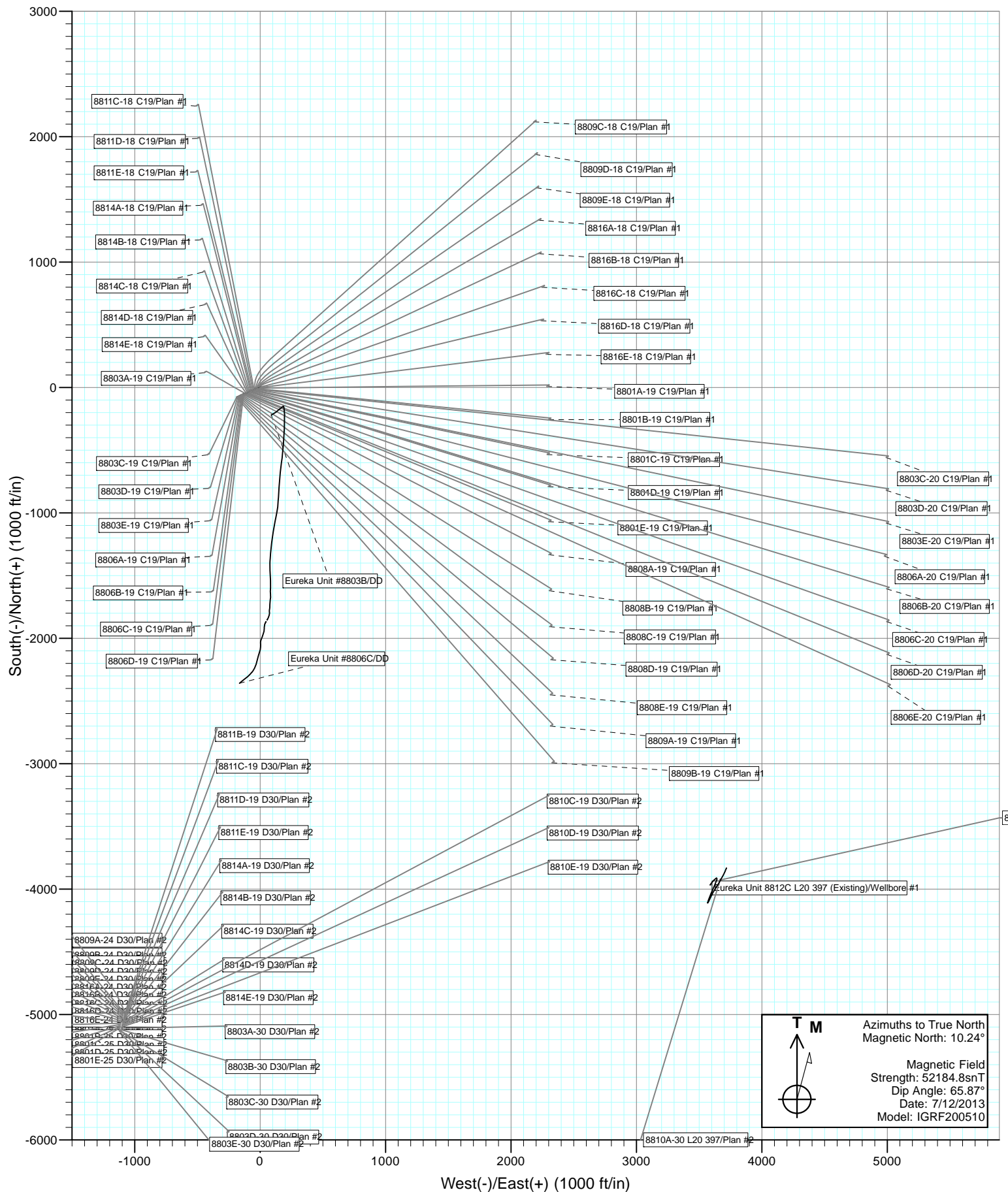
Project: Eureka Unit
Site: C19 Pad (S19-T3S-R97W)
Well: 8801E-19 C19
Wellbore: DD
Design: Plan #1







Project: Eureka Unit
Site: C19 Pad (S19-T3S-R97W)



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 8801E-19 C19
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7166.0ft (Original Well Elev)
Project:	Eureka Unit	MD Reference:	WELL @ 7166.0ft (Original Well Elev)
Site:	C19 Pad (S19-T3S-R97W)	North Reference:	True
Well:	8801E-19 C19	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

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

Site		C19 Pad (S19-T3S-R97W)			
Site Position:		Northing:	1,721,669.90 ft	Latitude:	39.780853
From:	Lat/Long	Easting:	2,205,630.31 ft	Longitude:	-108.326824
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	-1.78 °

Well		8801E-19 C19				
Well Position	+N/-S	0.0 ft	Northing:	1,721,701.41 ft	Latitude:	39.780946
	+E/-W	0.0 ft	Easting:	2,205,703.83 ft	Longitude:	-108.326566
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	7,133.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	7/12/2013	10.24	65.87	52,185

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	112.93

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	
375.0	0.00	0.00	375.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,256.5	26.45	112.52	1,225.5	-76.5	184.6	3.00	3.00	0.00	112.52	
6,261.1	26.45	112.52	5,706.5	-930.1	2,243.5	0.00	0.00	0.00	0.00	
7,142.6	0.00	0.00	6,557.0	-1,006.6	2,428.1	3.00	-3.00	0.00	180.00	8801E-19 C19 VP
7,247.1	0.26	236.32	6,661.5	-1,006.7	2,427.9	0.25	0.25	-118.39	236.32	
11,157.7	0.26	236.32	10,572.0	-1,016.6	2,413.1	0.00	0.00	0.00	0.00	8801E-19 C19 PBHL
12,202.7	0.26	236.32	11,617.0	-1,019.3	2,409.1	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 8801E-19 C19
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7166.0ft (Original Well Elev)
Project:	Eureka Unit	MD Reference:	WELL @ 7166.0ft (Original Well Elev)
Site:	C19 Pad (S19-T3S-R97W)	North Reference:	True
Well:	8801E-19 C19	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
375.0	0.00	0.00	375.0	0.0	0.0	0.0	0.00	0.00	KOP @ 375'
400.0	0.75	112.52	400.0	-0.1	0.2	0.2	3.00	3.00	
