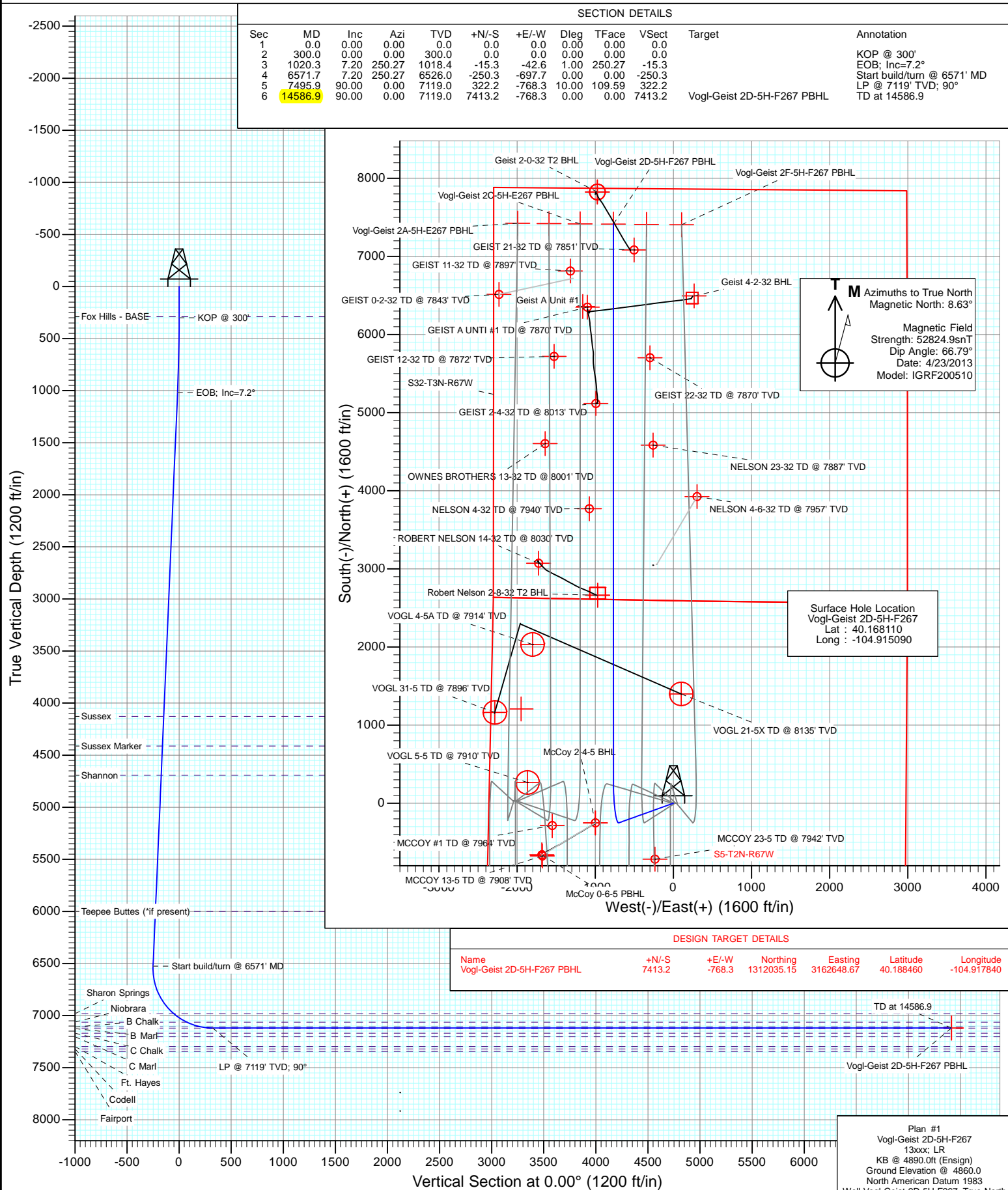




Project: DJ Wattenberg
Site: S5-T2N-R67W (Vogl-McCoy)
Well: Vogl-Geist 2D-5H-F267
Wellbore: Hz
Design: Plan #1



Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 4890.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	KB @ 4890.0ft (Ensign)
Site:	S5-T2N-R67W (Vogl-McCoy)	North Reference:	True
Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project	DJ Wattenberg		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		S5-T2N-R67W (Vogl-McCoy)			
Site Position:		Northing:	1,303,967.76 ft	Latitude:	40.166330
From:	Lat/Long	Easting:	3,161,787.74 ft	Longitude:	-104.921110
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.37 °

Well	Vogl-Geist 2D-5H-F267					
Well Position	+N/-S	0.0 ft	Northing:	1,304,627.19 ft	Latitude:	40.168110
	+E/-W	0.0 ft	Easting:	3,163,465.84 ft	Longitude:	-104.915090
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,860.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	4/23/2013	8.63	66.79	52,825

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	0.00

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	
300.0	0.00	0.00	300.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,020.3	7.20	250.27	1,018.4	-15.3	-42.6	1.00	1.00	0.00	250.27	
6,571.7	7.20	250.27	6,526.0	-250.3	-697.7	0.00	0.00	0.00	0.00	
7,495.9	90.00	0.00	7,119.0	322.2	-768.3	10.00	8.96	11.87	109.59	
14,586.9	90.00	0.00	7,119.0	7,413.2	-768.3	0.00	0.00	0.00	0.00	Vogl-Geist 2D-5H-F267

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 4890.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	KB @ 4890.0ft (Ensign)
Site:	S5-T2N-R67W (Vogl-McCoy)	North Reference:	True
Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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	
290.0	0.00	0.00	290.0	0.0	0.0	0.0	0.00	0.00	Fox Hills - BASE
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	KOP @ 300'
400.0	1.00	250.27	400.0	-0.3	-0.8	-0.3	1.00	1.00	
500.0	2.00	250.27	500.0	-1.2	-3.3	-1.2	1.00	1.00	
600.0	3.00	250.27	599.9	-2.7	-7.4	-2.7	1.00	1.00	
700.0	4.00	250.27	699.7	-4.7	-13.1	-4.7	1.00	1.00	
800.0	5.00	250.27	799.4	-7.4	-20.5	-7.4	1.00	1.00	
900.0	6.00	250.27	898.9	-10.6	-29.5	-10.6	1.00	1.00	
1,000.0	7.00	250.27	998.3	-14.4	-40.2	-14.4	1.00	1.00	
1,020.3	7.20	250.27	1,018.4	-15.3	-42.6	-15.3	1.00	1.00	EOB; Inc=7.2°
1,100.0	7.20	250.27	1,097.5	-18.6	-52.0	-18.6	0.00	0.00	
1,200.0	7.20	250.27	1,196.7	-22.9	-63.8	-22.9	0.00	0.00	
1,300.0	7.20	250.27	1,295.9	-27.1	-75.6	-27.1	0.00	0.00	
1,400.0	7.20	250.27	1,395.1	-31.3	-87.4	-31.3	0.00	0.00	
1,500.0	7.20	250.27	1,494.3	-35.6	-99.2	-35.6	0.00	0.00	
1,600.0	7.20	250.27	1,593.5	-39.8	-111.0	-39.8	0.00	0.00	
1,700.0	7.20	250.27	1,692.7	-44.0	-122.8	-44.0	0.00	0.00	
1,800.0	7.20	250.27	1,792.0	-48.3	-134.6	-48.3	0.00	0.00	
1,900.0	7.20	250.27	1,891.2	-52.5	-146.4	-52.5	0.00	0.00	
2,000.0	7.20	250.27	1,990.4	-56.7	-158.2	-56.7	0.00	0.00	
2,100.0	7.20	250.27	2,089.6	-61.0	-170.0	-61.0	0.00	0.00	
2,200.0	7.20	250.27	2,188.8	-65.2	-181.8	-65.2	0.00	0.00	
2,300.0	7.20	250.27	2,288.0	-69.4	-193.6	-69.4	0.00	0.00	
2,400.0	7.20	250.27	2,387.2	-73.7	-205.4	-73.7	0.00	0.00	
2,500.0	7.20	250.27	2,486.4	-77.9	-217.2	-77.9	0.00	0.00	
2,600.0	7.20	250.27	2,585.6	-82.1	-229.0	-82.1	0.00	0.00	
2,700.0	7.20	250.27	2,684.8	-86.4	-240.8	-86.4	0.00	0.00	
2,800.0	7.20	250.27	2,784.1	-90.6	-252.6	-90.6	0.00	0.00	
2,900.0	7.20	250.27	2,883.3	-94.8	-264.4	-94.8	0.00	0.00	
3,000.0	7.20	250.27	2,982.5	-99.1	-276.2	-99.1	0.00	0.00	
3,100.0	7.20	250.27	3,081.7	-103.3	-288.0	-103.3	0.00	0.00	
3,200.0	7.20	250.27	3,180.9	-107.5	-299.8	-107.5	0.00	0.00	
3,300.0	7.20	250.27	3,280.1	-111.8	-311.6	-111.8	0.00	0.00	
3,400.0	7.20	250.27	3,379.3	-116.0	-323.4	-116.0	0.00	0.00	
3,500.0	7.20	250.27	3,478.5	-120.2	-335.2	-120.2	0.00	0.00	
3,600.0	7.20	250.27	3,577.7	-124.5	-347.0	-124.5	0.00	0.00	
3,700.0	7.20	250.27	3,677.0	-128.7	-358.8	-128.7	0.00	0.00	
3,800.0	7.20	250.27	3,776.2	-132.9	-370.6	-132.9	0.00	0.00	
3,900.0	7.20	250.27	3,875.4	-137.2	-382.4	-137.2	0.00	0.00	
4,000.0	7.20	250.27	3,974.6	-141.4	-394.2	-141.4	0.00	0.00	
4,100.0	7.20	250.27	4,073.8	-145.6	-406.0	-145.6	0.00	0.00	
4,152.6	7.20	250.27	4,126.0	-147.9	-412.2	-147.9	0.00	0.00	Sussex
4,200.0	7.20	250.27	4,173.0	-149.9	-417.8	-149.9	0.00	0.00	
4,300.0	7.20	250.27	4,272.2	-154.1	-429.6	-154.1	0.00	0.00	
4,400.0	7.20	250.27	4,371.4	-158.3	-441.4	-158.3	0.00	0.00	
4,440.9	7.20	250.27	4,412.0	-160.1	-446.3	-160.1	0.00	0.00	Sussex Marker
4,500.0	7.20	250.27	4,470.6	-162.6	-453.2	-162.6	0.00	0.00	
4,600.0	7.20	250.27	4,569.9	-166.8	-465.0	-166.8	0.00	0.00	
4,700.0	7.20	250.27	4,669.1	-171.0	-476.8	-171.0	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 4890.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	KB @ 4890.0ft (Ensign)
Site:	S5-T2N-R67W (Vogl-McCoy)	North Reference:	True
Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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
4,724.1	7.20	250.27	4,693.0	-172.1	-479.7	-172.1	0.00	0.00	Shannon
4,800.0	7.20	250.27	4,768.3	-175.3	-488.7	-175.3	0.00	0.00	
4,900.0	7.20	250.27	4,867.5	-179.5	-500.5	-179.5	0.00	0.00	
5,000.0	7.20	250.27	4,966.7	-183.7	-512.3	-183.7	0.00	0.00	
5,100.0	7.20	250.27	5,065.9	-188.0	-524.1	-188.0	0.00	0.00	
5,200.0	7.20	250.27	5,165.1	-192.2	-535.9	-192.2	0.00	0.00	
5,300.0	7.20	250.27	5,264.3	-196.4	-547.7	-196.4	0.00	0.00	
5,400.0	7.20	250.27	5,363.5	-200.7	-559.5	-200.7	0.00	0.00	
5,500.0	7.20	250.27	5,462.8	-204.9	-571.3	-204.9	0.00	0.00	
5,600.0	7.20	250.27	5,562.0	-209.1	-583.1	-209.1	0.00	0.00	
5,700.0	7.20	250.27	5,661.2	-213.4	-594.9	-213.4	0.00	0.00	
5,800.0	7.20	250.27	5,760.4	-217.6	-606.7	-217.6	0.00	0.00	
5,900.0	7.20	250.27	5,859.6	-221.8	-618.5	-221.8	0.00	0.00	
6,000.0	7.20	250.27	5,958.8	-226.1	-630.3	-226.1	0.00	0.00	
6,041.5	7.20	250.27	6,000.0	-227.8	-635.2	-227.8	0.00	0.00	Teepee Buttes (*if present)
6,100.0	7.20	250.27	6,058.0	-230.3	-642.1	-230.3	0.00	0.00	
6,200.0	7.20	250.27	6,157.2	-234.5	-653.9	-234.5	0.00	0.00	
6,300.0	7.20	250.27	6,256.4	-238.8	-665.7	-238.8	0.00	0.00	
6,400.0	7.20	250.27	6,355.6	-243.0	-677.5	-243.0	0.00	0.00	
6,500.0	7.20	250.27	6,454.9	-247.2	-689.3	-247.2	0.00	0.00	
6,571.7	7.20	250.27	6,526.0	-250.3	-697.7	-250.3	0.00	0.00	Start build/turn @ 6571' MD
6,600.0	6.80	273.44	6,554.1	-250.8	-701.1	-250.8	10.00	-1.44	
6,700.0	12.40	327.25	6,652.8	-241.3	-712.8	-241.3	10.00	5.61	
6,800.0	21.46	342.38	6,748.4	-214.8	-724.2	-214.8	10.00	9.06	
6,900.0	31.08	348.62	6,838.0	-172.0	-734.9	-172.0	10.00	9.62	
7,000.0	40.88	352.10	6,918.8	-114.1	-744.5	-114.1	10.00	9.79	
7,088.3	49.58	354.19	6,981.0	-51.9	-751.9	-51.9	10.00	9.86	Sharon Springs
7,100.0	50.74	354.42	6,988.5	-43.0	-752.8	-43.0	10.00	9.88	
7,200.0	60.63	356.16	7,044.8	39.2	-759.5	39.2	10.00	9.90	
7,239.6	64.56	356.76	7,063.0	74.3	-761.6	74.3	10.00	9.91	Niobrara
7,300.0	70.55	357.59	7,086.1	130.0	-764.4	130.0	10.00	9.92	
7,375.5	78.04	358.56	7,106.5	202.6	-766.8	202.6	10.00	9.92	7"
7,388.4	79.32	358.71	7,109.0	215.2	-767.1	215.2	10.00	9.93	B Chalk
7,400.0	80.47	358.86	7,111.0	226.7	-767.3	226.7	10.00	9.93	
7,495.9	90.00	0.00	7,119.0	322.2	-768.3	322.2	10.00	9.93	LP @ 7119' TVD; 90°
7,500.0	90.00	0.00	7,119.0	326.2	-768.3	326.2	0.00	0.00	
7,600.0	90.00	0.00	7,119.0	426.2	-768.3	426.2	0.00	0.00	
7,700.0	90.00	0.00	7,119.0	526.2	-768.3	526.2	0.00	0.00	
7,800.0	90.00	0.00	7,119.0	626.2	-768.3	626.2	0.00	0.00	
7,900.0	90.00	0.00	7,119.0	726.2	-768.3	726.2	0.00	0.00	
8,000.0	90.00	0.00	7,119.0	826.2	-768.3	826.2	0.00	0.00	
8,100.0	90.00	0.00	7,119.0	926.2	-768.3	926.2	0.00	0.00	
8,200.0	90.00	0.00	7,119.0	1,026.2	-768.3	1,026.2	0.00	0.00	
8,300.0	90.00	0.00	7,119.0	1,126.2	-768.3	1,126.2	0.00	0.00	
8,400.0	90.00	0.00	7,119.0	1,226.2	-768.3	1,226.2	0.00	0.00	
8,500.0	90.00	0.00	7,119.0	1,326.2	-768.3	1,326.2	0.00	0.00	
8,600.0	90.00	0.00	7,119.0	1,426.2	-768.3	1,426.2	0.00	0.00	
8,700.0	90.00	0.00	7,119.0	1,526.2	-768.3	1,526.2	0.00	0.00	
8,800.0	90.00	0.00	7,119.0	1,626.2	-768.3	1,626.2	0.00	0.00	
8,900.0	90.00	0.00	7,119.0	1,726.2	-768.3	1,726.2	0.00	0.00	
9,000.0	90.00	0.00	7,119.0	1,826.2	-768.3	1,826.2	0.00	0.00	
9,100.0	90.00	0.00	7,119.0	1,926.2	-768.3	1,926.2	0.00	0.00	