500.0	3.75	112.52	499.9	-1.6	3.8	4.1	3.00	3.00	
600.0	6.75	112.52	599.5	-5.1	12.2	13.2	3.00	3.00	
700.0	9.75	112.52	698.4	-10.6	25.5	27.6	3.00	3.00	
800.0	12.75	112.52	796.5	-18.0	43.5	47.1	3.00	3.00	
900.0	15.75	112.52	893.4	-27.5	66.2	71.7	3.00	3.00	
1,000.0	18.75	112.52	988.9	-38.8	93.6	101.4	3.00	3.00	
1,100.0	21.75	112.52	1,082.7	-52.1	125.6	136.0	3.00	3.00	
1,200.0	24.75	112.52	1,174.6	-67.2	162.1	175.4	3.00	3.00	
1,256.5	26.45	112.52	1,225.5	-76.5	184.6	199.8	3.00	3.00	EOB @ Inc. = 26.45°
1,300.0	26.45	112.52	1,264.5	-84.0	202.5	219.2	0.00	0.00	
1,317.3	26.45	112.52	1,280.0	-86.9	209.6	226.9	0.00	0.00	A-Groove (TVD)
1,400.0	26.45	112.52	1,354.0	-101.0	243.6	263.7	0.00	0.00	
1,471.5	26.45	112.52	1,418.0	-113.2	273.0	295.6	0.00	0.00	B-Groove (TVD)
1,500.0	26.45	112.52	1,443.6	-118.1	284.8	308.3	0.00	0.00	
1,600.0	26.45	112.52	1,533.1	-135.1	325.9	352.8	0.00	0.00	
1,700.0	26.45	112.52	1,622.6	-152.2	367.1	397.3	0.00	0.00	
1,800.0	26.45	112.52	1,712.2	-169.2	408.2	441.9	0.00	0.00	
1,900.0	26.45	112.52	1,801.7	-186.3	449.3	486.4	0.00	0.00	
2,000.0	26.45	112.52	1,891.2	-203.3	490.5	530.9	0.00	0.00	
2,100.0	26.45	112.52	1,980.8	-220.4	531.6	575.5	0.00	0.00	
2,200.0	26.45	112.52	2,070.3	-237.4	572.8	620.0	0.00	0.00	
2,300.0	26.45	112.52	2,159.8	-254.5	613.9	664.5	0.00	0.00	
2,400.0	26.45	112.52	2,249.4	-271.6	655.0	709.1	0.00	0.00	
2,500.0	26.45	112.52	2,338.9	-288.6	696.2	753.6	0.00	0.00	
2,600.0	26.45	112.52	2,428.4	-305.7	737.3	798.1	0.00	0.00	
2,700.0	26.45	112.52	2,518.0	-322.7	778.5	842.7	0.00	0.00	
2,800.0	26.45	112.52	2,607.5	-339.8	819.6	887.2	0.00	0.00	
2,900.0	26.45	112.52	2,697.1	-356.8	860.7	931.7	0.00	0.00	
2,983.7	26.45	112.52	2,772.0	-371.1	895.2	969.0	0.00	0.00	Wasatch (TVD)
3,000.0	26.45	112.52	2,786.6	-373.9	901.9	976.3	0.00	0.00	
3,100.0	26.45	112.52	2,876.1	-390.9	943.0	1,020.8	0.00	0.00	
3,200.0	26.45	112.52	2,965.7	-408.0	984.2	1,065.3	0.00	0.00	
3,300.0	26.45	112.52	3,055.2	-425.0	1,025.3	1,109.9	0.00	0.00	
3,400.0	26.45	112.52	3,144.7	-442.1	1,066.4	1,154.4	0.00	0.00	
3,500.0	26.45	112.52	3,234.3	-459.2	1,107.6	1,198.9	0.00	0.00	
3,600.0	26.45	112.52	3,323.8	-476.2	1,148.7	1,243.5	0.00	0.00	
3,700.0	26.45	112.52	3,413.3	-493.3	1,189.9	1,288.0	0.00	0.00	
3,800.0	26.45	112.52	3,502.9	-510.3	1,231.0	1,332.5	0.00	0.00	
3,900.0	26.45	112.52	3,592.4	-527.4	1,272.1	1,377.1	0.00	0.00	
4,000.0	26.45	112.52	3,681.9	-544.4	1,313.3	1,421.6	0.00	0.00	
4,100.0	26.45	112.52	3,771.5	-561.5	1,354.4	1,466.1	0.00	0.00	
4,200.0	26.45	112.52	3,861.0	-578.5	1,395.6	1,510.7	0.00	0.00	
4,300.0	26.45	112.52	3,950.6	-595.6	1,436.7	1,555.2	0.00	0.00	
4,400.0	26.45	112.52	4,040.1	-612.7	1,477.8	1,599.7	0.00	0.00	
4,500.0	26.45	112.52	4,129.6	-629.7	1,519.0	1,644.3	0.00	0.00	
4,600.0	26.45	112.52	4,219.2	-646.8	1,560.1	1,688.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 8801E-19 C19
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7166.0ft (Original Well Elev)
Project:	Eureka Unit	MD Reference:	WELL @ 7166.0ft (Original Well Elev)
Site:	C19 Pad (S19-T3S-R97W)	North Reference:	True
Well:	8801E-19 C19	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,700.0	26.45	112.52	4,308.7	-663.8	1,601.3	1,733.3	0.00	0.00	
4,800.0	26.45	112.52	4,398.2	-680.9	1,642.4	1,777.9	0.00	0.00	
4,900.0	26.45	112.52	4,487.8	-697.9	1,683.5	1,822.4	0.00	0.00	
5,000.0	26.45	112.52	4,577.3	-715.0	1,724.7	1,867.0	0.00	0.00	
5,100.0	26.45	112.52	4,666.8	-732.0	1,765.8	1,911.5	0.00	0.00	
5,200.0	26.45	112.52	4,756.4	-749.1	1,806.9	1,956.0	0.00	0.00	
5,300.0	26.45	112.52	4,845.9	-766.1	1,848.1	2,000.6	0.00	0.00	
5,400.0	26.45	112.52	4,935.5	-783.2	1,889.2	2,045.1	0.00	0.00	
5,418.5	26.45	112.52	4,952.0	-786.4	1,896.8	2,053.3	0.00	0.00	Wasatch G (TVD)
5,500.0	26.45	112.52	5,025.0	-800.3	1,930.4	2,089.6	0.00	0.00	
5,600.0	26.45	112.52	5,114.5	-817.3	1,971.5	2,134.2	0.00	0.00	
5,700.0	26.45	112.52	5,204.1	-834.4	2,012.6	2,178.7	0.00	0.00	
5,800.0	26.45	112.52	5,293.6	-851.4	2,053.8	2,223.2	0.00	0.00	
5,900.0	26.45	112.52	5,383.1	-868.5	2,094.9	2,267.8	0.00	0.00	
6,000.0	26.45	112.52	5,472.7	-885.5	2,136.1	2,312.3	0.00	0.00	
6,100.0	26.45	112.52	5,562.2	-902.6	2,177.2	2,356.8	0.00	0.00	
6,200.0	26.45	112.52	5,651.7	-919.6	2,218.3	2,401.4	0.00	0.00	
6,256.1	26.45	112.52	5,702.0	-929.2	2,241.4	2,426.4	0.00	0.00	Molina Base (TVD)