Cathedral Energy Services

Planning Report

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 4890.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	KB @ 4890.0ft (Ensign)
Site:	S5-T2N-R67W (Vogl-McCoy)	North Reference:	True
Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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
9,200.0	90.00	0.00	7,119.0	2,026.2	-768.3	2,026.2	0.00	0.00	
9,300.0	90.00	0.00	7,119.0	2,126.2	-768.3	2,126.2	0.00	0.00	
9,400.0	90.00	0.00	7,119.0	2,226.2	-768.3	2,226.2	0.00	0.00	
9,500.0	90.00	0.00	7,119.0	2,326.2	-768.3	2,326.2	0.00	0.00	
9,600.0	90.00	0.00	7,119.0	2,426.2	-768.3	2,426.2	0.00	0.00	
9,700.0	90.00	0.00	7,119.0	2,526.2	-768.3	2,526.2	0.00	0.00	
9,800.0	90.00	0.00	7,119.0	2,626.2	-768.3	2,626.2	0.00	0.00	
9,900.0	90.00	0.00	7,119.0	2,726.2	-768.3	2,726.2	0.00	0.00	
10,000.0	90.00	0.00	7,119.0	2,826.2	-768.3	2,826.2	0.00	0.00	
10,100.0	90.00	0.00	7,119.0	2,926.2	-768.3	2,926.2	0.00	0.00	
10,200.0	90.00	0.00	7,119.0	3,026.2	-768.3	3,026.2	0.00	0.00	
10,300.0	90.00	0.00	7,119.0	3,126.2	-768.3	3,126.2	0.00	0.00	
10,400.0	90.00	0.00	7,119.0	3,226.2	-768.3	3,226.2	0.00	0.00	
10,500.0	90.00	0.00	7,119.0	3,326.2	-768.3	3,326.2	0.00	0.00	
10,600.0	90.00	0.00	7,119.0	3,426.2	-768.3	3,426.2	0.00	0.00	
10,700.0	90.00	0.00	7,119.0	3,526.2	-768.3	3,526.2	0.00	0.00	
10,800.0	90.00	0.00	7,119.0	3,626.2	-768.3	3,626.2	0.00	0.00	
10,900.0	90.00	0.00	7,119.0	3,726.2	-768.3	3,726.2	0.00	0.00	
11,000.0	90.00	0.00	7,119.0	3,826.2	-768.3	3,826.2	0.00	0.00	
11,100.0	90.00	0.00	7,119.0	3,926.2	-768.3	3,926.2	0.00	0.00	
11,200.0	90.00	0.00	7,119.0	4,026.2	-768.3	4,026.2	0.00	0.00	
11,300.0	90.00	0.00	7,119.0	4,126.2	-768.3	4,126.2	0.00	0.00	
11,400.0	90.00	0.00	7,119.0	4,226.2	-768.3	4,226.2	0.00	0.00	
11,500.0	90.00	0.00	7,119.0	4,326.2	-768.3	4,326.2	0.00	0.00	
11,600.0	90.00	0.00	7,119.0	4,426.2	-768.3	4,426.2	0.00	0.00	
11,700.0	90.00	0.00	7,119.0	4,526.2	-768.3	4,526.2	0.00	0.00	
11,800.0	90.00	0.00	7,119.0	4,626.2	-768.3	4,626.2	0.00	0.00	
11,900.0	90.00	0.00	7,119.0	4,726.2	-768.3	4,726.2	0.00	0.00	
12,000.0	90.00	0.00	7,119.0	4,826.2	-768.3	4,826.2	0.00	0.00	
12,100.0	90.00	0.00	7,119.0	4,926.2	-768.3	4,926.2	0.00	0.00	
12,200.0	90.00	0.00	7,119.0	5,026.2	-768.3	5,026.2	0.00	0.00	
12,300.0	90.00	0.00	7,119.0	5,126.2	-768.3	5,126.2	0.00	0.00	
12,400.0	90.00	0.00	7,119.0	5,226.2	-768.3	5,226.2	0.00	0.00	
12,500.0	90.00	0.00	7,119.0	5,326.2	-768.3	5,326.2	0.00	0.00	
12,600.0	90.00	0.00	7,119.0	5,426.2	-768.3	5,426.2	0.00	0.00	
12,700.0	90.00	0.00	7,119.0	5,526.2	-768.3	5,526.2	0.00	0.00	
12,800.0	90.00	0.00	7,119.0	5,626.2	-768.3	5,626.2	0.00	0.00	
12,900.0	90.00	0.00	7,119.0	5,726.2	-768.3	5,726.2	0.00	0.00	
13,000.0	90.00	0.00	7,119.0	5,826.2	-768.3	5,826.2	0.00	0.00	
13,100.0	90.00	0.00	7,119.0	5,926.2	-768.3	5,926.2	0.00	0.00	
13,200.0	90.00	0.00	7,119.0	6,026.2	-768.3	6,026.2	0.00	0.00	
13,300.0	90.00	0.00	7,119.0	6,126.2	-768.3	6,126.2	0.00	0.00	
13,400.0	90.00	0.00	7,119.0	6,226.2	-768.3	6,226.2	0.00	0.00	
13,500.0	90.00	0.00	7,119.0	6,326.2	-768.3	6,326.2	0.00	0.00	
13,600.0	90.00	0.00	7,119.0	6,426.2	-768.3	6,426.2	0.00	0.00	
13,700.0	90.00	0.00	7,119.0	6,526.2	-768.3	6,526.2	0.00	0.00	
13,800.0	90.00	0.00	7,119.0	6,626.2	-768.3	6,626.2	0.00	0.00	
13,900.0	90.00	0.00	7,119.0	6,726.2	-768.3	6,726.2	0.00	0.00	
14,000.0	90.00	0.00	7,119.0	6,826.2	-768.3	6,826.2	0.00	0.00	
14,100.0	90.00	0.00	7,119.0	6,926.2	-768.3	6,926.2	0.00	0.00	
14,200.0	90.00	0.00	7,119.0	7,026.2	-768.3	7,026.2	0.00	0.00	
14,300.0	90.00	0.00	7,119.0	7,126.2	-768.3	7,126.2	0.00	0.00	

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KB @ 4890.0ft (Ensign)
Project:	DJ Wattenberg	MD Reference:	KB @ 4890.0ft (Ensign)
Site:	S5-T2N-R67W (Vogl-McCoy)	North Reference:	True
Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
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
14,400.0	90.00	0.00	7,119.0	7,226.2	-768.3	7,226.2	0.00	0.00	
14,500.0	90.00	0.00	7,119.0	7,326.2	-768.3	7,326.2	0.00	0.00	
14,586.9	90.00	0.00	7,119.0	7,413.2	-768.3	7,413.2	0.00	0.00	TD at 14586.9 - Vogl-Geist 2D-5H-F267 PBHL

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									
Vogl-Geist 2D-5H-F267	0.00	0.00	7,119.0	7,413.2	-768.3	1,312,035.15	3,162,648.67	40.188460	-104.917840
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
7,375.5	7,106.5	7"	0.000	0.000	

Formations					
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
290.0	290.0	Fox Hills - BASE			
4,152.6	4,126.0	Sussex			
4,440.9	4,412.0	Sussex Marker			
4,724.1	4,693.0	Shannon			
6,041.5	6,000.0	Teepee Buttes (*if present)			
7,088.3	6,981.0	Sharon Springs			
7,239.6	7,063.0	Niobrara			
7,388.4	7,109.0	B Chalk			

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.0	300.0	0.0	0.0	KOP @ 300'
1,020.3	1,018.4	-15.3	-42.6	EOB; Inc=7.2°
6,571.7	6,526.0	-250.3	-697.7	Start build/turn @ 6571' MD
7,495.9	7,119.0	322.2	-768.3	LP @ 7119' TVD; 90°
14,586.9	7,119.0	7,413.2	-768.3	TD at 14586.9

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S5-T2N-R67W (Vogl-McCoy)

Vogl-Geist 2D-5H-F267

Hz

Plan #1

Anticollision Report

21 May, 2013

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference	Plan #1		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	Unlimited	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	5/21/2013		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	14,586.9	Plan #1 (Hz)	MWD	Geolink MWD

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary

Site Name Offset Well - Wellbore - Design	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
S5-T2N-R67W (Vogl-McCoy)						
ALFRED SATER UNIT 2 (EXISTING) - KMG WELL - NO						Out of range
CHENG 3-8A (EXISTING) - KMG WELL - SURVEYS						Out of range
DIER 13-8 (EXISTING) - ENCANA WELL - Plan #1						Out of range
DIER 13-8 (EXISTING) - ENCANA WELL - SURVEYS						Out of range
DIER 14-8 (EXISTING) - ENCANA WELL - Plan #1						Out of range
DIER 14-8 (EXISTING) - ENCANA WELL - Plan #2						Out of range
DIER 14-8 (EXISTING) - ENCANA WELL - SURVEYS						Out of range
DIER 23-8 (EXISTING) - ENCANA WELL - Plan #1						Out of range
DIER 23-8 (EXISTING) - ENCANA WELL - SURVEYS						Out of range
DIER 24-8 (EXISTING) - ENCANA WELL - Plan #1						Out of range
DIER 24-8 (EXISTING) - ENCANA WELL - SURVEYS						Out of range
DIER 4-8 (EXISTING) - ENCANA WELL - SURVEYS						Out of range
GEIST 0-2-32 (EXISTING) - ENCANA WELL - NO SURV						Out of range
GEIST 11-32 (EXISTING) - ENCANA WELL - NO SURVE						Out of range
GEIST 12-32 (EXISTING) - ENCANA WELL - NO SURVE						Out of range
GEIST 2-0-32 (EXISTING) - ENCANA WELL - SURVEYS	14,586.9	7,137.7	455.9	305.8	3.038	CC, ES, SF
GEIST 21-32 (EXISTING) - ENCANA WELL - NO SURVE	14,256.5	7,039.0	265.1	126.4	1.911	CC, ES, SF
GEIST 22-32 (EXISTING) - ENCANA WELL - NO SURVE	12,877.7	7,035.0	468.5	353.8	4.084	CC, ES
GEIST 22-32 (EXISTING) - ENCANA WELL - NO SURVE	12,900.0	7,035.0	469.0	353.9	4.075	SF
GEIST 2-4-32 (EXISTING) - ENCANA WELL - SURVEYS	12,292.5	7,218.7	212.8	96.1	1.823	CC, ES
GEIST 2-4-32 (EXISTING) - ENCANA WELL - SURVEYS	12,300.0	7,218.7	213.0	96.1	1.822	SF
GEIST 4-2-32 (EXISTING) - ENCANA WELL - SURVEYS						Out of range
GEIST A UNIT #1 (EXISTING) - ENCANA WELL - SURV	13,524.3	7,029.0	332.2	206.3	2.637	CC, ES, SF
MCCOY #1 (EXISTING) - ENCANA WELL - NO SURVEY						Out of range
MCCOY 0-6-5 (EXISTING) - ENCANA WELL - NO SURV						Out of range
MCCOY 13-5 (EXISTING) - ENCANA WELL - NO SURV						Out of range
MCCOY 14-5 (EXISTING) - ENCANA WELL - NO SURV						Out of range
MCCOY 23-5 (EXISTING) - ENCANA WELL - NO SURV						Out of range
MCCOY 24-5 (EXISTING) - ENCANA WELL - NO SURV						Out of range
MCCOY 2-4-5 (EXISTING) - ENCANA WELL - Plan #1	6,864.3	6,836.1	273.7	249.2	11.194	CC, ES, SF
MCCOY 2-4-5 (EXISTING) - ENCANA WELL - SURVEYS	6,800.0	6,773.7	275.2	250.5	11.178	SF
MCCOY 2-4-5 (EXISTING) - ENCANA WELL - SURVEYS	6,857.6	6,825.5	273.4	248.9	11.179	CC, ES
NELSON 23-32 (EXISTING) - ENCANA WELL - NO SUR						Out of range
NELSON 4-32 (EXISTING) - ENCANA WELL - NO SURV	10,944.5	7,039.0	307.5	226.3	3.788	CC, ES, SF
NELSON 4-6-32 (EXISTING) - ENCANA WELL - PLAN O						Out of range
OWNES BROTHERS 13-32 (EXISTING) - ENCANA WE						Out of range
PROMINENCE 4-8 (EXISTING) - KMG WELL - NO SUR						Out of range
ROBERT NELSON 14-32 (EXISTING) - ENCANA WELL						Out of range
ROBERT NELSON 24-32 (EXISTING) - ENCANA WELL						Out of range
ROBERT NELSON 2-8-32 (EXISTING) - ENCANA WELL	9,845.6	7,157.7	229.7	165.2	3.559	CC, ES, SF
VOGL 21-5X (EXISTING) - KMG WELL - NO SURVEYS						Out of range
VOGL 31-5 (EXISTING) - KMG WELL - NO SURVEYS						Out of range
VOGL 4-5A (EXISTING) - KMG WELL - NO SURVEYS						Out of range
VOGL 5-5 (EXISTING) - KMG WELL - NO SURVEYS						Out of range
VOGL 5-8A (EXISTING) - KMG WELL - NO SURVEYS						Out of range
Vogl-Geist 2A-5H-E267 - Hz - Plan #1						Out of range
Vogl-Geist 2B-5H-E267 - Hz - Plan #1						Out of range
Vogl-Geist 2C-5H-E267 - Hz - Plan #1	7,327.2	7,430.5	482.7	457.4	19.068	CC
Vogl-Geist 2C-5H-E267 - Hz - Plan #1	14,586.9	14,772.6	485.3	253.1	2.090	ES, SF
Vogl-Geist 2E-5H-F267 - Hz - Plan #1	300.0	300.0	19.6	18.6	20.756	CC, ES
Vogl-Geist 2E-5H-F267 - Hz - Plan #1	14,586.9	14,764.0	474.2	236.3	1.993	SF
Vogl-Geist 2F-5H-F267 - Hz - Plan #1	300.0	299.0	39.1	38.2	41.590	CC, ES
Vogl-Geist 2F-5H-F267 - Hz - Plan #1	800.0	798.4	60.1	57.4	22.390	SF

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
S5-T2N-R67W (Vogl-McCoy)						
Vogl-McCoy 2A-5H-E267 - Hz - Plan #1						Out of range
Vogl-McCoy 2B-5H-E267 - Hz - Plan #1						Out of range
Vogl-McCoy 2C-5H-E267 - Hz - Plan #1						Out of range
Vogl-McCoy 2D-5H-E267 - Hz - Plan #1						Out of range
Vogl-McCoy 2E-5H-F267 - Hz - Plan #1	200.0	200.0	11.2	10.6	18.838	CC, ES
Vogl-McCoy 2E-5H-F267 - Hz - Plan #1	7,181.6	7,151.1	160.6	135.7	6.430	SF
Vogl-McCoy 2F-5H-F267 - Hz - Plan #1	300.0	300.0	8.4	7.4	8.896	CC, ES
Vogl-McCoy 2F-5H-F267 - Hz - Plan #1	600.0	600.2	13.3	11.3	6.661	SF
Vogl-McCoy 2G-5H-F267 - Hz - Plan #1	300.0	299.0	30.7	29.8	32.678	CC, ES
Vogl-McCoy 2G-5H-F267 - Hz - Plan #1	800.0	799.4	49.7	47.0	18.515	SF
Vogl-McCoy 2H-5H-F267 - Hz - Plan #1	300.0	299.0	50.3	49.4	53.473	CC, ES
Vogl-McCoy 2H-5H-F267 - Hz - Plan #1	900.0	898.3	79.5	76.5	26.181	SF
WANDELL 8-2-7 (EXISTING) - ENCANA WELL - SURVE						Out of range
WANDELL 8-4-7 (EXISTING) - ENCANA WELL - SURVE						Out of range

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - GEIST 2-0-32 (EXISTING) - ENCANA WELL - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 650-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	Warning	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)				
14,586.9	7,119.0	7,137.7	7,050.9	132.9	19.5	-91.48	7,807.5	-997.1	455.9	305.8	150.06	3.038 CC, ES, SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - GEIST 21-32 (EXISTING) - ENCANA WELL - NO SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 7851-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
13,900.0	7,119.0	7,039.0	7,039.0	121.0	12.3	90.00	7,082.8	-503.2	444.3	311.7	132.54	3.352		
14,000.0	7,119.0	7,039.0	7,039.0	122.7	12.3	90.00	7,082.8	-503.2	368.9	234.6	134.29	2.747		
14,100.0	7,119.0	7,039.0	7,039.0	124.5	12.3	90.00	7,082.8	-503.2	307.9	171.8	136.03	2.263		
14,200.0	7,119.0	7,039.0	7,039.0	126.2	12.3	90.00	7,082.8	-503.2	271.1	133.3	137.78	1.968		
14,256.5	7,119.0	7,039.0	7,039.0	127.2	12.3	90.00	7,082.8	-503.2	265.1	126.4	138.76	1.911	CC, ES, SF	
14,300.0	7,119.0	7,039.0	7,039.0	128.0	12.3	90.00	7,082.8	-503.2	268.7	129.1	139.52	1.926		
14,400.0	7,119.0	7,039.0	7,039.0	129.7	12.3	90.00	7,082.8	-503.2	301.5	160.2	141.27	2.134		
14,500.0	7,119.0	7,039.0	7,039.0	131.4	12.3	90.00	7,082.8	-503.2	360.0	217.0	143.02	2.517		
14,586.9	7,119.0	7,039.0	7,039.0	132.9	12.3	90.00	7,082.8	-503.2	423.6	279.1	144.53	2.931		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design												S5-T2N-R67W (Vogl-McCoy) - GEIST 22-32 (EXISTING) - ENCANA WELL - NO SURVEYS		Offset Site Error:		0.0 ft	
Survey Program:												7870-MWD		Offset Well Error:		0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor						
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)							
12,800.0	7,119.0	7,035.0	7,035.0	102.0	12.3	90.00	5,704.0	-299.8	474.9	361.5	113.36	4.189					
12,877.7	7,119.0	7,035.0	7,035.0	103.3	12.3	90.00	5,704.0	-299.8	468.5	353.8	114.71	4.084 CC, ES					
12,900.0	7,119.0	7,035.0	7,035.0	103.7	12.3	90.00	5,704.0	-299.8	469.0	353.9	115.10	4.075 SF					
13,000.0	7,119.0	7,035.0	7,035.0	105.4	12.3	90.00	5,704.0	-299.8	484.2	367.4	116.84	4.144					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - GEIST 2-4-32 (EXISTING) - ENCANA WELL - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 762-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
11,900.0	7,119.0	7,218.5	7,041.6	86.5	24.6	-89.36	5,118.7	-981.1	446.5	336.5	109.91	4.062		
12,000.0	7,119.0	7,218.5	7,041.7	88.2	24.6	-89.37	5,118.7	-981.1	361.7	250.1	111.65	3.240		
12,100.0	7,119.0	7,218.6	7,041.7	89.9	24.6	-89.39	5,118.7	-981.1	286.9	173.6	113.39	2.531		
12,200.0	7,119.0	7,218.6	7,041.8	91.6	24.6	-89.40	5,118.7	-981.1	232.0	116.9	115.12	2.016		
12,292.5	7,119.0	7,218.7	7,041.8	93.2	24.6	-89.42	5,118.7	-981.1	212.8	96.1	116.73	1.823 CC, ES		
12,300.0	7,119.0	7,218.7	7,041.9	93.4	24.6	-89.42	5,118.7	-981.1	213.0	96.1	116.86	1.822 SF		
12,400.0	7,119.0	7,218.8	7,041.9	95.1	24.6	-89.43	5,118.7	-981.1	238.4	119.8	118.60	2.010		
12,500.0	7,119.0	7,218.8	7,042.0	96.8	24.6	-89.45	5,118.7	-981.1	297.3	176.9	120.34	2.470		
12,600.0	7,119.0	7,218.9	7,042.0	98.5	24.6	-89.46	5,118.7	-981.1	374.0	251.9	122.08	3.063		
12,700.0	7,119.0	7,218.9	7,042.1	100.3	24.6	-89.48	5,118.7	-981.1	459.8	335.9	123.82	3.713		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - GEIST A UNIT #1 (EXISTING) - ENCANA WELL - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 7870-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
13,200.0	7,119.0	7,029.0	7,029.0	108.9	12.3	-90.00	6,350.6	-1,100.5	464.3	344.0	120.32	3.859		
13,300.0	7,119.0	7,029.0	7,029.0	110.6	12.3	-90.00	6,350.6	-1,100.5	400.9	278.8	122.06	3.284		
13,400.0	7,119.0	7,029.0	7,029.0	112.4	12.3	-90.00	6,350.6	-1,100.5	354.7	230.9	123.80	2.865		
13,500.0	7,119.0	7,029.0	7,029.0	114.1	12.3	-90.00	6,350.6	-1,100.5	333.1	207.6	125.55	2.653		
13,524.3	7,119.0	7,029.0	7,029.0	114.5	12.3	-90.00	6,350.6	-1,100.5	332.2	206.3	125.97	2.637 CC, ES, SF		
13,600.0	7,119.0	7,029.0	7,029.0	115.8	12.3	-90.00	6,350.6	-1,100.5	340.7	213.4	127.29	2.677		
13,700.0	7,119.0	7,029.0	7,029.0	117.5	12.3	-90.00	6,350.6	-1,100.5	375.8	246.8	129.04	2.913		
13,800.0	7,119.0	7,029.0	7,029.0	119.3	12.3	-90.00	6,350.6	-1,100.5	431.7	300.9	130.78	3.301		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - MCCOY 2-4-5 (EXISTING) - ENCANA WELL - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,700.0	5,661.2	5,753.6	5,703.2	15.0	15.5	10.72	-289.5	-1,060.9	477.0	456.1	20.94	22.784		
5,800.0	5,760.4	5,849.7	5,798.2	15.2	15.8	11.74	-281.9	-1,048.2	450.8	429.3	21.44	21.029		
5,900.0	5,859.6	5,945.9	5,893.2	15.5	16.1	12.89	-274.3	-1,035.6	424.6	402.7	21.96	19.334		
6,000.0	5,958.8	6,038.9	5,985.1	15.8	16.4	14.14	-266.9	-1,023.5	398.8	376.3	22.51	17.717		
6,100.0	6,058.0	6,125.2	6,070.7	16.1	16.6	15.30	-261.1	-1,013.9	375.1	352.1	23.04	16.284		
6,200.0	6,157.2	6,212.7	6,157.8	16.4	16.8	16.42	-256.6	-1,006.5	354.3	330.7	23.56	15.037		
6,300.0	6,256.4	6,300.0	6,244.9	16.6	17.0	17.44	-253.5	-1,001.3	336.2	312.2	24.06	13.972		
6,400.0	6,355.6	6,391.1	6,335.9	16.9	17.1	18.36	-251.7	-998.3	321.0	296.4	24.55	13.073		
6,500.0	6,454.9	6,484.1	6,428.9	17.2	17.2	19.12	-251.3	-997.7	308.4	283.4	25.01	12.330		
6,600.0	6,554.1	6,583.3	6,528.1	17.5	17.3	-3.56	-251.3	-997.7	296.6	271.2	25.40	11.677		
6,700.0	6,652.8	6,682.0	6,626.8	17.7	17.4	-59.84	-251.3	-997.7	285.0	259.9	25.15	11.331		
6,800.0	6,748.4	6,777.7	6,722.4	17.8	17.6	-80.66	-251.3	-997.7	275.9	251.3	24.64	11.197		
6,864.3	6,806.9	6,836.1	6,780.9	17.9	17.6	-89.99	-251.3	-997.7	273.7	249.2	24.45	11.194 CC, ES, SF		
6,900.0	6,838.0	6,867.2	6,812.0	17.9	17.7	-94.64	-251.3	-997.7	274.5	250.1	24.41	11.246		
7,000.0	6,918.8	6,948.1	6,892.9	18.0	17.8	-105.82	-251.3	-997.7	288.0	263.4	24.53	11.740		
7,100.0	6,988.5	7,017.7	6,962.5	18.2	17.8	-113.74	-251.3	-997.7	321.5	296.9	24.62	13.058		
7,200.0	7,044.8	7,074.0	7,018.8	18.4	17.9	-117.58	-251.3	-997.7	375.7	351.0	24.66	15.237		
7,300.0	7,086.1	7,115.3	7,060.1	18.7	18.0	-116.39	-251.3	-997.7	447.0	421.9	25.15	17.775		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - MCCOY 2-4-5 (EXISTING) - ENCANA WELL - SURVEYS													Offset Site Error:	0.0 ft
Survey Program: 718-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
5,500.0	5,462.8	5,539.9	5,491.0	14.4	15.3	9.93	-290.8	-1,057.9	497.1	477.0	20.16	24.657		
5,600.0	5,562.0	5,632.6	5,583.1	14.7	15.5	10.64	-285.5	-1,049.2	474.7	454.1	20.60	23.044		
5,700.0	5,661.2	5,734.0	5,683.9	15.0	15.8	11.40	-280.3	-1,039.4	452.2	431.2	21.06	21.477		
5,800.0	5,760.4	5,829.4	5,778.7	15.2	16.0	12.10	-276.1	-1,029.6	429.3	407.8	21.49	19.970		
5,900.0	5,859.6	5,918.4	5,867.3	15.5	16.2	12.80	-272.5	-1,021.7	407.8	385.9	21.93	18.597		
6,000.0	5,958.8	6,009.9	5,958.5	15.8	16.4	13.62	-268.8	-1,015.4	388.4	366.0	22.40	17.341		
6,100.0	6,058.0	6,106.9	6,055.2	16.1	16.6	14.67	-264.3	-1,009.6	369.8	346.9	22.91	16.141		
6,200.0	6,157.2	6,199.9	6,148.0	16.4	16.8	15.63	-260.9	-1,004.6	352.1	328.7	23.41	15.041		
6,300.0	6,256.4	6,293.3	6,241.4	16.6	16.9	16.57	-258.4	-1,001.1	336.1	312.2	23.91	14.060		
6,400.0	6,355.6	6,387.5	6,335.5	16.9	17.1	17.51	-256.4	-998.8	321.7	297.3	24.41	13.180		
6,500.0	6,454.9	6,484.2	6,432.1	17.2	17.2	18.44	-255.0	-997.5	308.3	283.4	24.91	12.379		
6,600.0	6,554.1	6,581.4	6,529.4	17.5	17.3	-4.13	-254.2	-996.8	295.7	270.4	25.31	11.682		
6,700.0	6,652.8	6,679.1	6,627.0	17.7	17.5	-60.32	-253.6	-996.6	284.0	258.9	25.10	11.316		
6,800.0	6,748.4	6,773.7	6,721.7	17.8	17.6	-81.02	-253.3	-996.7	275.2	250.5	24.62	11.178 SF		
6,857.6	6,800.9	6,825.5	6,773.5	17.9	17.6	-89.34	-253.2	-996.9	273.4	248.9	24.45	11.179 CC, ES		
6,900.0	6,838.0	6,862.3	6,810.2	17.9	17.7	-94.80	-253.2	-997.1	274.6	250.2	24.41	11.248		
7,000.0	6,918.8	6,943.4	6,891.3	18.0	17.7	-105.88	-253.1	-997.7	288.9	264.3	24.53	11.775		
7,100.0	6,988.5	7,013.0	6,961.0	18.2	17.8	-113.67	-253.0	-998.2	323.0	298.4	24.63	13.116		
7,200.0	7,044.8	7,069.6	7,017.6	18.4	17.9	-117.45	-253.0	-998.5	377.6	352.9	24.67	15.303		
7,300.0	7,086.1	7,111.4	7,059.4	18.7	17.9	-116.27	-253.0	-998.7	449.0	423.9	25.17	17.838		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design													S5-T2N-R67W (Vogl-McCoy) - NELSON 4-32 (EXISTING) - ENCANA WELL - NO SURVEYS		Offset Site Error:		0.0 ft
Survey Program:													7940-MWD		Offset Well Error:		0.0 ft
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	+N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)						
10,600.0	7,119.0	7,039.0	7,039.0	64.4	12.3	-90.00	3,770.7	-1,075.8	461.7	386.5	75.24	6.137		CC, ES, SF			
10,700.0	7,119.0	7,039.0	7,039.0	66.1	12.3	-90.00	3,770.7	-1,075.8	392.8	315.9	76.97	5.104					
10,800.0	7,119.0	7,039.0	7,039.0	67.8	12.3	-90.00	3,770.7	-1,075.8	339.7	261.0	78.69	4.317					
10,900.0	7,119.0	7,039.0	7,039.0	69.5	12.3	-90.00	3,770.7	-1,075.8	310.7	230.3	80.41	3.864					
10,944.5	7,119.0	7,039.0	7,039.0	70.2	12.3	-90.00	3,770.7	-1,075.8	307.5	226.3	81.18	3.788					
11,000.0	7,119.0	7,039.0	7,039.0	71.1	12.3	-90.00	3,770.7	-1,075.8	312.4	230.3	82.14	3.804					
11,100.0	7,119.0	7,039.0	7,039.0	72.8	12.3	-90.00	3,770.7	-1,075.8	344.6	260.7	83.87	4.109					
11,200.0	7,119.0	7,039.0	7,039.0	74.5	12.3	-90.00	3,770.7	-1,075.8	399.8	314.2	85.59	4.671					
11,300.0	7,119.0	7,039.0	7,039.0	76.2	12.3	-90.00	3,770.7	-1,075.8	470.0	382.7	87.32	5.383					