6,261.1	26.45	112.52	5,706.5	-930.1	2,243.5	2,428.6	0.00	0.00	Start 3° Drop
6,300.0	25.28	112.52	5,741.4	-936.6	2,259.2	2,445.5	3.00	-3.00	
6,400.0	22.28	112.52	5,832.9	-952.0	2,296.4	2,485.8	3.00	-3.00	
6,500.0	19.28	112.52	5,926.4	-965.6	2,329.2	2,521.3	3.00	-3.00	
6,600.0	16.28	112.52	6,021.6	-977.3	2,357.4	2,551.8	3.00	-3.00	
6,700.0	13.28	112.52	6,118.3	-987.0	2,380.9	2,577.4	3.00	-3.00	
6,800.0	10.28	112.52	6,216.2	-994.9	2,399.8	2,597.8	3.00	-3.00	
6,900.0	7.28	112.52	6,315.0	-1,000.7	2,413.9	2,613.0	3.00	-3.00	
7,000.0	4.28	112.52	6,414.5	-1,004.6	2,423.2	2,623.1	3.00	-3.00	
7,100.0	1.28	112.52	6,514.4	-1,006.4	2,427.7	2,627.9	3.00	-3.00	
7,142.6	0.00	0.00	6,557.0	-1,006.6	2,428.1	2,628.4	3.00	-3.00	EOD @ Inc. = 0° - Williams Fork (TVD)
7,200.0	0.14	236.32	6,614.4	-1,006.6	2,428.0	2,628.4	0.25	0.25	
7,247.1	0.26	236.32	6,661.5	-1,006.7	2,427.9	2,628.3	0.25	0.25	
7,300.0	0.26	236.32	6,714.4	-1,006.9	2,427.7	2,628.1	0.00	0.00	
7,400.0	0.26	236.32	6,814.4	-1,007.1	2,427.3	2,627.9	0.00	0.00	
7,500.0	0.26	236.32	6,914.4	-1,007.4	2,426.9	2,627.6	0.00	0.00	
7,600.0	0.26	236.32	7,014.4	-1,007.6	2,426.6	2,627.4	0.00	0.00	
7,700.0	0.26	236.32	7,114.4	-1,007.9	2,426.2	2,627.1	0.00	0.00	
7,800.0	0.26	236.32	7,214.4	-1,008.1	2,425.8	2,626.9	0.00	0.00	
7,900.0	0.26	236.32	7,314.4	-1,008.4	2,425.4	2,626.6	0.00	0.00	
8,000.0	0.26	236.32	7,414.4	-1,008.6	2,425.0	2,626.4	0.00	0.00	
8,100.0	0.26	236.32	7,514.4	-1,008.9	2,424.7	2,626.1	0.00	0.00	
8,200.0	0.26	236.32	7,614.4	-1,009.1	2,424.3	2,625.9	0.00	0.00	
8,300.0	0.26	236.32	7,714.4	-1,009.4	2,423.9	2,625.6	0.00	0.00	
8,400.0	0.26	236.32	7,814.4	-1,009.6	2,423.5	2,625.4	0.00	0.00	
8,500.0	0.26	236.32	7,914.4	-1,009.9	2,423.1	2,625.1	0.00	0.00	
8,600.0	0.26	236.32	8,014.4	-1,010.2	2,422.8	2,624.9	0.00	0.00	
8,700.0	0.26	236.32	8,114.4	-1,010.4	2,422.4	2,624.6	0.00	0.00	
8,800.0	0.26	236.32	8,214.4	-1,010.7	2,422.0	2,624.4	0.00	0.00	
8,900.0	0.26	236.32	8,314.4	-1,010.9	2,421.6	2,624.1	0.00	0.00	
9,000.0	0.26	236.32	8,414.4	-1,011.2	2,421.3	2,623.9	0.00	0.00	
9,100.0	0.26	236.32	8,514.4	-1,011.4	2,420.9	2,623.6	0.00	0.00	
9,200.0	0.26	236.32	8,614.4	-1,011.7	2,420.5	2,623.4	0.00	0.00	