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - ROBERT NELSON 2-8-32 (EXISTING) - ENCANA WELL - SURVEYS													Offset Site Error: 0.0 ft
Survey Program: 100-MWD													Offset Well Error: 0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	
9,500.0	7,119.0	7,161.7	7,062.5	46.2	19.3	-92.86	2,671.8	-997.7	415.0	356.3	58.67	7.073	
9,600.0	7,119.0	7,160.5	7,061.3	47.8	19.3	-92.58	2,671.8	-997.8	336.3	275.9	60.36	5.571	
9,700.0	7,119.0	7,159.4	7,060.2	49.5	19.3	-92.29	2,671.8	-997.8	272.0	209.9	62.06	4.382	
9,800.0	7,119.0	7,158.2	7,059.0	51.1	19.3	-91.99	2,671.9	-997.9	234.2	170.4	63.76	3.673	
9,845.6	7,119.0	7,157.7	7,058.5	51.8	19.3	-91.86	2,671.9	-997.9	229.7	165.2	64.54	3.559 CC, ES, SF	
9,900.0	7,119.0	7,157.0	7,057.8	52.7	19.3	-91.70	2,671.9	-997.9	236.0	170.6	65.46	3.606	
10,000.0	7,119.0	7,155.8	7,056.6	54.4	19.3	-91.40	2,671.9	-997.9	276.8	209.6	67.17	4.120	
10,100.0	7,119.0	7,154.6	7,055.5	56.0	19.3	-91.11	2,671.9	-998.0	342.7	273.8	68.88	4.976	
10,200.0	7,119.0	7,153.5	7,054.3	57.7	19.3	-90.81	2,671.9	-998.0	422.3	351.7	70.59	5.982	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-Geist 2C-5H-E267 - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: O-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor	Warning	
7,100.0	6,988.5	7,147.9	7,077.4	18.2	18.7	-103.02	-125.4	-1,224.3	491.8	465.8	25.98	18.928		
7,200.0	7,044.8	7,266.5	7,167.7	18.4	18.9	-108.87	-49.9	-1,213.3	485.3	459.5	25.73	18.862		
7,300.0	7,086.1	7,394.2	7,245.6	18.7	19.1	-113.61	50.6	-1,203.8	482.8	457.5	25.36	19.036		
7,327.2	7,094.5	7,430.5	7,263.5	18.8	19.2	-114.68	82.1	-1,201.6	482.7	457.4	25.32	19.068 CC		
7,400.0	7,111.0	7,530.8	7,302.3	19.2	19.6	-117.02	174.3	-1,196.9	483.3	457.9	25.39	19.034		
7,500.0	7,119.0	7,674.3	7,328.9	19.8	20.3	-118.80	314.9	-1,193.7	485.6	459.1	26.42	18.378		
7,600.0	7,119.0	7,785.7	7,330.0	20.5	21.0	-118.93	426.3	-1,193.5	485.8	457.7	28.14	17.263		
7,700.0	7,119.0	7,885.7	7,330.0	21.3	21.8	-118.93	526.3	-1,193.5	485.8	455.8	30.03	16.180		
7,800.0	7,119.0	7,985.7	7,330.0	22.3	22.7	-118.93	626.3	-1,193.5	485.8	453.7	32.09	15.138		
7,900.0	7,119.0	8,085.7	7,330.0	23.3	23.6	-118.93	726.3	-1,193.5	485.8	451.5	34.31	14.159		
8,000.0	7,119.0	8,185.7	7,330.0	24.4	24.7	-118.93	826.3	-1,193.5	485.8	449.2	36.65	13.254		
8,100.0	7,119.0	8,285.7	7,330.0	25.6	25.9	-118.93	926.3	-1,193.5	485.8	446.7	39.10	12.425		
8,200.0	7,119.0	8,385.7	7,330.0	26.9	27.1	-118.93	1,026.3	-1,193.5	485.8	444.2	41.63	11.671		
8,300.0	7,119.0	8,485.7	7,330.0	28.2	28.3	-118.93	1,126.3	-1,193.5	485.8	441.6	44.22	10.985		
8,400.0	7,119.0	8,585.7	7,330.0	29.5	29.7	-118.93	1,226.3	-1,193.5	485.8	438.9	46.88	10.363		
8,500.0	7,119.0	8,685.7	7,330.0	30.9	31.0	-118.93	1,326.3	-1,193.4	485.8	436.2	49.58	9.798		
8,600.0	7,119.0	8,785.7	7,330.0	32.3	32.4	-118.93	1,426.3	-1,193.4	485.8	433.4	52.33	9.284		
8,700.0	7,119.0	8,885.7	7,330.0	33.8	33.8	-118.93	1,526.3	-1,193.4	485.8	430.7	55.11	8.815		
8,800.0	7,119.0	8,985.7	7,330.0	35.3	35.3	-118.93	1,626.3	-1,193.4	485.8	427.8	57.92	8.387		
8,900.0	7,119.0	9,085.7	7,330.0	36.8	36.8	-118.93	1,726.3	-1,193.4	485.7	425.0	60.75	7.996		
9,000.0	7,119.0	9,185.7	7,330.0	38.3	38.3	-118.93	1,826.3	-1,193.4	485.7	422.1	63.61	7.636		
9,100.0	7,119.0	9,285.7	7,330.0	39.9	39.8	-118.93	1,926.3	-1,193.4	485.7	419.2	66.49	7.306		
9,200.0	7,119.0	9,385.7	7,330.0	41.4	41.4	-118.93	2,026.3	-1,193.4	485.7	416.3	69.38	7.001		
9,300.0	7,119.0	9,485.7	7,330.0	43.0	42.9	-118.94	2,126.3	-1,193.4	485.7	413.4	72.29	6.719		
9,400.0	7,119.0	9,585.7	7,330.0	44.6	44.5	-118.94	2,226.3	-1,193.4	485.7	410.5	75.21	6.458		
9,500.0	7,119.0	9,685.7	7,330.0	46.2	46.1	-118.94	2,326.3	-1,193.4	485.7	407.6	78.15	6.215		
9,600.0	7,119.0	9,785.7	7,330.0	47.8	47.7	-118.94	2,426.3	-1,193.4	485.7	404.6	81.09	5.990		
9,700.0	7,119.0	9,885.7	7,330.0	49.5	49.3	-118.94	2,526.3	-1,193.3	485.7	401.6	84.04	5.779		
9,800.0	7,119.0	9,985.7	7,330.0	51.1	50.9	-118.94	2,626.3	-1,193.3	485.7	398.7	87.01	5.582		
9,900.0	7,119.0	10,085.7	7,330.0	52.7	52.6	-118.94	2,726.3	-1,193.3	485.7	395.7	89.98	5.398		
10,000.0	7,119.0	10,185.7	7,330.0	54.4	54.2	-118.94	2,826.3	-1,193.3	485.7	392.7	92.95	5.225		
10,100.0	7,119.0	10,285.7	7,330.0	56.0	55.9	-118.94	2,926.3	-1,193.3	485.7	389.7	95.94	5.062		
10,200.0	7,119.0	10,385.7	7,330.0	57.7	57.5	-118.94	3,026.3	-1,193.3	485.7	386.7	98.92	4.909		
10,300.0	7,119.0	10,485.7	7,330.0	59.4	59.2	-118.94	3,126.3	-1,193.3	485.6	383.7	101.92	4.765		
10,400.0	7,119.0	10,585.7	7,330.0	61.0	60.8	-118.94	3,226.3	-1,193.3	485.6	380.7	104.92	4.629		
10,500.0	7,119.0	10,685.7	7,330.0	62.7	62.5	-118.94	3,326.3	-1,193.3	485.6	377.7	107.92	4.500		
10,600.0	7,119.0	10,785.7	7,330.0	64.4	64.2	-118.94	3,426.3	-1,193.3	485.6	374.7	110.93	4.378		
10,700.0	7,119.0	10,885.7	7,330.0	66.1	65.8	-118.94	3,526.3	-1,193.3	485.6	371.7	113.94	4.262		
10,800.0	7,119.0	10,985.7	7,330.0	67.8	67.5	-118.94	3,626.3	-1,193.3	485.6	368.7	116.95	4.152		
10,900.0	7,119.0	11,085.7	7,330.0	69.5	69.2	-118.94	3,726.3	-1,193.3	485.6	365.6	119.97	4.048		
11,000.0	7,119.0	11,185.7	7,330.0	71.1	70.9	-118.94	3,826.3	-1,193.2	485.6	362.6	122.99	3.948		
11,100.0	7,119.0	11,285.7	7,330.0	72.8	72.6	-118.94	3,926.3	-1,193.2	485.6	359.6	126.01	3.854		
11,200.0	7,119.0	11,385.7	7,330.0	74.5	74.3	-118.94	4,026.3	-1,193.2	485.6	356.6	129.03	3.763		
11,300.0	7,119.0	11,485.7	7,330.0	76.2	76.0	-118.94	4,126.3	-1,193.2	485.6	353.5	132.06	3.677		
11,400.0	7,119.0	11,585.7	7,330.0	77.9	77.7	-118.94	4,226.3	-1,193.2	485.6	350.5	135.09	3.594		
11,500.0	7,119.0	11,685.7	7,330.0	79.7	79.4	-118.95	4,326.3	-1,193.2	485.6	347.4	138.12	3.515		
11,600.0	7,119.0	11,785.7	7,330.0	81.4	81.1	-118.95	4,426.3	-1,193.2	485.6	344.4	141.15	3.440		
11,700.0	7,119.0	11,885.7	7,330.0	83.1	82.8	-118.95	4,526.3	-1,193.2	485.5	341.4	144.19	3.367		
11,800.0	7,119.0	11,985.7	7,330.0	84.8	84.5	-118.95	4,626.3	-1,193.2	485.5	338.3	147.23	3.298		
11,900.0	7,119.0	12,085.7	7,330.0	86.5	86.2	-118.95	4,726.3	-1,193.2	485.5	335.3	150.26	3.231		
12,000.0	7,119.0	12,185.7	7,330.0	88.2	87.9	-118.95	4,826.3	-1,193.2	485.5	332.2	153.30	3.167		
12,100.0	7,119.0	12,285.7	7,330.0	89.9	89.6	-118.95	4,926.3	-1,193.2	485.5	329.2	156.34	3.105		

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-Geist 2C-5H-E267 - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total		Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Uncertainty Axis	Separation Factor		
12,200.0	7,119.0	12,385.7	7,330.0	91.6	91.3	-118.95	5,026.3	-1,193.1	485.5	326.1	159.39	3.046		
12,300.0	7,119.0	12,485.7	7,330.0	93.4	93.1	-118.95	5,126.3	-1,193.1	485.5	323.1	162.43	2.989		
12,400.0	7,119.0	12,585.7	7,330.0	95.1	94.8	-118.95	5,226.3	-1,193.1	485.5	320.0	165.47	2.934		
12,500.0	7,119.0	12,685.7	7,330.0	96.8	96.5	-118.95	5,326.3	-1,193.1	485.5	317.0	168.52	2.881		
12,600.0	7,119.0	12,785.7	7,330.0	98.5	98.2	-118.95	5,426.3	-1,193.1	485.5	313.9	171.57	2.830		
12,700.0	7,119.0	12,885.7	7,330.0	100.3	99.9	-118.95	5,526.3	-1,193.1	485.5	310.9	174.61	2.780		
12,800.0	7,119.0	12,985.7	7,330.0	102.0	101.7	-118.95	5,626.3	-1,193.1	485.5	307.8	177.66	2.733		
12,900.0	7,119.0	13,085.7	7,330.0	103.7	103.4	-118.95	5,726.3	-1,193.1	485.5	304.8	180.71	2.686		
13,000.0	7,119.0	13,185.7	7,330.0	105.4	105.1	-118.95	5,826.3	-1,193.1	485.5	301.7	183.76	2.642		
13,100.0	7,119.0	13,285.7	7,330.0	107.2	106.8	-118.95	5,926.3	-1,193.1	485.4	298.6	186.81	2.599		
13,200.0	7,119.0	13,385.7	7,330.0	108.9	108.6	-118.95	6,026.3	-1,193.1	485.4	295.6	189.86	2.557		
13,300.0	7,119.0	13,485.7	7,330.0	110.6	110.3	-118.95	6,126.3	-1,193.1	485.4	292.5	192.92	2.516		
13,400.0	7,119.0	13,585.7	7,330.0	112.4	112.0	-118.95	6,226.3	-1,193.0	485.4	289.5	195.97	2.477		
13,500.0	7,119.0	13,685.7	7,330.0	114.1	113.7	-118.95	6,326.3	-1,193.0	485.4	286.4	199.02	2.439		
13,600.0	7,119.0	13,785.7	7,330.0	115.8	115.5	-118.96	6,426.3	-1,193.0	485.4	283.3	202.08	2.402		
13,700.0	7,119.0	13,885.7	7,330.0	117.5	117.2	-118.96	6,526.3	-1,193.0	485.4	280.3	205.13	2.366		
13,800.0	7,119.0	13,985.7	7,330.0	119.3	118.9	-118.96	6,626.3	-1,193.0	485.4	277.2	208.19	2.332		
13,900.0	7,119.0	14,085.7	7,330.0	121.0	120.7	-118.96	6,726.3	-1,193.0	485.4	274.1	211.24	2.298		
14,000.0	7,119.0	14,185.7	7,330.0	122.7	122.4	-118.96	6,826.3	-1,193.0	485.4	271.1	214.30	2.265		
14,100.0	7,119.0	14,285.7	7,330.0	124.5	124.1	-118.96	6,926.3	-1,193.0	485.4	268.0	217.36	2.233		
14,200.0	7,119.0	14,385.7	7,330.0	126.2	125.9	-118.96	7,026.3	-1,193.0	485.4	265.0	220.41	2.202		
14,300.0	7,119.0	14,485.7	7,330.0	128.0	127.6	-118.96	7,126.3	-1,193.0	485.4	261.9	223.47	2.172		
14,400.0	7,119.0	14,585.7	7,330.0	129.7	129.3	-118.96	7,226.3	-1,193.0	485.4	258.8	226.53	2.143		
14,500.0	7,119.0	14,685.7	7,330.0	131.4	131.1	-118.96	7,326.3	-1,193.0	485.4	255.8	229.59	2.114		
14,586.9	7,119.0	14,772.6	7,330.0	132.9	132.6	-118.96	7,413.2	-1,193.0	485.3	253.1	232.25	2.090 ES, SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-Geist 2E-5H-F267 - Hz - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	19.6	19.6							
100.0	100.0	100.0	100.0	0.1	0.1	90.05	0.0	19.6	19.6	19.3	0.24	80.060				
200.0	200.0	200.0	200.0	0.3	0.3	90.05	0.0	19.6	19.6	19.0	0.59	32.966				
300.0	300.0	300.0	300.0	0.5	0.5	90.05	0.0	19.6	19.6	18.6	0.94	20.756	CC, ES			
400.0	400.0	400.0	400.0	0.6	0.6	-161.05	0.0	19.6	20.4	19.1	1.29	15.785				
500.0	500.0	500.0	500.0	0.8	0.8	-163.17	0.0	19.6	22.9	21.2	1.64	13.946				
600.0	599.9	600.3	600.3	1.0	1.0	-164.97	-0.5	18.8	26.3	24.3	1.99	13.219				
700.0	699.7	700.6	700.6	1.2	1.2	-165.64	-1.9	16.6	29.9	27.5	2.34	12.770				
800.0	799.4	801.1	800.9	1.4	1.4	-165.53	-4.3	12.9	33.6	30.9	2.69	12.478				
900.0	898.9	901.5	901.2	1.6	1.6	-164.87	-7.6	7.7	37.5	34.4	3.05	12.283				
1,000.0	998.3	1,001.7	1,001.1	1.9	1.8	-164.03	-11.7	1.3	41.7	38.3	3.41	12.236				
1,100.0	1,097.5	1,101.6	1,100.6	2.2	2.0	-163.69	-15.9	-5.1	47.0	43.2	3.77	12.457				
1,200.0	1,196.7	1,201.4	1,200.2	2.4	2.2	-163.43	-20.0	-11.6	52.3	48.2	4.14	12.640				
1,300.0	1,295.9	1,301.3	1,299.8	2.7	2.4	-163.21	-24.2	-18.1	57.7	53.2	4.51	12.789				
1,400.0	1,395.1	1,401.1	1,399.3	3.0	2.6	-163.04	-28.3	-24.6	63.0	58.1	4.88	12.912				
1,500.0	1,494.3	1,501.0	1,498.9	3.2	2.8	-162.89	-32.5	-31.1	68.3	63.1	5.25	13.016				
1,600.0	1,593.5	1,600.8	1,598.4	3.5	3.0	-162.76	-36.6	-37.5	73.7	68.0	5.62	13.105				
1,700.0	1,692.7	1,700.7	1,698.0	3.8	3.2	-162.65	-40.8	-44.0	79.0	73.0	5.99	13.181				
1,800.0	1,792.0	1,800.6	1,797.6	4.0	3.4	-162.55	-44.9	-50.5	84.3	78.0	6.37	13.247				
1,900.0	1,891.2	1,900.4	1,897.1	4.3	3.7	-162.47	-49.1	-57.0	89.7	82.9	6.74	13.305				
2,000.0	1,990.4	2,000.3	1,996.7	4.6	3.9	-162.39	-53.2	-63.5	95.0	87.9	7.11	13.356				
2,100.0	2,089.6	2,100.1	2,096.2	4.9	4.1	-162.33	-57.4	-70.0	100.3	92.8	7.49	13.401				
2,200.0	2,188.8	2,200.0	2,195.8	5.2	4.3	-162.26	-61.6	-76.4	105.6	97.8	7.86	13.442				
2,300.0	2,288.0	2,299.8	2,295.4	5.4	4.5	-162.21	-65.7	-82.9	111.0	102.7	8.23	13.479				
2,400.0	2,387.2	2,399.7	2,394.9	5.7	4.7	-162.16	-69.9	-89.4	116.3	107.7	8.61	13.512				
2,500.0	2,486.4	2,499.6	2,494.5	6.0	5.0	-162.11	-74.0	-95.9	121.6	112.7	8.98	13.542				
2,600.0	2,585.6	2,599.4	2,594.0	6.3	5.2	-162.07	-78.2	-102.4	127.0	117.6	9.36	13.569				
2,700.0	2,684.8	2,699.3	2,693.6	6.5	5.4	-162.03	-82.3	-108.8	132.3	122.6	9.73	13.594				
2,800.0	2,784.1	2,799.1	2,793.2	6.8	5.6	-162.00	-86.5	-115.3	137.6	127.5	10.11	13.617				
2,900.0	2,883.3	2,899.0	2,892.7	7.1	5.8	-161.97	-90.6	-121.8	143.0	132.5	10.48	13.638				
3,000.0	2,982.5	2,998.9	2,992.3	7.4	6.1	-161.94	-94.8	-128.3	148.3	137.4	10.86	13.658				
3,100.0	3,081.7	3,098.7	3,091.8	7.7	6.3	-161.91	-99.0	-134.8	153.6	142.4	11.23	13.676				
3,200.0	3,180.9	3,198.6	3,191.4	7.9	6.5	-161.88	-103.1	-141.3	159.0	147.4	11.61	13.693				
3,300.0	3,280.1	3,298.4	3,291.0	8.2	6.7	-161.86	-107.3	-147.7	164.3	152.3	11.98	13.709				
3,400.0	3,379.3	3,398.3	3,390.5	8.5	6.9	-161.83	-111.4	-154.2	169.6	157.3	12.36	13.724				
3,500.0	3,478.5	3,498.1	3,490.1	8.8	7.2	-161.81	-115.6	-160.7	175.0	162.2	12.74	13.737				
3,600.0	3,577.7	3,598.0	3,589.7	9.1	7.4	-161.79	-119.7	-167.2	180.3	167.2	13.11	13.750				
3,700.0	3,677.0	3,697.9	3,689.2	9.3	7.6	-161.77	-123.9	-173.7	185.6	172.1	13.49	13.762				
3,800.0	3,776.2	3,797.7	3,788.8	9.6	7.8	-161.75	-128.0	-180.2	191.0	177.1	13.86	13.774				
3,900.0	3,875.4	3,897.6	3,888.3	9.9	8.0	-161.74	-132.2	-186.6	196.3	182.0	14.24	13.785				
4,000.0	3,974.6	3,997.4	3,987.9	10.2	8.2	-161.72	-136.4	-193.1	201.6	187.0	14.62	13.795				
4,100.0	4,073.8	4,097.3	4,087.5	10.5	8.5	-161.71	-140.5	-199.6	207.0	192.0	14.99	13.805				
4,200.0	4,173.0	4,197.1	4,187.0	10.7	8.7	-161.69	-144.7	-206.1	212.3	196.9	15.37	13.814				
4,300.0	4,272.2	4,297.0	4,286.6	11.0	8.9	-161.68	-148.8	-212.6	217.6	201.9	15.74	13.822				
4,400.0	4,371.4	4,396.9	4,386.1	11.3	9.1	-161.66	-153.0	-219.0	223.0	206.8	16.12	13.831				
4,500.0	4,470.6	4,496.7	4,485.7	11.6	9.3	-161.65	-157.1	-225.5	228.3	211.8	16.50	13.838				
4,600.0	4,569.9	4,596.6	4,585.3	11.9	9.6	-161.64	-161.3	-232.0	233.6	216.7	16.87	13.846				
4,700.0	4,669.1	4,696.4	4,684.8	12.1	9.8	-161.63	-165.4	-238.5	238.9	221.7	17.25	13.853				
4,800.0	4,768.3	4,796.3	4,784.4	12.4	10.0	-161.62	-169.6	-245.0	244.3	226.7	17.63	13.860				
4,900.0	4,867.5	4,896.1	4,883.9	12.7	10.2	-161.61	-173.7	-251.5	249.6	231.6	18.00	13.866				
5,000.0	4,966.7	4,996.0	4,983.5	13.0	10.4	-161.60	-177.9	-257.9	254.9	236.6	18.38	13.873				
5,100.0	5,065.9	5,095.9	5,083.1	13.3	10.7	-161.59	-182.1	-264.4	260.3	241.5	18.75	13.878				

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-Geist 2E-5H-F267 - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
5,200.0	5,165.1	5,195.7	5,182.6	13.6	10.9	-161.58	-186.2	-270.9	265.6	246.5	19.13	13.884		
5,300.0	5,264.3	5,295.6	5,282.2	13.8	11.1	-161.57	-190.4	-277.4	270.9	251.4	19.51	13.890		
5,400.0	5,363.5	5,395.4	5,381.7	14.1	11.3	-161.56	-194.5	-283.9	276.3	256.4	19.88	13.895		
5,500.0	5,462.8	5,495.3	5,481.3	14.4	11.5	-161.55	-198.7	-290.3	281.6	261.3	20.26	13.900		
5,600.0	5,562.0	5,595.2	5,580.9	14.7	11.8	-161.54	-202.8	-296.8	286.9	266.3	20.64	13.905		
5,700.0	5,661.2	5,695.0	5,680.4	15.0	12.0	-161.54	-207.0	-303.3	292.3	271.3	21.01	13.909		
5,800.0	5,760.4	5,794.9	5,780.0	15.2	12.2	-161.53	-211.1	-309.8	297.6	276.2	21.39	13.914		
5,900.0	5,859.6	5,894.7	5,879.5	15.5	12.4	-161.52	-215.3	-316.3	302.9	281.2	21.77	13.918		
6,000.0	5,958.8	5,994.6	5,979.1	15.8	12.6	-161.51	-219.5	-322.8	308.3	286.1	22.14	13.922		
6,100.0	6,058.0	6,094.4	6,078.7	16.1	12.9	-161.51	-223.6	-329.2	313.6	291.1	22.52	13.926		
6,200.0	6,157.2	6,194.3	6,178.2	16.4	13.1	-161.50	-227.8	-335.7	318.9	296.0	22.89	13.930		
6,300.0	6,256.4	6,294.2	6,277.8	16.6	13.3	-161.49	-231.9	-342.2	324.3	301.0	23.27	13.934		
6,400.0	6,355.6	6,394.0	6,377.3	16.9	13.5	-161.49	-236.1	-348.7	329.6	305.9	23.65	13.938		
6,500.0	6,454.9	6,493.9	6,476.9	17.2	13.7	-161.48	-240.2	-355.2	334.9	310.9	24.02	13.941		
6,600.0	6,554.1	6,593.7	6,576.5	17.5	14.0	175.49	-244.4	-361.6	340.2	315.9	24.39	13.951		
6,700.0	6,652.8	6,692.5	6,675.0	17.7	14.2	123.97	-248.5	-368.1	345.6	320.7	24.85	13.905		
6,800.0	6,748.4	6,789.7	6,771.9	17.8	14.4	113.39	-251.3	-374.4	352.5	327.1	25.40	13.877		
6,900.0	6,838.0	6,893.2	6,874.4	17.9	14.5	112.06	-239.5	-380.9	362.2	336.5	25.66	14.113		
7,000.0	6,918.8	7,003.9	6,979.6	18.0	14.5	113.21	-206.6	-387.4	373.8	348.3	25.51	14.655		
7,100.0	6,988.5	7,122.7	7,083.5	18.2	14.6	115.13	-149.6	-393.6	386.5	361.4	25.03	15.443		
7,200.0	7,044.8	7,250.4	7,179.4	18.4	14.6	117.12	-65.8	-399.1	398.7	374.3	24.49	16.280		
7,300.0	7,086.1	7,386.7	7,258.7	18.7	14.9	118.78	44.6	-403.3	409.2	384.9	24.37	16.794		
7,400.0	7,111.0	7,530.2	7,311.6	19.2	15.5	119.86	177.6	-405.6	416.6	391.4	25.13	16.577		
7,500.0	7,119.0	7,677.3	7,330.0	19.8	16.4	120.18	323.1	-405.5	419.7	392.7	27.00	15.544		
7,600.0	7,119.0	7,777.3	7,330.0	20.5	17.3	120.12	423.1	-404.6	420.5	391.8	28.66	14.671		
7,700.0	7,119.0	7,877.3	7,330.0	21.3	18.3	120.06	523.1	-403.7	421.2	390.7	30.53	13.799		
7,800.0	7,119.0	7,977.3	7,330.0	22.3	19.4	120.00	623.1	-402.9	422.0	389.4	32.57	12.955		
7,900.0	7,119.0	8,077.3	7,330.0	23.3	20.5	119.94	723.1	-402.0	422.7	388.0	34.77	12.158		
8,000.0	7,119.0	8,177.3	7,330.0	24.4	21.8	119.88	823.0	-401.1	423.5	386.4	37.09	11.417		
8,100.0	7,119.0	8,277.3	7,330.0	25.6	23.1	119.82	923.0	-400.2	424.3	384.7	39.52	10.735		
8,200.0	7,119.0	8,377.3	7,330.0	26.9	24.5	119.77	1,023.0	-399.4	425.0	383.0	42.03	10.112		
8,300.0	7,119.0	8,477.3	7,330.0	28.2	25.9	119.71	1,123.0	-398.5	425.8	381.2	44.62	9.543		
8,400.0	7,119.0	8,577.3	7,330.0	29.5	27.4	119.65	1,223.0	-397.6	426.5	379.3	47.26	9.025		
8,500.0	7,119.0	8,677.3	7,330.0	30.9	28.9	119.59	1,323.0	-396.7	427.3	377.3	49.96	8.553		
8,600.0	7,119.0	8,777.3	7,330.0	32.3	30.4	119.53	1,423.0	-395.9	428.1	375.4	52.70	8.122		
8,700.0	7,119.0	8,877.3	7,330.0	33.8	31.9	119.48	1,523.0	-395.0	428.8	373.3	55.48	7.729		
8,800.0	7,119.0	8,977.3	7,330.0	35.3	33.5	119.42	1,623.0	-394.1	429.6	371.3	58.29	7.369		
8,900.0	7,119.0	9,077.3	7,330.0	36.8	35.1	119.36	1,723.0	-393.3	430.3	369.2	61.14	7.039		
9,000.0	7,119.0	9,177.3	7,330.0	38.3	36.7	119.31	1,823.0	-392.4	431.1	367.1	64.01	6.735		
9,100.0	7,119.0	9,277.3	7,330.0	39.9	38.3	119.25	1,923.0	-391.5	431.9	365.0	66.90	6.455		
9,200.0	7,119.0	9,377.2	7,330.0	41.4	39.9	119.19	2,023.0	-390.6	432.6	362.8	69.81	6.197		
9,300.0	7,119.0	9,477.2	7,330.0	43.0	41.6	119.14	2,122.9	-389.8	433.4	360.6	72.74	5.958		
9,400.0	7,119.0	9,577.2	7,330.0	44.6	43.2	119.08	2,222.9	-388.9	434.1	358.5	75.69	5.736		
9,500.0	7,119.0	9,677.2	7,330.0	46.2	44.9	119.02	2,322.9	-388.0	434.9	356.3	78.65	5.530		
9,600.0	7,119.0	9,777.2	7,330.0	47.8	46.5	118.97	2,422.9	-387.2	435.7	354.0	81.63	5.337		
9,700.0	7,119.0	9,877.2	7,330.0	49.5	48.2	118.91	2,522.9	-386.3	436.4	351.8	84.62	5.158		
9,800.0	7,119.0	9,977.2	7,330.0	51.1	49.9	118.86	2,622.9	-385.4	437.2	349.6	87.62	4.990		
9,900.0	7,119.0	10,077.2	7,330.0	52.7	51.5	118.80	2,722.9	-384.5	438.0	347.3	90.63	4.833		
10,000.0	7,119.0	10,177.2	7,330.0	54.4	53.2	118.75	2,822.9	-383.7	438.7	345.1	93.65	4.685		
10,100.0	7,119.0	10,277.2	7,330.0	56.0	54.9	118.69	2,922.9	-382.8	439.5	342.8	96.68	4.546		
10,200.0	7,119.0	10,377.2	7,330.0	57.7	56.6	118.64	3,022.9	-381.9	440.3	340.5	99.72	4.415		
10,300.0	7,119.0	10,477.2	7,330.0	59.4	58.3	118.58	3,122.9	-381.0	441.0	338.3	102.77	4.291		