9,300.0	0.26	236.32	8,714.4	-1,011.9	2,420.1	2,623.1	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 8801E-19 C19
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7166.0ft (Original Well Elev)
Project:	Eureka Unit	MD Reference:	WELL @ 7166.0ft (Original Well Elev)
Site:	C19 Pad (S19-T3S-R97W)	North Reference:	True
Well:	8801E-19 C19	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,400.0	0.26	236.32	8,814.4	-1,012.2	2,419.7	2,622.9	0.00	0.00	
9,500.0	0.26	236.32	8,914.4	-1,012.4	2,419.4	2,622.6	0.00	0.00	
9,600.0	0.26	236.32	9,014.3	-1,012.7	2,419.0	2,622.4	0.00	0.00	
9,700.0	0.26	236.32	9,114.3	-1,012.9	2,418.6	2,622.1	0.00	0.00	
9,800.0	0.26	236.32	9,214.3	-1,013.2	2,418.2	2,621.9	0.00	0.00	
9,900.0	0.26	236.32	9,314.3	-1,013.4	2,417.8	2,621.6	0.00	0.00	
10,000.0	0.26	236.32	9,414.3	-1,013.7	2,417.5	2,621.4	0.00	0.00	
10,100.0	0.26	236.32	9,514.3	-1,013.9	2,417.1	2,621.1	0.00	0.00	
10,200.0	0.26	236.32	9,614.3	-1,014.2	2,416.7	2,620.9	0.00	0.00	
10,300.0	0.26	236.32	9,714.3	-1,014.4	2,416.3	2,620.6	0.00	0.00	
10,357.7	0.26	236.32	9,772.0	-1,014.6	2,416.1	2,620.5	0.00	0.00	Cameo Coals (TVD)
10,400.0	0.26	236.32	9,814.3	-1,014.7	2,415.9	2,620.4	0.00	0.00	
10,500.0	0.26	236.32	9,914.3	-1,015.0	2,415.6	2,620.1	0.00	0.00	
10,600.0	0.26	236.32	10,014.3	-1,015.2	2,415.2	2,619.9	0.00	0.00	
10,700.0	0.26	236.32	10,114.3	-1,015.5	2,414.8	2,619.6	0.00	0.00	
10,800.0	0.26	236.32	10,214.3	-1,015.7	2,414.4	2,619.4	0.00	0.00	
10,900.0	0.26	236.32	10,314.3	-1,016.0	2,414.0	2,619.1	0.00	0.00	
11,000.0	0.26	236.32	10,414.3	-1,016.2	2,413.7	2,618.9	0.00	0.00	
11,057.7	0.26	236.32	10,472.0	-1,016.4	2,413.4	2,618.7	0.00	0.00	Rollins (TVD)
11,100.0	0.26	236.32	10,514.3	-1,016.5	2,413.3	2,618.6	0.00	0.00	
11,157.7	0.26	236.32	10,572.0	-1,016.6	2,413.1	2,618.5	0.00	0.00	TD @ 11,157.7' MD
11,200.0	0.26	236.32	10,614.3	-1,016.7	2,412.9	2,618.4	0.00	0.00	
11,217.7	0.26	236.32	10,632.0	-1,016.8	2,412.8	2,618.3	0.00	0.00	Cozzette (SSTVD)
11,300.0	0.26	236.32	10,714.3	-1,017.0	2,412.5	2,618.1	0.00	0.00	
11,400.0	0.26	236.32	10,814.3	-1,017.2	2,412.1	2,617.9	0.00	0.00	
11,417.7	0.26	236.32	10,832.0	-1,017.3	2,412.1	2,617.8	0.00	0.00	Corcoran (TVD)
11,500.0	0.26	236.32	10,914.3	-1,017.5	2,411.8	2,617.6	0.00	0.00	
11,600.0	0.26	236.32	11,014.3	-1,017.7	2,411.4	2,617.4	0.00	0.00	
11,700.0	0.26	236.32	11,114.3	-1,018.0	2,411.0	2,617.1	0.00	0.00	
11,702.7	0.26	236.32	11,117.0	-1,018.0	2,411.0	2,617.1	0.00	0.00	Sego (TVD)
11,800.0	0.26	236.32	11,214.3	-1,018.2	2,410.6	2,616.9	0.00	0.00	
11,900.0	0.26	236.32	11,314.3	-1,018.5	2,410.3	2,616.6	0.00	0.00	
12,000.0	0.26	236.32	11,414.3	-1,018.7	2,409.9	2,616.4	0.00	0.00	
12,100.0	0.26	236.32	11,514.3	-1,019.0	2,409.5	2,616.1	0.00	0.00	
12,202.7	0.26	236.32	11,617.0	-1,019.3	2,409.1	2,615.8	0.00	0.00	Permit TD @ 12,202.7' MD

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									
8801E-19 C19 VP	0.00	0.00	6,557.0	-1,006.6	2,428.1	1,720,619.76	2,208,099.45	39.778182	-108.317927
- plan hits target center									
- Point									
8801E-19 C19 PBHL	0.00	0.00	10,572.0	-1,016.6	2,413.1	1,720,610.21	2,208,084.11	39.778155	-108.317980
- plan hits target center									
- Rectangle (sides W30.0 H50.0 D0.0)									

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well 8801E-19 C19
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	WELL @ 7166.0ft (Original Well Elev)
Project:	Eureka Unit	MD Reference:	WELL @ 7166.0ft (Original Well Elev)
Site:	C19 Pad (S19-T3S-R97W)	North Reference:	True
Well:	8801E-19 C19	Survey Calculation Method:	Minimum Curvature
Wellbore:	DD		
Design:	Plan #1		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,317.3	1,280.0	A-Groove (TVD)			
1,471.5	1,418.0	B-Groove (TVD)			
2,983.7	2,772.0	Wasatch (TVD)			
5,418.5	4,952.0	Wasatch G (TVD)			
6,256.1	5,702.0	Molina Base (TVD)			
7,142.6	6,557.0	Williams Fork (TVD)			
10,357.7	9,772.0	Cameo Coals (TVD)			
11,057.7	10,472.0	Rollins (TVD)			
11,217.7	10,632.0	Cozzette (SSTVD)			
11,417.7	10,832.0	Corcoran (TVD)			
11,702.7	11,117.0	Sego (TVD)			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
375.0	375.0	0.0	0.0	KOP @ 375'
1,256.5	1,225.5	-76.5	184.6	EOB @ Inc. = 26.45°
6,261.1	5,706.5	-930.1	2,243.5	Start 3° Drop
7,142.6	6,557.0	-1,006.6	2,428.1	EOD @ Inc. = 0°
11,157.7	10,572.0	-1,016.6	2,413.1	TD @ 11,157.7' MD
12,202.7	11,617.0	-1,019.3	2,409.1	Permit TD @ 12,202.7' MD