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-Geist 2E-5H-F267 - Hz - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance				Total Uncertainty Axis	Separation Factor	Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)			
10,400.0	7,119.0	10,577.2	7,330.0	61.0	60.0	118.53	3,222.9	-380.2	441.8	336.0	105.82	4.175	
10,500.0	7,119.0	10,677.2	7,330.0	62.7	61.7	118.48	3,322.9	-379.3	442.6	333.7	108.88	4.064	
10,600.0	7,119.0	10,777.2	7,330.0	64.4	63.4	118.42	3,422.8	-378.4	443.3	331.4	111.95	3.960	
10,700.0	7,119.0	10,877.2	7,330.0	66.1	65.1	118.37	3,522.8	-377.6	444.1	329.1	115.03	3.861	
10,800.0	7,119.0	10,977.2	7,330.0	67.8	66.8	118.32	3,622.8	-376.7	444.9	326.7	118.11	3.766	
10,900.0	7,119.0	11,077.2	7,330.0	69.5	68.5	118.26	3,722.8	-375.8	445.6	324.4	121.20	3.677	
11,000.0	7,119.0	11,177.2	7,330.0	71.1	70.2	118.21	3,822.8	-374.9	446.4	322.1	124.30	3.591	
11,100.0	7,119.0	11,277.2	7,330.0	72.8	72.0	118.16	3,922.8	-374.1	447.2	319.8	127.40	3.510	
11,200.0	7,119.0	11,377.2	7,330.0	74.5	73.7	118.10	4,022.8	-373.2	447.9	317.4	130.50	3.432	
11,300.0	7,119.0	11,477.2	7,330.0	76.2	75.4	118.05	4,122.8	-372.3	448.7	315.1	133.61	3.358	
11,400.0	7,119.0	11,577.2	7,330.0	77.9	77.1	118.00	4,222.8	-371.4	449.5	312.7	136.73	3.287	
11,500.0	7,119.0	11,677.2	7,330.0	79.7	78.8	117.95	4,322.8	-370.6	450.2	310.4	139.85	3.220	
11,600.0	7,119.0	11,777.2	7,330.0	81.4	80.6	117.89	4,422.8	-369.7	451.0	308.0	142.97	3.155	
11,700.0	7,119.0	11,877.2	7,330.0	83.1	82.3	117.84	4,522.8	-368.8	451.8	305.7	146.10	3.092	
11,800.0	7,119.0	11,977.2	7,330.0	84.8	84.0	117.79	4,622.8	-368.0	452.6	303.3	149.23	3.033	
11,900.0	7,119.0	12,077.1	7,330.0	86.5	85.7	117.74	4,722.7	-367.1	453.3	301.0	152.37	2.975	
12,000.0	7,119.0	12,177.1	7,330.0	88.2	87.5	117.69	4,822.7	-366.2	454.1	298.6	155.51	2.920	
12,100.0	7,119.0	12,277.1	7,330.0	89.9	89.2	117.64	4,922.7	-365.3	454.9	296.2	158.66	2.867	
12,200.0	7,119.0	12,377.1	7,330.0	91.6	90.9	117.59	5,022.7	-364.5	455.6	293.8	161.81	2.816	
12,300.0	7,119.0	12,477.1	7,330.0	93.4	92.7	117.54	5,122.7	-363.6	456.4	291.5	164.96	2.767	
12,400.0	7,119.0	12,577.1	7,330.0	95.1	94.4	117.49	5,222.7	-362.7	457.2	289.1	168.12	2.719	
12,500.0	7,119.0	12,677.1	7,330.0	96.8	96.1	117.44	5,322.7	-361.8	458.0	286.7	171.28	2.674	
12,600.0	7,119.0	12,777.1	7,330.0	98.5	97.9	117.39	5,422.7	-361.0	458.7	284.3	174.44	2.630	
12,700.0	7,119.0	12,877.1	7,330.0	100.3	99.6	117.34	5,522.7	-360.1	459.5	281.9	177.61	2.587	
12,800.0	7,119.0	12,977.1	7,330.0	102.0	101.3	117.29	5,622.7	-359.2	460.3	279.5	180.78	2.546	
12,900.0	7,119.0	13,077.1	7,330.0	103.7	103.1	117.24	5,722.7	-358.4	461.1	277.1	183.95	2.506	
13,000.0	7,119.0	13,177.1	7,330.0	105.4	104.8	117.19	5,822.7	-357.5	461.8	274.7	187.13	2.468	
13,100.0	7,119.0	13,277.1	7,330.0	107.2	106.5	117.14	5,922.7	-356.6	462.6	272.3	190.31	2.431	
13,200.0	7,119.0	13,377.1	7,330.0	108.9	108.3	117.09	6,022.6	-355.7	463.4	269.9	193.50	2.395	
13,300.0	7,119.0	13,477.1	7,330.0	110.6	110.0	117.04	6,122.6	-354.9	464.2	267.5	196.68	2.360	
13,400.0	7,119.0	13,577.1	7,330.0	112.4	111.7	116.99	6,222.6	-354.0	465.0	265.1	199.87	2.326	
13,500.0	7,119.0	13,677.1	7,330.0	114.1	113.5	116.94	6,322.6	-353.1	465.7	262.7	203.06	2.293	
13,600.0	7,119.0	13,777.1	7,330.0	115.8	115.2	116.89	6,422.6	-352.2	466.5	260.2	206.26	2.262	
13,700.0	7,119.0	13,877.1	7,330.0	117.5	117.0	116.84	6,522.6	-351.4	467.3	257.8	209.46	2.231	
13,800.0	7,119.0	13,977.1	7,330.0	119.3	118.7	116.80	6,622.6	-350.5	468.1	255.4	212.66	2.201	
13,900.0	7,119.0	14,077.1	7,330.0	121.0	120.4	116.75	6,722.6	-349.6	468.8	253.0	215.86	2.172	
14,000.0	7,119.0	14,177.1	7,330.0	122.7	122.2	116.70	6,822.6	-348.8	469.6	250.6	219.07	2.144	
14,100.0	7,119.0	14,277.1	7,330.0	124.5	123.9	116.65	6,922.6	-347.9	470.4	248.1	222.28	2.116	
14,200.0	7,119.0	14,377.1	7,330.0	126.2	125.7	116.60	7,022.6	-347.0	471.2	245.7	225.49	2.090	
14,300.0	7,119.0	14,477.1	7,330.0	128.0	127.4	116.56	7,122.6	-346.1	472.0	243.3	228.71	2.064	
14,400.0	7,119.0	14,577.1	7,330.0	129.7	129.2	116.51	7,222.6	-345.3	472.7	240.8	231.92	2.038	
14,500.0	7,119.0	14,677.0	7,330.0	131.4	130.9	116.46	7,322.5	-344.4	473.5	238.4	235.14	2.014	
14,586.9	7,119.0	14,764.0	7,330.0	132.9	132.4	116.42	7,409.5	-343.6	474.2	236.3	237.94	1.993 SF	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-Geist 2F-5H-F267 - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	39.1	39.1					
100.0	100.0	99.0	99.0	0.1	0.1	90.05	0.0	39.1	39.1	38.9	0.24	160.925		
200.0	200.0	199.0	199.0	0.3	0.3	90.05	0.0	39.1	39.1	38.5	0.59	66.127		
300.0	300.0	299.0	299.0	0.5	0.5	90.05	0.0	39.1	39.1	38.2	0.94	41.590 CC, ES		
400.0	400.0	399.0	399.0	0.6	0.6	-160.64	0.0	39.1	39.9	38.7	1.29	30.973		
500.0	500.0	499.0	499.0	0.8	0.8	-161.81	0.0	39.1	42.4	40.8	1.64	25.888		
600.0	599.9	598.9	598.9	1.0	1.0	-163.47	0.0	39.1	46.6	44.6	1.99	23.438		
700.0	699.7	698.7	698.7	1.2	1.2	-165.35	0.0	39.1	52.5	50.1	2.34	22.459		
800.0	799.4	798.4	798.4	1.4	1.3	-167.23	0.0	39.1	60.1	57.4	2.68	22.390 SF		
900.0	898.9	897.9	897.9	1.6	1.5	-168.95	0.0	39.1	69.5	66.4	3.03	22.925		
1,000.0	998.3	997.3	997.3	1.9	1.7	-170.48	0.0	39.1	80.6	77.2	3.38	23.882		
1,100.0	1,097.5	1,096.5	1,096.5	2.2	1.9	-171.75	0.0	39.1	93.0	89.3	3.72	24.975		
1,200.0	1,196.7	1,195.7	1,195.7	2.4	2.0	-172.73	0.0	39.1	105.4	101.3	4.07	25.895		
1,300.0	1,295.9	1,294.9	1,294.9	2.7	2.2	-173.50	0.0	39.1	117.8	113.4	4.42	26.678		
1,400.0	1,395.1	1,394.1	1,394.1	3.0	2.4	-174.12	0.0	39.1	130.3	125.6	4.76	27.350		
1,500.0	1,494.3	1,493.3	1,493.3	3.2	2.6	-174.64	0.0	39.1	142.8	137.7	5.11	27.934		
1,600.0	1,593.5	1,592.5	1,592.5	3.5	2.7	-175.07	0.0	39.1	155.3	149.8	5.46	28.446		
1,700.0	1,692.7	1,691.7	1,691.7	3.8	2.9	-175.44	0.0	39.1	167.8	162.0	5.81	28.898		
1,800.0	1,792.0	1,791.0	1,791.0	4.0	3.1	-175.75	0.0	39.1	180.3	174.1	6.15	29.300		
1,900.0	1,891.2	1,890.2	1,890.2	4.3	3.2	-176.03	0.0	39.1	192.8	186.3	6.50	29.659		
2,000.0	1,990.4	1,989.4	1,989.4	4.6	3.4	-176.27	0.0	39.1	205.3	198.5	6.85	29.983		
2,100.0	2,089.6	2,088.6	2,088.6	4.9	3.6	-176.49	0.0	39.1	217.8	210.6	7.19	30.277		
2,200.0	2,188.8	2,187.8	2,187.8	5.2	3.8	-176.68	0.0	39.1	230.3	222.8	7.54	30.543		
2,300.0	2,288.0	2,287.0	2,287.0	5.4	3.9	-176.85	0.0	39.1	242.8	235.0	7.89	30.786		
2,400.0	2,387.2	2,386.2	2,386.2	5.7	4.1	-177.00	0.0	39.1	255.4	247.1	8.24	31.010		
2,500.0	2,486.4	2,485.4	2,485.4	6.0	4.3	-177.14	0.0	39.1	267.9	259.3	8.58	31.215		
2,600.0	2,585.6	2,584.6	2,584.6	6.3	4.5	-177.27	0.0	39.1	280.4	271.5	8.93	31.404		
2,700.0	2,684.8	2,683.8	2,683.8	6.5	4.6	-177.39	0.0	39.1	292.9	283.7	9.28	31.580		
2,800.0	2,784.1	2,783.1	2,783.1	6.8	4.8	-177.50	0.0	39.1	305.5	295.8	9.62	31.743		
2,900.0	2,883.3	2,882.3	2,882.3	7.1	5.0	-177.59	0.0	39.1	318.0	308.0	9.97	31.894		
3,000.0	2,982.5	2,981.5	2,981.5	7.4	5.2	-177.69	0.0	39.1	330.5	320.2	10.32	32.036		
3,100.0	3,081.7	3,080.7	3,080.7	7.7	5.3	-177.77	0.0	39.1	343.0	332.4	10.66	32.168		
3,200.0	3,180.9	3,179.9	3,179.9	7.9	5.5	-177.85	0.0	39.1	355.6	344.6	11.01	32.292		
3,300.0	3,280.1	3,279.1	3,279.1	8.2	5.7	-177.92	0.0	39.1	368.1	356.8	11.36	32.409		
3,400.0	3,379.3	3,378.3	3,378.3	8.5	5.8	-177.99	0.0	39.1	380.6	368.9	11.71	32.518		
3,500.0	3,478.5	3,477.5	3,477.5	8.8	6.0	-178.05	0.0	39.1	393.2	381.1	12.05	32.622		
3,600.0	3,577.7	3,576.7	3,576.7	9.1	6.2	-178.11	0.0	39.1	405.7	393.3	12.40	32.719		
3,700.0	3,677.0	3,676.0	3,676.0	9.3	6.4	-178.17	0.0	39.1	418.2	405.5	12.75	32.811		
3,800.0	3,776.2	3,775.2	3,775.2	9.6	6.5	-178.22	0.0	39.1	430.8	417.7	13.09	32.899		
3,900.0	3,875.4	3,874.4	3,874.4	9.9	6.7	-178.27	0.0	39.1	443.3	429.9	13.44	32.982		
4,000.0	3,974.6	3,973.6	3,973.6	10.2	6.9	-178.32	0.0	39.1	455.8	442.0	13.79	33.061		
4,100.0	4,073.8	4,072.3	4,072.3	10.5	7.1	-178.31	-0.5	39.3	468.4	454.3	14.13	33.139		
4,200.0	4,173.0	4,170.8	4,170.8	10.7	7.2	-178.10	-2.4	40.1	481.1	466.6	14.48	33.222		
4,300.0	4,272.2	4,269.2	4,269.1	11.0	7.4	-177.71	-5.9	41.6	494.0	479.1	14.83	33.307		

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-McCoy 2E-5H-F267 - Hz - Plan #1													Offset Site Error: 0.0 ft			
Survey Program: 0-MWD															Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor				
0.0	0.0	0.0	0.0	0.0	0.0	-89.96	0.0	-11.2	11.2							
100.0	100.0	100.0	100.0	0.1	0.1	-89.96	0.0	-11.2	11.2	10.9	0.24	45.749	CC, ES			
200.0	200.0	200.0	200.0	0.3	0.3	-89.96	0.0	-11.2	11.2	10.6	0.59	18.838				
300.0	300.0	299.8	299.8	0.5	0.5	-88.78	0.3	-12.0	12.0	11.1	0.94	12.741				
400.0	400.0	399.6	399.5	0.6	0.7	25.12	1.0	-14.5	13.8	12.5	1.29	10.655				
500.0	500.0	499.3	499.1	0.8	0.8	32.21	2.2	-18.7	15.8	14.1	1.64	9.617				
600.0	599.9	598.9	598.6	1.0	1.0	40.80	4.0	-24.5	18.4	16.4	1.99	9.210				
700.0	699.7	698.5	697.8	1.2	1.3	49.63	6.2	-31.9	21.8	19.5	2.36	9.232				
800.0	799.4	797.9	796.8	1.4	1.5	57.79	8.9	-41.1	26.3	23.6	2.76	9.537				
900.0	898.9	897.2	895.5	1.6	1.7	64.84	12.1	-51.8	32.0	28.8	3.19	10.009				
1,000.0	998.3	996.4	993.8	1.9	2.0	70.68	15.8	-64.1	38.8	35.1	3.67	10.562				
1,100.0	1,097.5	1,095.8	1,092.2	2.2	2.3	75.09	19.9	-77.9	46.7	42.5	4.18	11.174				
1,200.0	1,196.7	1,195.4	1,190.8	2.4	2.6	78.16	24.0	-91.8	54.9	50.2	4.70	11.685				
1,300.0	1,295.9	1,295.0	1,289.3	2.7	2.9	80.42	28.1	-105.7	63.3	58.1	5.23	12.095				
1,400.0	1,395.1	1,394.7	1,387.9	3.0	3.2	82.16	32.3	-119.7	71.7	65.9	5.77	12.430				
1,500.0	1,494.3	1,494.3	1,486.4	3.2	3.5	83.53	36.4	-133.6	80.2	73.9	6.31	12.708				
1,600.0	1,593.5	1,593.9	1,585.0	3.5	3.8	84.63	40.6	-147.5	88.7	81.8	6.85	12.941				
1,700.0	1,692.7	1,693.5	1,683.5	3.8	4.1	85.54	44.7	-161.4	97.2	89.8	7.40	13.139				
1,800.0	1,792.0	1,793.2	1,782.1	4.0	4.4	86.31	48.9	-175.4	105.8	97.9	7.95	13.309				
1,900.0	1,891.2	1,892.8	1,880.7	4.3	4.7	86.96	53.0	-189.3	114.4	105.9	8.50	13.457				
2,000.0	1,990.4	1,992.4	1,979.2	4.6	5.0	87.52	57.1	-203.2	123.0	113.9	9.05	13.586				
2,100.0	2,089.6	2,092.0	2,077.8	4.9	5.3	88.01	61.3	-217.1	131.6	122.0	9.60	13.701				
2,200.0	2,188.8	2,191.7	2,176.3	5.2	5.6	88.43	65.4	-231.1	140.2	130.0	10.16	13.802				
2,300.0	2,288.0	2,291.3	2,274.9	5.4	5.9	88.81	69.6	-245.0	148.8	138.1	10.71	13.893				
2,400.0	2,387.2	2,390.9	2,373.5	5.7	6.2	89.15	73.7	-258.9	157.4	146.1	11.26	13.974				
2,500.0	2,486.4	2,490.5	2,472.0	6.0	6.5	89.45	77.9	-272.8	166.0	154.2	11.82	14.048				
2,600.0	2,585.6	2,590.2	2,570.6	6.3	6.8	89.72	82.0	-286.8	174.7	162.3	12.37	14.115				
2,700.0	2,684.8	2,689.8	2,669.1	6.5	7.2	89.96	86.1	-300.7	183.3	170.4	12.93	14.176				
2,800.0	2,784.1	2,789.4	2,767.7	6.8	7.5	90.19	90.3	-314.6	191.9	178.4	13.49	14.232				
2,900.0	2,883.3	2,889.0	2,866.3	7.1	7.8	90.39	94.4	-328.5	200.6	186.5	14.04	14.283				
3,000.0	2,982.5	2,988.6	2,964.8	7.4	8.1	90.58	98.6	-342.5	209.2	194.6	14.60	14.331				
3,100.0	3,081.7	3,088.3	3,063.4	7.7	8.4	90.75	102.7	-356.4	217.8	202.7	15.16	14.374				
3,200.0	3,180.9	3,187.9	3,161.9	7.9	8.7	90.91	106.9	-370.3	226.5	210.8	15.71	14.415				
3,300.0	3,280.1	3,287.5	3,260.5	8.2	9.0	91.06	111.0	-384.2	235.1	218.9	16.27	14.453				
3,400.0	3,379.3	3,387.1	3,359.0	8.5	9.3	91.20	115.1	-398.2	243.8	227.0	16.83	14.488				
3,500.0	3,478.5	3,486.8	3,457.6	8.8	9.6	91.33	119.3	-412.1	252.4	235.0	17.38	14.521				
3,600.0	3,577.7	3,586.4	3,556.2	9.1	9.9	91.44	123.4	-426.0	261.1	243.1	17.94	14.552				
3,700.0	3,677.0	3,686.0	3,654.7	9.3	10.2	91.56	127.6	-439.9	269.7	251.2	18.50	14.581				
3,800.0	3,776.2	3,785.6	3,753.3	9.6	10.5	91.66	131.7	-453.9	278.4	259.3	19.06	14.608				
3,900.0	3,875.4	3,885.3	3,851.8	9.9	10.9	91.76	135.9	-467.8	287.0	267.4	19.61	14.633				
4,000.0	3,974.6	3,984.9	3,950.4	10.2	11.2	91.85	140.0	-481.7	295.7	275.5	20.17	14.658				
4,100.0	4,073.8	4,084.5	4,049.0	10.5	11.5	91.94	144.2	-495.6	304.3	283.6	20.73	14.680				
4,200.0	4,173.0	4,184.1	4,147.5	10.7	11.8	92.02	148.3	-509.6	313.0	291.7	21.29	14.702				
4,300.0	4,272.2	4,283.8	4,246.1	11.0	12.1	92.10	152.4	-523.5	321.6	299.8	21.85	14.723				
4,400.0	4,371.4	4,383.4	4,344.6	11.3	12.4	92.18	156.6	-537.4	330.3	307.9	22.41	14.742				
4,500.0	4,470.6	4,483.0	4,443.2	11.6	12.7	92.25	160.7	-551.3	339.0	316.0	22.96	14.761				
4,600.0	4,569.9	4,582.6	4,541.8	11.9	13.0	92.31	164.9	-565.3	347.6	324.1	23.52	14.778				
4,700.0	4,669.1	4,682.3	4,640.3	12.1	13.3	92.38	169.0	-579.2	356.3	332.2	24.08	14.795				
4,800.0	4,768.3	4,781.9	4,738.9	12.4	13.6	92.44	173.2	-593.1	364.9	340.3	24.64	14.811				
4,900.0	4,867.5	4,881.5	4,837.4	12.7	13.9	92.49	177.3	-607.0	373.6	348.4	25.20	14.826				
5,000.0	4,966.7	4,981.1	4,936.0	13.0	14.2	92.55	181.4	-621.0	382.2	356.5	25.76	14.841				
5,100.0	5,065.9	5,080.8	5,034.5	13.3	14.6	92.60	185.6	-634.9	390.9	364.6	26.31	14.855				

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-McCoy 2E-5H-F267 - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
5,200.0	5,165.1	5,180.4	5,133.1	13.6	14.9	92.65	189.7	-648.8	399.6	372.7	26.87	14.868		
5,300.0	5,264.3	5,280.0	5,231.7	13.8	15.2	92.70	193.9	-662.7	408.2	380.8	27.43	14.881		
5,400.0	5,363.5	5,379.6	5,330.2	14.1	15.5	92.75	198.0	-676.7	416.9	388.9	27.99	14.893		
5,500.0	5,462.8	5,479.2	5,428.8	14.4	15.8	92.79	202.2	-690.6	425.5	397.0	28.55	14.905		
5,600.0	5,562.0	5,578.9	5,527.3	14.7	16.1	92.83	206.3	-704.5	434.2	405.1	29.11	14.917		
5,700.0	5,661.2	5,678.5	5,625.9	15.0	16.4	92.87	210.4	-718.4	442.9	413.2	29.67	14.928		
5,800.0	5,760.4	5,778.1	5,724.5	15.2	16.7	92.91	214.6	-732.4	451.5	421.3	30.23	14.938		
5,900.0	5,859.6	5,877.7	5,823.0	15.5	17.0	92.95	218.7	-746.3	460.2	429.4	30.78	14.948		
6,000.0	5,958.8	5,977.4	5,921.6	15.8	17.3	92.99	222.9	-760.2	468.8	437.5	31.34	14.958		
6,100.0	6,058.0	6,077.0	6,020.1	16.1	17.6	93.02	227.0	-774.1	477.5	445.6	31.90	14.967		
6,200.0	6,157.2	6,176.6	6,118.7	16.4	18.0	93.06	231.2	-788.1	486.2	453.7	32.46	14.977		
6,300.0	6,256.4	6,276.2	6,217.3	16.6	18.3	93.09	235.3	-802.0	494.8	461.8	33.02	14.985		
6,700.0	6,652.8	7,019.6	6,922.9	17.7	20.1	5.89	119.7	-903.5	489.5	454.5	35.02	13.977		
6,800.0	6,748.4	7,188.2	7,034.5	17.8	20.4	-42.07	-4.6	-920.8	405.8	376.6	29.24	13.880		
6,900.0	6,838.0	7,216.2	7,049.4	17.9	20.5	-74.52	-28.3	-923.2	317.5	292.4	25.08	12.657		
7,000.0	6,918.8	7,205.2	7,043.7	18.0	20.4	-87.16	-18.9	-922.3	237.2	212.5	24.72	9.596		
7,100.0	6,988.5	7,178.6	7,029.2	18.2	20.4	-87.21	3.3	-920.0	178.2	153.3	24.86	7.168		
7,181.6	7,035.5	7,151.1	7,013.2	18.3	20.3	-80.64	25.5	-917.4	160.6	135.7	24.98	6.430 SF		
7,200.0	7,044.8	7,144.4	7,009.1	18.4	20.3	-78.48	30.8	-916.8	161.5	136.6	24.97	6.469		
7,300.0	7,086.1	7,105.9	6,984.6	18.7	20.2	-63.79	60.2	-912.9	193.0	168.6	24.40	7.910		
7,400.0	7,111.0	7,064.7	6,956.3	19.2	20.1	-47.82	89.7	-908.6	250.3	227.7	22.60	11.074		
7,500.0	7,119.0	7,021.9	6,924.7	19.8	20.1	-34.88	118.2	-903.7	315.3	294.3	20.91	15.076		
7,600.0	7,119.0	6,982.4	6,893.7	20.5	20.0	-30.13	142.3	-899.1	385.3	364.9	20.42	18.870		
7,700.0	7,119.0	6,950.0	6,867.2	21.3	20.0	-26.72	160.4	-895.1	461.9	441.7	20.16	22.908		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-McCoy 2F-5H-F267 - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.06	0.0	8.4	8.4					
100.0	100.0	100.0	100.0	0.1	0.1	90.06	0.0	8.4	8.4	8.1	0.24	34.312	8.896 CC, ES	
200.0	200.0	200.0	200.0	0.3	0.3	90.06	0.0	8.4	8.4	7.8	0.59	14.128		
300.0	300.0	300.0	300.0	0.5	0.5	90.06	0.0	8.4	8.4	7.4	0.94	8.896		
400.0	400.0	400.0	400.0	0.6	0.6	-162.05	0.0	8.4	9.2	7.9	1.29	7.131		
500.0	500.0	500.1	500.1	0.8	0.8	-168.32	0.4	7.6	11.0	9.3	1.64	6.696		
600.0	599.9	600.2	600.2	1.0	1.0	-178.36	1.5	5.2	13.3	11.3	1.99	6.661	SF	
700.0	699.7	700.3	700.2	1.2	1.2	170.59	3.3	1.2	16.5	14.1	2.35	7.019		
800.0	799.4	800.3	800.0	1.4	1.4	160.50	5.9	-4.3	21.0	18.2	2.72	7.701		
900.0	898.9	900.2	899.6	1.6	1.6	152.19	9.2	-11.4	26.8	23.7	3.12	8.598		
1,000.0	998.3	1,000.0	998.9	1.9	1.8	146.15	13.1	-19.8	34.2	30.7	3.55	9.645		
1,100.0	1,097.5	1,099.6	1,098.1	2.2	2.0	143.08	17.0	-28.3	42.8	38.8	3.99	10.727		
1,200.0	1,196.7	1,199.2	1,197.2	2.4	2.3	141.07	21.0	-36.9	51.5	47.0	4.44	11.596		
1,300.0	1,295.9	1,298.8	1,296.4	2.7	2.5	139.64	25.0	-45.4	60.2	55.3	4.89	12.299		
1,400.0	1,395.1	1,398.4	1,395.6	3.0	2.7	138.57	28.9	-53.9	68.9	63.6	5.35	12.878		
1,500.0	1,494.3	1,498.0	1,494.7	3.2	2.9	137.74	32.9	-62.5	77.7	71.9	5.81	13.361		
1,600.0	1,593.5	1,597.6	1,593.9	3.5	3.2	137.08	36.8	-71.0	86.5	80.2	6.28	13.769		
1,700.0	1,692.7	1,697.3	1,693.1	3.8	3.4	136.55	40.8	-79.5	95.2	88.5	6.75	14.118		
1,800.0	1,792.0	1,796.9	1,792.2	4.0	3.6	136.10	44.8	-88.0	104.0	96.8	7.21	14.419		
1,900.0	1,891.2	1,896.5	1,891.4	4.3	3.9	135.72	48.7	-96.6	112.8	105.1	7.68	14.682		
2,000.0	1,990.4	1,996.1	1,990.6	4.6	4.1	135.40	52.7	-105.1	121.6	113.5	8.16	14.913		
2,100.0	2,089.6	2,095.7	2,089.7	4.9	4.4	135.12	56.6	-113.6	130.4	121.8	8.63	15.118		
2,200.0	2,188.8	2,195.3	2,188.9	5.2	4.6	134.87	60.6	-122.1	139.2	130.1	9.10	15.300		
2,300.0	2,288.0	2,294.9	2,288.1	5.4	4.8	134.66	64.6	-130.7	148.0	138.5	9.57	15.464		
2,400.0	2,387.2	2,394.5	2,387.2	5.7	5.1	134.47	68.5	-139.2	156.9	146.8	10.05	15.611		
2,500.0	2,486.4	2,494.1	2,486.4	6.0	5.3	134.30	72.5	-147.7	165.7	155.1	10.52	15.745		
2,600.0	2,585.6	2,593.7	2,585.6	6.3	5.5	134.14	76.5	-156.3	174.5	163.5	11.00	15.867		
2,700.0	2,684.8	2,693.4	2,684.7	6.5	5.8	134.01	80.4	-164.8	183.3	171.8	11.47	15.978		
2,800.0	2,784.1	2,793.0	2,783.9	6.8	6.0	133.88	84.4	-173.3	192.1	180.2	11.95	16.079		
2,900.0	2,883.3	2,892.6	2,883.1	7.1	6.2	133.76	88.3	-181.8	200.9	188.5	12.42	16.173		
3,000.0	2,982.5	2,992.2	2,982.2	7.4	6.5	133.66	92.3	-190.4	209.7	196.8	12.90	16.260		
3,100.0	3,081.7	3,091.8	3,081.4	7.7	6.7	133.56	96.3	-198.9	218.6	205.2	13.38	16.340		
3,200.0	3,180.9	3,191.4	3,180.6	7.9	7.0	133.47	100.2	-207.4	227.4	213.5	13.85	16.414		
3,300.0	3,280.1	3,291.0	3,279.7	8.2	7.2	133.39	104.2	-215.9	236.2	221.9	14.33	16.484		
3,400.0	3,379.3	3,390.6	3,378.9	8.5	7.4	133.31	108.1	-224.5	245.0	230.2	14.81	16.548		
3,500.0	3,478.5	3,490.2	3,478.0	8.8	7.7	133.24	112.1	-233.0	253.8	238.5	15.28	16.609		
3,600.0	3,577.7	3,589.8	3,577.2	9.1	7.9	133.18	116.1	-241.5	262.6	246.9	15.76	16.666		
3,700.0	3,677.0	3,689.5	3,676.4	9.3	8.2	133.11	120.0	-250.1	271.5	255.2	16.24	16.719		
3,800.0	3,776.2	3,789.1	3,775.5	9.6	8.4	133.06	124.0	-258.6	280.3	263.6	16.71	16.769		
3,900.0	3,875.4	3,888.7	3,874.7	9.9	8.6	133.00	127.9	-267.1	289.1	271.9	17.19	16.816		
4,000.0	3,974.6	3,988.3	3,973.9	10.2	8.9	132.95	131.9	-275.6	297.9	280.2	17.67	16.861		
4,100.0	4,073.8	4,087.9	4,073.0	10.5	9.1	132.90	135.9	-284.2	306.7	288.6	18.15	16.903		
4,200.0	4,173.0	4,187.5	4,172.2	10.7	9.3	132.86	139.8	-292.7	315.6	296.9	18.62	16.943		
4,300.0	4,272.2	4,287.1	4,271.4	11.0	9.6	132.81	143.8	-301.2	324.4	305.3	19.10	16.981		
4,400.0	4,371.4	4,386.7	4,370.5	11.3	9.8	132.77	147.7	-309.8	333.2	313.6	19.58	17.017		
4,500.0	4,470.6	4,486.3	4,469.7	11.6	10.1	132.73	151.7	-318.3	342.0	322.0	20.06	17.052		
4,600.0	4,569.9	4,585.9	4,568.9	11.9	10.3	132.70	155.7	-326.8	350.8	330.3	20.54	17.084		
4,700.0	4,669.1	4,685.6	4,668.0	12.1	10.5	132.66	159.6	-335.3	359.7	338.6	21.01	17.115		
4,800.0	4,768.3	4,785.2	4,767.2	12.4	10.8	132.63	163.6	-343.9	368.5	347.0	21.49	17.145		
4,900.0	4,867.5	4,884.8	4,866.4	12.7	11.0	132.60	167.5	-352.4	377.3	355.3	21.97	17.173		
5,000.0	4,966.7	4,984.4	4,965.5	13.0	11.3	132.56	171.5	-360.9	386.1	363.7	22.45	17.200		
5,100.0	5,065.9	5,084.0	5,064.7	13.3	11.5	132.54	175.5	-369.4	394.9	372.0	22.93	17.226		

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-McCoy 2F-5H-F267 - Hz - Plan #1												Offset Site Error:	0.0 ft
Survey Program: 0-MWD												Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor	
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)			
5,200.0	5,165.1	5,183.6	5,163.9	13.6	11.7	132.51	179.4	-378.0	403.8	380.4	23.41	17.251	
5,300.0	5,264.3	5,283.2	5,263.0	13.8	12.0	132.48	183.4	-386.5	412.6	388.7	23.88	17.275	
5,400.0	5,363.5	5,382.8	5,362.2	14.1	12.2	132.46	187.3	-395.0	421.4	397.0	24.36	17.298	
5,500.0	5,462.8	5,482.4	5,461.4	14.4	12.5	132.43	191.3	-403.6	430.2	405.4	24.84	17.320	
5,600.0	5,562.0	5,582.0	5,560.5	14.7	12.7	132.41	195.3	-412.1	439.1	413.7	25.32	17.341	
5,700.0	5,661.2	5,681.7	5,659.7	15.0	12.9	132.39	199.2	-420.6	447.9	422.1	25.80	17.361	
5,800.0	5,760.4	5,781.3	5,758.8	15.2	13.2	132.36	203.2	-429.1	456.7	430.4	26.28	17.381	
5,900.0	5,859.6	5,880.9	5,858.0	15.5	13.4	132.34	207.1	-437.7	465.5	438.8	26.75	17.400	
6,000.0	5,958.8	5,980.5	5,957.2	15.8	13.6	132.32	211.1	-446.2	474.3	447.1	27.23	17.418	
6,100.0	6,058.0	6,080.1	6,056.3	16.1	13.9	132.30	215.1	-454.7	483.2	455.5	27.71	17.436	
6,200.0	6,157.2	6,179.7	6,155.5	16.4	14.1	132.28	219.0	-463.2	492.0	463.8	28.19	17.453	
6,900.0	6,838.0	6,999.6	6,969.8	17.9	15.9	50.28	222.2	-533.3	461.9	433.8	28.08	16.451	
7,000.0	6,918.8	7,144.2	7,101.6	18.0	16.0	73.80	165.0	-544.6	388.9	363.3	25.67	15.150	
7,100.0	6,988.5	7,184.1	7,135.2	18.2	16.0	92.25	143.5	-547.5	313.7	288.6	25.18	12.458	
7,200.0	7,044.8	7,184.1	7,135.2	18.4	16.0	99.03	143.5	-547.5	252.9	227.7	25.23	10.026	
7,300.0	7,086.1	7,165.9	7,120.0	18.7	16.0	97.10	153.6	-546.2	222.1	196.4	25.68	8.648	
7,326.7	7,094.4	7,159.2	7,114.4	18.8	16.0	95.45	157.2	-545.7	220.6	194.7	25.89	8.519	
7,400.0	7,111.0	7,138.0	7,096.3	19.2	16.0	88.95	168.1	-544.2	231.2	204.9	26.37	8.769	
7,500.0	7,119.0	7,100.0	7,062.9	19.8	16.0	76.13	186.0	-541.3	272.7	246.5	26.20	10.408	
7,600.0	7,119.0	7,073.3	7,038.8	20.5	16.0	70.70	197.2	-539.2	333.7	307.2	26.52	12.582	
7,700.0	7,119.0	7,050.0	7,017.3	21.3	16.0	66.24	206.1	-537.4	407.7	380.7	26.92	15.142	
7,800.0	7,119.0	7,027.9	6,996.7	22.3	15.9	62.27	213.6	-535.6	489.2	461.9	27.34	17.898	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-McCoy 2G-5H-F267 - Hz - Plan #1													Offset Site Error:	0.0 ft
Survey Program: 0-MWD													Offset Well Error:	0.0 ft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Total Uncertainty Axis	Separation Factor	Warning			
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)		Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)						
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	30.7	30.8					
100.0	100.0	99.0	99.0	0.1	0.1	90.05	0.0	30.7	30.7	30.5	0.24	126.441		
200.0	200.0	199.0	199.0	0.3	0.3	90.05	0.0	30.7	30.7	30.1	0.59	51.957		
300.0	300.0	299.0	299.0	0.5	0.5	90.05	0.0	30.7	30.7	29.8	0.94	32.678 CC, ES		
400.0	400.0	399.0	399.0	0.6	0.6	-160.76	0.0	30.7	31.6	30.3	1.29	24.472		
500.0	500.0	499.0	499.0	0.8	0.8	-162.20	0.0	30.7	34.0	32.4	1.64	20.775		
600.0	599.9	598.9	598.9	1.0	1.0	-164.19	0.0	30.7	38.2	36.2	1.99	19.230		
700.0	699.7	699.2	699.2	1.2	1.2	-167.21	0.6	30.1	43.6	41.2	2.34	18.651		
800.0	799.4	799.4	799.4	1.4	1.3	-171.54	2.4	28.2	49.7	47.0	2.69	18.515 SF		
900.0	898.9	899.5	899.4	1.6	1.5	-176.57	5.4	25.1	56.9	53.9	3.04	18.746		
1,000.0	998.3	999.3	999.0	1.9	1.7	178.29	9.5	20.8	65.5	62.1	3.39	19.300		
1,100.0	1,097.5	1,098.7	1,098.2	2.2	1.9	174.20	13.9	16.2	75.5	71.8	3.76	20.084		
1,200.0	1,196.7	1,198.1	1,197.3	2.4	2.1	171.08	18.2	11.6	85.9	81.8	4.14	20.768		
1,300.0	1,295.9	1,297.4	1,296.5	2.7	2.3	168.64	22.6	7.1	96.5	91.9	4.52	21.356		
1,400.0	1,395.1	1,396.8	1,395.7	3.0	2.5	166.68	27.0	2.5	107.2	102.2	4.90	21.860		
1,500.0	1,494.3	1,496.2	1,494.8	3.2	2.7	165.08	31.3	-2.1	117.9	112.7	5.29	22.293		
1,600.0	1,593.5	1,595.5	1,594.0	3.5	2.9	163.74	35.7	-6.6	128.8	123.1	5.68	22.668		
1,700.0	1,692.7	1,694.9	1,693.2	3.8	3.1	162.62	40.1	-11.2	139.7	133.7	6.08	22.995		
1,800.0	1,792.0	1,794.3	1,792.3	4.0	3.3	161.66	44.4	-15.8	150.7	144.2	6.47	23.281		
1,900.0	1,891.2	1,893.6	1,891.5	4.3	3.5	160.83	48.8	-20.3	161.7	154.9	6.87	23.533		
2,000.0	1,990.4	1,993.0	1,990.7	4.6	3.7	160.10	53.2	-24.9	172.8	165.5	7.27	23.757		
2,100.0	2,089.6	2,092.4	2,089.8	4.9	3.9	159.46	57.5	-29.4	183.8	176.2	7.67	23.956		
2,200.0	2,188.8	2,191.7	2,189.0	5.2	4.1	158.90	61.9	-34.0	194.9	186.8	8.08	24.135		
2,300.0	2,288.0	2,291.1	2,288.2	5.4	4.3	158.39	66.3	-38.6	206.0	197.5	8.48	24.297		
2,400.0	2,387.2	2,390.5	2,387.3	5.7	4.5	157.94	70.6	-43.1	217.1	208.3	8.88	24.443		
2,500.0	2,486.4	2,489.8	2,486.5	6.0	4.7	157.53	75.0	-47.7	228.3	219.0	9.29	24.576		
2,600.0	2,585.6	2,589.2	2,585.7	6.3	4.9	157.16	79.4	-52.3	239.4	229.7	9.69	24.697		
2,700.0	2,684.8	2,688.6	2,684.8	6.5	5.1	156.82	83.7	-56.8	250.5	240.4	10.10	24.809		
2,800.0	2,784.1	2,787.9	2,784.0	6.8	5.3	156.51	88.1	-61.4	261.7	251.2	10.51	24.911		
2,900.0	2,883.3	2,887.3	2,883.2	7.1	5.5	156.23	92.4	-66.0	272.9	262.0	10.91	25.005		
3,000.0	2,982.5	2,986.7	2,982.3	7.4	5.7	155.97	96.8	-70.5	284.0	272.7	11.32	25.093		
3,100.0	3,081.7	3,086.0	3,081.5	7.7	5.9	155.73	101.2	-75.1	295.2	283.5	11.73	25.174		
3,200.0	3,180.9	3,185.4	3,180.7	7.9	6.1	155.50	105.5	-79.7	306.4	294.2	12.13	25.249		
3,300.0	3,280.1	3,284.8	3,279.8	8.2	6.3	155.29	109.9	-84.2	317.6	305.0	12.54	25.319		
3,400.0	3,379.3	3,384.1	3,379.0	8.5	6.6	155.10	114.3	-88.8	328.7	315.8	12.95	25.385		
3,500.0	3,478.5	3,483.5	3,478.2	8.8	6.8	154.92	118.6	-93.4	339.9	326.6	13.36	25.446		
3,600.0	3,577.7	3,582.9	3,577.3	9.1	7.0	154.75	123.0	-97.9	351.1	337.4	13.77	25.504		
3,700.0	3,677.0	3,682.2	3,676.5	9.3	7.2	154.59	127.4	-102.5	362.3	348.1	14.18	25.558		
3,800.0	3,776.2	3,781.6	3,775.7	9.6	7.4	154.44	131.7	-107.1	373.5	358.9	14.59	25.609		
3,900.0	3,875.4	3,881.0	3,874.8	9.9	7.6	154.30	136.1	-111.6	384.7	369.7	14.99	25.657		
4,000.0	3,974.6	3,980.3	3,974.0	10.2	7.8	154.17	140.5	-116.2	395.9	380.5	15.40	25.703		
4,100.0	4,073.8	4,079.7	4,073.1	10.5	8.0	154.04	144.8	-120.7	407.1	391.3	15.81	25.746		
4,200.0	4,173.0	4,179.1	4,172.3	10.7	8.2	153.92	149.2	-125.3	418.3	402.1	16.22	25.787		
4,300.0	4,272.2	4,278.4	4,271.5	11.0	8.4	153.81	153.6	-129.9	429.5	412.9	16.63	25.826		
4,400.0	4,371.4	4,377.8	4,370.6	11.3	8.6	153.70	157.9	-134.4	440.8	423.7	17.04	25.862		
4,500.0	4,470.6	4,477.2	4,469.8	11.6	8.8	153.60	162.3	-139.0	452.0	434.5	17.45	25.897		
4,600.0	4,569.9	4,576.5	4,569.0	11.9	9.0	153.50	166.7	-143.6	463.2	445.3	17.86	25.931		
4,700.0	4,669.1	4,675.9	4,668.1	12.1	9.2	153.41	171.0	-148.1	474.4	456.1	18.27	25.963		
4,800.0	4,768.3	4,775.3	4,767.3	12.4	9.4	153.32	175.4	-152.7	485.6	466.9	18.68	25.993		
4,900.0	4,867.5	4,874.6	4,866.5	12.7	9.6	153.24	179.7	-157.3	496.8	477.7	19.09	26.022		

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
Project:	DJ Wattenberg	TVD Reference:	KB @ 4890.0ft (Ensign)
Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Offset Design S5-T2N-R67W (Vogl-McCoy) - Vogl-McCoy 2H-5H-F267 - Hz - Plan #1													Offset Site Error: 0.0 ft	
Survey Program: 0-MWD													Offset Well Error: 0.0 ft	
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Total Uncertainty Axis	Separation Factor		
0.0	0.0	0.0	0.0	0.0	0.0	90.05	0.0	50.3	50.3					
100.0	100.0	99.0	99.0	0.1	0.1	90.05	0.0	50.3	50.3	50.1	0.24	206.904		
200.0	200.0	199.0	199.0	0.3	0.3	90.05	0.0	50.3	50.3	49.7	0.59	85.020		
300.0	300.0	299.0	299.0	0.5	0.5	90.05	0.0	50.3	50.3	49.4	0.94	53.473 CC, ES		
400.0	400.0	399.0	399.0	0.6	0.6	-160.55	0.0	50.3	51.1	49.8	1.29	39.639		
500.0	500.0	499.0	499.0	0.8	0.8	-161.47	0.0	50.3	53.6	52.0	1.64	32.707		
600.0	599.9	598.9	598.9	1.0	1.0	-162.84	0.0	50.3	57.8	55.8	1.99	29.053		
700.0	699.7	698.9	698.9	1.2	1.2	-165.20	0.8	50.0	63.4	61.1	2.34	27.133		
800.0	799.4	798.8	798.8	1.4	1.3	-168.87	3.2	49.2	70.6	67.9	2.69	26.261		
900.0	898.9	898.3	898.2	1.6	1.5	-173.12	7.1	48.0	79.5	76.5	3.04	26.181 SF		
1,000.0	998.3	997.6	997.4	1.9	1.7	-176.70	11.2	46.6	90.5	87.2	3.39	26.727		
1,100.0	1,097.5	1,096.7	1,096.4	2.2	1.9	-179.51	15.3	45.3	103.0	99.3	3.74	27.529		
1,200.0	1,196.7	1,195.8	1,195.4	2.4	2.1	178.29	19.4	44.0	115.7	111.6	4.10	28.228		
1,300.0	1,295.9	1,294.9	1,294.4	2.7	2.3	176.52	23.5	42.6	128.6	124.1	4.46	28.833		
1,400.0	1,395.1	1,394.0	1,393.4	3.0	2.4	175.08	27.6	41.3	141.5	136.7	4.82	29.358		
1,500.0	1,494.3	1,493.1	1,492.4	3.2	2.6	173.88	31.7	40.0	154.6	149.4	5.18	29.816		
1,600.0	1,593.5	1,592.2	1,591.4	3.5	2.8	172.87	35.8	38.7	167.6	162.1	5.55	30.217		
1,700.0	1,692.7	1,691.3	1,690.4	3.8	3.0	172.00	39.9	37.3	180.8	174.9	5.91	30.571		
1,800.0	1,792.0	1,790.4	1,789.4	4.0	3.2	171.25	44.0	36.0	193.9	187.6	6.28	30.884		
1,900.0	1,891.2	1,889.5	1,888.4	4.3	3.4	170.60	48.1	34.7	207.1	200.5	6.65	31.164		
2,000.0	1,990.4	1,988.6	1,987.4	4.6	3.6	170.02	52.2	33.3	220.3	213.3	7.01	31.414		
2,100.0	2,089.6	2,087.7	2,086.5	4.9	3.7	169.51	56.2	32.0	233.5	226.2	7.38	31.640		
2,200.0	2,188.8	2,186.8	2,185.5	5.2	3.9	169.06	60.3	30.7	246.8	239.0	7.75	31.843		
2,300.0	2,288.0	2,285.9	2,284.5	5.4	4.1	168.65	64.4	29.3	260.1	251.9	8.12	32.028		
2,400.0	2,387.2	2,385.0	2,383.5	5.7	4.3	168.28	68.5	28.0	273.3	264.8	8.49	32.197		
2,500.0	2,486.4	2,484.1	2,482.5	6.0	4.5	167.94	72.6	26.7	286.6	277.7	8.86	32.352		
2,600.0	2,585.6	2,583.2	2,581.5	6.3	4.7	167.64	76.7	25.4	299.9	290.7	9.23	32.494		
2,700.0	2,684.8	2,682.3	2,680.5	6.5	4.9	167.36	80.8	24.0	313.2	303.6	9.60	32.624		
2,800.0	2,784.1	2,781.4	2,779.5	6.8	5.1	167.10	84.9	22.7	326.5	316.5	9.97	32.745		
2,900.0	2,883.3	2,880.5	2,878.5	7.1	5.2	166.86	89.0	21.4	339.8	329.5	10.34	32.857		
3,000.0	2,982.5	2,979.6	2,977.5	7.4	5.4	166.64	93.1	20.0	353.1	342.4	10.71	32.961		
3,100.0	3,081.7	3,078.7	3,076.5	7.7	5.6	166.44	97.2	18.7	366.4	355.3	11.08	33.058		
3,200.0	3,180.9	3,177.8	3,175.5	7.9	5.8	166.25	101.3	17.4	379.8	368.3	11.46	33.148		
3,300.0	3,280.1	3,276.9	3,274.5	8.2	6.0	166.08	105.3	16.0	393.1	381.3	11.83	33.233		
3,400.0	3,379.3	3,376.0	3,373.6	8.5	6.2	165.91	109.4	14.7	406.4	394.2	12.20	33.312		
3,500.0	3,478.5	3,475.1	3,472.6	8.8	6.4	165.76	113.5	13.4	419.7	407.2	12.57	33.387		
3,600.0	3,577.7	3,574.2	3,571.6	9.1	6.6	165.61	117.6	12.0	433.1	420.1	12.94	33.457		
3,700.0	3,677.0	3,673.3	3,670.6	9.3	6.8	165.48	121.7	10.7	446.4	433.1	13.32	33.523		
3,800.0	3,776.2	3,772.4	3,769.6	9.6	6.9	165.35	125.8	9.4	459.8	446.1	13.69	33.585		
3,900.0	3,875.4	3,871.5	3,868.6	9.9	7.1	165.23	129.9	8.1	473.1	459.0	14.06	33.644		
4,000.0	3,974.6	3,970.6	3,967.6	10.2	7.3	165.11	134.0	6.7	486.5	472.0	14.43	33.700		
4,100.0	4,073.8	4,069.7	4,066.6	10.5	7.5	165.01	138.1	5.4	499.8	485.0	14.81	33.753		

CC - Min centre to center distance or convergent 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 Vogl-Geist 2D-5H-F267
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Reference Site:	S5-T2N-R67W (Vogl-McCoy)	MD Reference:	KB @ 4890.0ft (Ensign)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Vogl-Geist 2D-5H-F267	Survey Calculation Method:	Minimum Curvature
Well Error:	0.0ft	Output errors are at	2.00 sigma
Reference Wellbore	Hz	Database:	USA EDM 5000 Multi Users DB
Reference Design:	Plan #1	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KB @ 4890.0ft (Ensign)

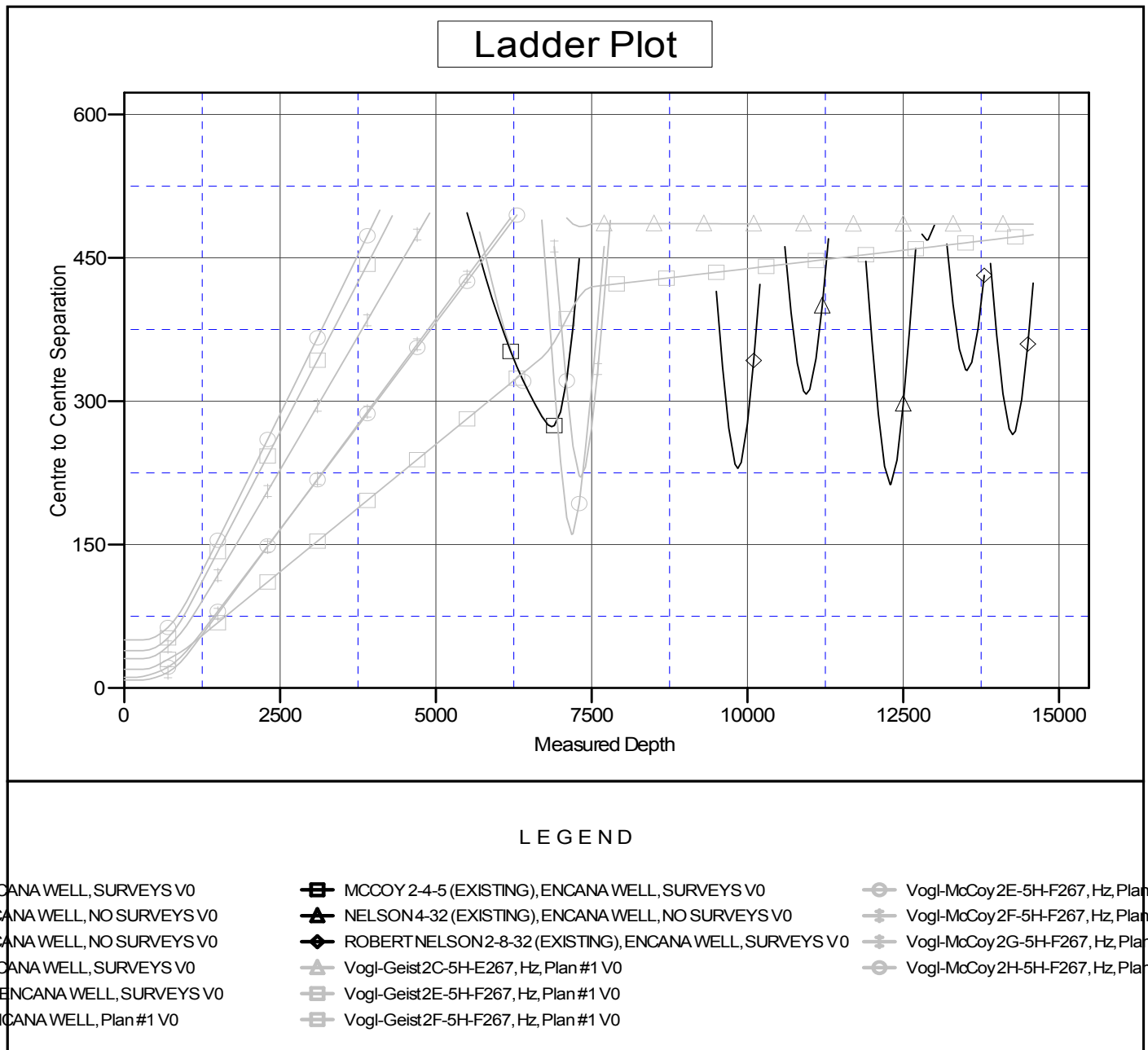
Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Vogl-Geist 2D-5H-F267

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.38°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation