

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Chavez 4A-4H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site:	SWSE S4-T1N-R65W (Chavez)	North Reference:	True
Well:	Chavez 4A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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		SWSE S4-T1N-R65W (Chavez)			
Site Position:		Northing:	1,270,891.54 ft	Latitude:	40.073960
From:	Lat/Long	Easting:	3,233,697.16 ft	Longitude:	-104.664930
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.54 °

Well	Chavez 4A-4H					
Well Position	+N/-S	0.0 ft	Northing:	1,270,891.53 ft	Latitude:	40.073960
	+E/-W	0.0 ft	Easting:	3,233,697.16 ft	Longitude:	-104.664930
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,915.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	3/27/2012	8.63	66.79	52,911

Design	Plan #2			
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	355.21

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	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,466.7	8.00	242.00	1,465.8	-8.7	-16.4	3.00	3.00	0.00	242.00	
4,344.7	8.00	242.00	4,315.8	-196.8	-370.1	0.00	0.00	0.00	0.00	
4,611.3	0.00	0.00	4,581.6	-205.5	-386.5	3.00	-3.00	0.00	180.00	
6,622.0	0.00	0.00	6,592.2	-205.5	-386.5	0.00	0.00	0.00	0.00	
7,449.2	91.00	0.00	7,113.0	324.5	-386.4	11.00	11.00	0.00	0.00	
11,729.9	91.00	0.00	7,038.3	4,604.5	-386.1	0.00	0.00	0.00	0.00	Chavez 4A-4H PBHL

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Project:	DJ Wattenberg	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site:	SWSE S4-T1N-R65W (Chavez)	North Reference:	True
Well:	Chavez 4A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	KOP @ 1200'
1,300.0	3.00	242.00	1,300.0	-1.2	-2.3	-1.0	3.00	3.00	
1,400.0	6.00	242.00	1,399.6	-4.9	-9.2	-4.1	3.00	3.00	
1,466.7	8.00	242.00	1,465.8	-8.7	-16.4	-7.3	3.00	3.00	EOB; Inc=8°
1,500.0	8.00	242.00	1,498.8	-10.9	-20.5	-9.2	0.00	0.00	
1,600.0	8.00	242.00	1,597.8	-17.4	-32.8	-14.6	0.00	0.00	
1,700.0	8.00	242.00	1,696.9	-24.0	-45.1	-20.1	0.00	0.00	
1,800.0	8.00	242.00	1,795.9	-30.5	-57.4	-25.6	0.00	0.00	
1,900.0	8.00	242.00	1,894.9	-37.0	-69.7	-31.1	0.00	0.00	
2,000.0	8.00	242.00	1,993.9	-43.6	-81.9	-36.6	0.00	0.00	
2,100.0	8.00	242.00	2,093.0	-50.1	-94.2	-42.1	0.00	0.00	
2,200.0	8.00	242.00	2,192.0	-56.6	-106.5	-47.5	0.00	0.00	
2,300.0	8.00	242.00	2,291.0	-63.2	-118.8	-53.0	0.00	0.00	
2,400.0	8.00	242.00	2,390.1	-69.7	-131.1	-58.5	0.00	0.00	
2,500.0	8.00	242.00	2,489.1	-76.2	-143.4	-64.0	0.00	0.00	
2,600.0	8.00	242.00	2,588.1	-82.8	-155.7	-69.5	0.00	0.00	
2,700.0	8.00	242.00	2,687.1	-89.3	-168.0	-75.0	0.00	0.00	
2,800.0	8.00	242.00	2,786.2	-95.8	-180.3	-80.4	0.00	0.00	
2,900.0	8.00	242.00	2,885.2	-102.4	-192.5	-85.9	0.00	0.00	
3,000.0	8.00	242.00	2,984.2	-108.9	-204.8	-91.4	0.00	0.00	
3,100.0	8.00	242.00	3,083.2	-115.4	-217.1	-96.9	0.00	0.00	
3,200.0	8.00	242.00	3,182.3	-122.0	-229.4	-102.4	0.00	0.00	
3,300.0	8.00	242.00	3,281.3	-128.5	-241.7	-107.9	0.00	0.00	
3,400.0	8.00	242.00	3,380.3	-135.0	-254.0	-113.3	0.00	0.00	
3,500.0	8.00	242.00	3,479.3	-141.6	-266.3	-118.8	0.00	0.00	
3,600.0	8.00	242.00	3,578.4	-148.1	-278.6	-124.3	0.00	0.00	
3,700.0	8.00	242.00	3,677.4	-154.6	-290.8	-129.8	0.00	0.00	
3,800.0	8.00	242.00	3,776.4	-161.2	-303.1	-135.3	0.00	0.00	
3,900.0	8.00	242.00	3,875.5	-167.7	-315.4	-140.8	0.00	0.00	
4,000.0	8.00	242.00	3,974.5	-174.2	-327.7	-146.3	0.00	0.00	
4,100.0	8.00	242.00	4,073.5	-180.8	-340.0	-151.7	0.00	0.00	
4,200.0	8.00	242.00	4,172.5	-187.3	-352.3	-157.2	0.00	0.00	
4,300.0	8.00	242.00	4,271.6	-193.8	-364.6	-162.7	0.00	0.00	
4,344.7	8.00	242.00	4,315.8	-196.8	-370.1	-165.2	0.00	0.00	Start Drop -3.00
4,400.0	6.34	242.00	4,370.7	-200.0	-376.2	-167.9	3.00	-3.00	
4,406.8	6.13	242.00	4,377.5	-200.4	-376.8	-168.2	3.00	-3.00	Sussex
4,500.0	3.34	242.00	4,470.3	-204.0	-383.6	-171.2	3.00	-3.00	
4,547.3	1.92	242.00	4,517.6	-205.0	-385.5	-172.1	3.00	-3.00	Sussex Marker
4,600.0	0.34	242.00	4,570.3	-205.5	-386.4	-172.5	3.00	-3.00	
4,611.3	0.00	0.00	4,581.6	-205.5	-386.5	-172.5	3.00	-3.00	EOD; Inc=0°

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Well:	Chavez 4A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,700.0	0.00	0.00	4,670.3	-205.5	-386.5	-172.5	0.00	0.00	
4,800.0	0.00	0.00	4,770.3	-205.5	-386.5	-172.5	0.00	0.00	
4,841.3	0.00	0.00	4,811.6	-205.5	-386.5	-172.5	0.00	0.00	Shannon
4,900.0	0.00	0.00	4,870.3	-205.5	-386.5	-172.5	0.00	0.00	
5,000.0	0.00	0.00	4,970.3	-205.5	-386.5	-172.5	0.00	0.00	
5,100.0	0.00	0.00	5,070.3	-205.5	-386.5	-172.5	0.00	0.00	
5,200.0	0.00	0.00	5,170.3	-205.5	-386.5	-172.5	0.00	0.00	
5,300.0	0.00	0.00	5,270.3	-205.5	-386.5	-172.5	0.00	0.00	
5,400.0	0.00	0.00	5,370.3	-205.5	-386.5	-172.5	0.00	0.00	
5,500.0	0.00	0.00	5,470.3	-205.5	-386.5	-172.5	0.00	0.00	
5,600.0	0.00	0.00	5,570.3	-205.5	-386.5	-172.5	0.00	0.00	
5,700.0	0.00	0.00	5,670.3	-205.5	-386.5	-172.5	0.00	0.00	
5,800.0	0.00	0.00	5,770.3	-205.5	-386.5	-172.5	0.00	0.00	
5,900.0	0.00	0.00	5,870.3	-205.5	-386.5	-172.5	0.00	0.00	
6,000.0	0.00	0.00	5,970.3	-205.5	-386.5	-172.5	0.00	0.00	
6,100.0	0.00	0.00	6,070.3	-205.5	-386.5	-172.5	0.00	0.00	
6,181.3	0.00	0.00	6,151.6	-205.5	-386.5	-172.5	0.00	0.00	Teepee Buttes
6,200.0	0.00	0.00	6,170.3	-205.5	-386.5	-172.5	0.00	0.00	
6,300.0	0.00	0.00	6,270.3	-205.5	-386.5	-172.5	0.00	0.00	
6,400.0	0.00	0.00	6,370.3	-205.5	-386.5	-172.5	0.00	0.00	
6,500.0	0.00	0.00	6,470.3	-205.5	-386.5	-172.5	0.00	0.00	
6,600.0	0.00	0.00	6,570.3	-205.5	-386.5	-172.5	0.00	0.00	
6,622.0	0.00	0.00	6,592.2	-205.5	-386.5	-172.5	0.00	0.00	Start 11° build @ 6622' MD
6,700.0	8.58	0.00	6,670.0	-199.7	-386.5	-166.7	11.00	11.00	
6,800.0	19.58	0.00	6,766.8	-175.4	-386.5	-142.5	11.00	11.00	
6,900.0	30.58	0.00	6,857.2	-133.0	-386.5	-100.3	11.00	11.00	
6,934.1	34.33	0.00	6,886.0	-114.7	-386.5	-82.0	11.00	11.00	Sharon Springs
6,964.6	37.69	0.00	6,910.7	-96.8	-386.5	-64.2	11.00	11.00	Niobrara
7,000.0	41.58	0.00	6,937.9	-74.2	-386.5	-41.7	11.00	11.00	
7,100.0	52.58	0.00	7,005.9	-1.1	-386.5	31.2	11.00	11.00	
7,114.9	54.23	0.00	7,014.8	10.9	-386.5	43.1	11.00	11.00	B Chalk
7,200.0	63.58	0.00	7,058.7	83.7	-386.5	115.7	11.00	11.00	
7,255.4	69.67	0.00	7,080.7	134.4	-386.5	166.3	11.00	11.00	C Chalk
7,300.0	74.58	0.00	7,094.3	176.9	-386.4	208.6	11.00	11.00	
7,400.0	85.58	0.00	7,111.5	275.3	-386.4	306.6	11.00	11.00	
7,449.2	91.00	0.00	7,113.0	324.4	-386.4	355.6	11.00	11.00	Landing Pt @ 7113' TVD; 91° - ICP
7,500.0	91.00	0.00	7,112.1	375.2	-386.4	406.2	0.01	0.01	
7,600.0	91.00	0.00	7,110.4	475.2	-386.4	505.8	0.00	0.00	
7,700.0	91.00	0.00	7,108.6	575.2	-386.4	605.5	0.00	0.00	
7,800.0	91.00	0.00	7,106.9	675.2	-386.4	705.1	0.00	0.00	
7,900.0	91.00	0.00	7,105.1	775.2	-386.4	804.7	0.00	0.00	
8,000.0	91.00	0.00	7,103.4	875.2	-386.4	904.4	0.00	0.00	
8,100.0	91.00	0.00	7,101.7	975.1	-386.4	1,004.0	0.00	0.00	
8,200.0	91.00	0.00	7,099.9	1,075.1	-386.4	1,103.7	0.00	0.00	
8,300.0	91.00	0.00	7,098.2	1,175.1	-386.4	1,203.3	0.00	0.00	
8,400.0	91.00	0.00	7,096.4	1,275.1	-386.4	1,302.9	0.00	0.00	
8,500.0	91.00	0.00	7,094.7	1,375.1	-386.4	1,402.6	0.00	0.00	
8,600.0	91.00	0.00	7,092.9	1,475.1	-386.4	1,502.2	0.00	0.00	
8,700.0	91.00	0.00	7,091.2	1,575.0	-386.3	1,601.8	0.00	0.00	
8,800.0	91.00	0.00	7,089.4	1,675.0	-386.3	1,701.5	0.00	0.00	
8,900.0	91.00	0.00	7,087.7	1,775.0	-386.3	1,801.1	0.00	0.00	
9,000.0	91.00	0.00	7,085.9	1,875.0	-386.3	1,900.7	0.00	0.00	

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Well:	Chavez 4A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

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
9,100.0	91.00	0.00	7,084.2	1,975.0	-386.3	2,000.4	0.00	0.00	
9,200.0	91.00	0.00	7,082.5	2,075.0	-386.3	2,100.0	0.00	0.00	
9,300.0	91.00	0.00	7,080.7	2,175.0	-386.3	2,199.6	0.00	0.00	
9,400.0	91.00	0.00	7,079.0	2,274.9	-386.3	2,299.3	0.00	0.00	
9,500.0	91.00	0.00	7,077.2	2,374.9	-386.3	2,398.9	0.00	0.00	
9,600.0	91.00	0.00	7,075.5	2,474.9	-386.3	2,498.5	0.00	0.00	
9,700.0	91.00	0.00	7,073.7	2,574.9	-386.3	2,598.2	0.00	0.00	
9,800.0	91.00	0.00	7,072.0	2,674.9	-386.3	2,697.8	0.00	0.00	
9,900.0	91.00	0.00	7,070.2	2,774.9	-386.3	2,797.4	0.00	0.00	
10,000.0	91.00	0.00	7,068.5	2,874.8	-386.2	2,897.1	0.00	0.00	
10,100.0	91.00	0.00	7,066.7	2,974.8	-386.2	2,996.7	0.00	0.00	
10,200.0	91.00	0.00	7,065.0	3,074.8	-386.2	3,096.3	0.00	0.00	
10,300.0	91.00	0.00	7,063.3	3,174.8	-386.2	3,196.0	0.00	0.00	
10,400.0	91.00	0.00	7,061.5	3,274.8	-386.2	3,295.6	0.00	0.00	
10,500.0	91.00	0.00	7,059.8	3,374.8	-386.2	3,395.2	0.00	0.00	
10,600.0	91.00	0.00	7,058.0	3,474.8	-386.2	3,494.9	0.00	0.00	
10,700.0	91.00	0.00	7,056.3	3,574.7	-386.2	3,594.5	0.00	0.00	
10,800.0	91.00	0.00	7,054.5	3,674.7	-386.2	3,694.1	0.00	0.00	
10,900.0	91.00	0.00	7,052.8	3,774.7	-386.2	3,793.8	0.00	0.00	
11,000.0	91.00	0.00	7,051.0	3,874.7	-386.2	3,893.4	0.00	0.00	
11,100.0	91.00	0.00	7,049.3	3,974.7	-386.2	3,993.1	0.00	0.00	
11,200.0	91.00	0.00	7,047.5	4,074.7	-386.2	4,092.7	0.00	0.00	
11,300.0	91.00	0.00	7,045.8	4,174.7	-386.2	4,192.3	0.00	0.00	
11,400.0	91.00	0.00	7,044.1	4,274.6	-386.1	4,292.0	0.00	0.00	
11,500.0	91.00	0.00	7,042.3	4,374.6	-386.1	4,391.6	0.00	0.00	
11,600.0	91.00	0.00	7,040.6	4,474.6	-386.1	4,491.2	0.00	0.00	
11,700.0	91.00	0.00	7,038.8	4,574.6	-386.1	4,590.9	0.00	0.00	
11,729.9	91.00	0.00	7,038.3	4,604.5	-386.1	4,620.6	0.00	0.00	TD at 11729.9 - Chavez 4A-4H 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									
Chavez 4A-4H PBHL	0.00	0.00	7,038.3	4,604.5	-386.1	1,275,492.17	3,233,267.69	40.086600	-104.666310
- plan hits target center									
- Point									

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
7,449.2	7,113.0	ICP	0.000	0.000

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Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site:	SWSE S4-T1N-R65W (Chavez)	North Reference:	True
Well:	Chavez 4A-4H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #2		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,406.8	4,374.0	Sussex		-1.00	0.00	
4,547.3	4,514.0	Sussex Marker		-1.00	0.00	
4,841.3	4,808.0	Shannon		-1.00	0.00	
6,181.3	6,148.0	Teepee Buttes		-1.00	0.00	
6,934.1	6,884.0	Sharon Springs		-1.00	0.00	
6,964.6	6,909.0	Niobrara		-1.00	0.00	
7,114.9	7,015.0	B Chalk		-1.00	0.00	
7,255.4	7,083.0	C Chalk		-1.00	0.00	

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,200.0	1,200.0	0.0	0.0	KOP @ 1200'	
1,466.7	1,465.8	-8.7	-16.4	EOB; Inc=8°	
4,344.7	4,315.8	-196.8	-370.1	Start Drop -3.00	
4,611.3	4,581.6	-205.5	-386.5	EOD; Inc=0°	
6,622.0	6,592.2	-205.5	-386.5	Start 11° build @ 6622' MD	
7,449.2	7,113.0	324.5	-386.4	Landing Pt @ 7113' TVD; 91°	
11,729.9	7,038.3	4,604.5	-386.1	TD at 11729.9	

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

SWSE S4-T1N-R65W (Chavez)

Chavez 4A-4H

HZ

Plan #1

Anticollision Report

29 March, 2012

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 1,000.0ft	Error Surface:	Elliptical Conic
Warning Levels Evaluated at:	2.00 Sigma		

Survey Tool Program		Date	3/29/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
0.0	11,822.3	Plan #1 (HZ)	MWD	Geolink MWD	

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						
SWSE S4-T1N-R65W (Chavez)						
Chapin 33-4 (Existing) - Existing - Existing	8,622.3	7,078.0	284.5	243.0	6.860	CC, ES, SF
Chapin 34-4 (Existing) - Existing - Existing	7,778.1	7,090.8	57.3	28.0	1.953	CC, ES, SF
Chapin 43-4 (Existing) - Existing - Existing						Out of range
Chapin 44-4 (Existing) - Existing - Existing	1,200.0	1,213.0	960.4	956.2	229.273	CC, ES
Chapin 44-4 (Existing) - Existing - Existing	1,600.0	1,610.8	996.7	991.1	179.382	SF
Chavez 4B-4H - HZ - Plan #1	1,166.3	1,167.3	28.0	24.0	6.948	CC
Chavez 4B-4H - HZ - Plan #1	1,200.0	1,201.0	28.0	23.8	6.751	ES
Chavez 4B-4H - HZ - Plan #1	11,823.2	11,798.7	900.0	733.6	5.408	SF
Olin 1 (Existing) - Existing - Existing	11,287.1	7,023.5	331.9	245.5	3.843	CC, ES
Olin 1 (Existing) - Existing - Existing	11,300.0	7,023.3	332.1	245.6	3.836	SF
Olin 31-4 (Existing) - Existing - Existing	11,776.4	7,114.0	143.1	45.6	1.467	Level 3, CC, ES, SF
Olin 32-4 (Existing) - Existing - Existing	10,346.3	7,045.0	52.8	-17.4	0.752	Level 1, CC, ES, SF
Olin 41-4 (Existing) - Existing - Existing	11,283.8	7,030.6	383.9	297.6	4.448	CC, ES
Olin 41-4 (Existing) - Existing - Existing	11,300.0	7,030.3	384.3	297.7	4.438	SF
Olin 42-4A (Existing) - Existing - Existing	11,283.8	7,040.6	409.4	323.1	4.742	CC, ES
Olin 42-4A (Existing) - Existing - Existing	11,300.0	7,040.3	409.7	323.1	4.731	SF

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chapin 33-4 (Existing) - Existing - Existing												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)			
7,700.0	7,112.1	7,094.1	7,094.1	17.4	12.4	93.24	1,405.0	-101.9	965.1	936.6	28.44	33.928	
7,800.0	7,110.4	7,092.4	7,092.4	18.5	12.4	92.89	1,405.0	-101.9	870.0	840.4	29.60	29.390	
7,900.0	7,108.7	7,090.7	7,090.7	19.7	12.4	92.54	1,405.0	-101.9	776.2	745.4	30.85	25.157	
8,000.0	7,106.9	7,088.9	7,088.9	20.9	12.4	92.19	1,405.0	-101.9	684.2	652.0	32.18	21.259	
8,100.0	7,105.2	7,087.2	7,087.2	22.3	12.4	91.83	1,405.0	-101.9	594.7	561.1	33.57	17.714	
8,200.0	7,103.4	7,085.4	7,085.4	23.6	12.4	91.48	1,405.0	-101.9	509.2	474.1	35.01	14.542	
8,300.0	7,101.7	7,083.7	7,083.7	25.1	12.4	91.13	1,405.0	-101.9	429.9	393.4	36.49	11.780	
8,400.0	7,099.9	7,081.9	7,081.9	26.5	12.4	90.78	1,405.0	-101.9	361.0	323.0	38.01	9.499	
8,500.0	7,098.2	7,080.2	7,080.2	28.0	12.4	90.43	1,405.0	-101.9	309.7	270.1	39.55	7.830	
8,600.0	7,096.4	7,078.4	7,078.4	29.5	12.4	90.08	1,405.0	-101.9	285.4	244.3	41.12	6.941	
8,622.3	7,096.0	7,078.0	7,078.0	29.9	12.4	90.00	1,405.0	-101.9	284.5	243.0	41.47	6.860 CC, ES, SF	
8,700.0	7,094.7	7,076.7	7,076.7	31.1	12.4	89.73	1,405.0	-101.9	294.9	252.2	42.70	6.906	
8,800.0	7,092.9	7,074.9	7,074.9	32.7	12.3	89.38	1,405.0	-101.9	335.4	291.1	44.30	7.571	
8,900.0	7,091.2	7,073.2	7,073.2	34.3	12.3	89.02	1,405.0	-101.9	397.5	351.6	45.91	8.658	
9,000.0	7,089.5	7,071.5	7,071.5	35.9	12.3	88.67	1,405.0	-101.9	472.8	425.3	47.54	9.945	
9,100.0	7,087.7	7,069.7	7,069.7	37.5	12.3	88.32	1,405.0	-101.9	555.9	506.7	49.17	11.305	
9,200.0	7,086.0	7,068.0	7,068.0	39.1	12.3	87.97	1,405.0	-101.9	643.9	593.0	50.81	12.671	
9,300.0	7,084.2	7,066.2	7,066.2	40.7	12.3	87.62	1,405.0	-101.9	734.9	682.4	52.46	14.008	
9,400.0	7,082.5	7,064.5	7,064.5	42.4	12.3	87.27	1,405.0	-101.9	828.0	773.9	54.11	15.301	
9,500.0	7,080.7	7,062.7	7,062.7	44.0	12.3	86.92	1,405.0	-101.9	922.5	866.7	55.77	16.542	

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chapin 34-4 (Existing) - Existing - Existing														Offset Site Error:	0.0 ft
Survey Program: O-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			
0.0	0.0	0.0	0.0	0.0	0.0	-30.40	561.0	-329.1	650.7						
100.0	100.0	80.0	80.0	0.2	0.1	-30.40	561.0	-329.1	650.4	650.1	0.29	2,231.074			
200.0	200.0	180.0	180.0	0.3	0.3	-30.40	561.0	-329.1	650.4	649.7	0.64	1,015.369			
300.0	300.0	280.0	280.0	0.5	0.5	-30.40	561.0	-329.1	650.4	649.4	0.99	657.215			
400.0	400.0	380.0	380.0	0.7	0.7	-30.40	561.0	-329.1	650.4	649.0	1.34	485.842			
500.0	500.0	480.0	480.0	0.8	0.8	-30.40	561.0	-329.1	650.4	648.7	1.69	385.357			
600.0	600.0	580.0	580.0	1.0	1.0	-30.40	561.0	-329.1	650.4	648.3	2.04	319.315			
700.0	700.0	680.0	680.0	1.2	1.2	-30.40	561.0	-329.1	650.4	648.0	2.39	272.597			
800.0	800.0	780.0	780.0	1.4	1.4	-30.40	561.0	-329.1	650.4	647.6	2.73	237.805			
900.0	900.0	880.0	880.0	1.5	1.5	-30.40	561.0	-329.1	650.4	647.3	3.08	210.889			
1,000.0	1,000.0	980.0	980.0	1.7	1.7	-30.40	561.0	-329.1	650.4	646.9	3.43	189.446			
1,100.0	1,100.0	1,080.0	1,080.0	1.9	1.9	-30.40	561.0	-329.1	650.4	646.6	3.78	171.962			
1,200.0	1,200.0	1,180.0	1,180.0	2.1	2.1	-30.40	561.0	-329.1	650.4	646.2	4.13	157.432			
1,300.0	1,300.0	1,280.0	1,280.0	2.2	2.2	96.82	561.0	-329.1	650.7	646.2	4.48	145.179			
1,400.0	1,399.6	1,379.6	1,379.6	2.4	2.4	97.47	561.0	-329.1	651.7	646.8	4.84	134.540			
1,500.0	1,498.8	1,478.8	1,478.8	2.6	2.6	98.54	561.0	-329.1	653.5	648.2	5.23	125.043			
1,600.0	1,597.8	1,577.8	1,577.8	2.9	2.8	99.73	561.0	-329.1	655.7	650.1	5.62	116.606			
1,700.0	1,696.9	1,676.9	1,676.9	3.1	2.9	100.92	561.0	-329.1	658.2	652.2	6.03	109.125			
1,800.0	1,795.9	1,775.9	1,775.9	3.4	3.1	102.09	561.0	-329.1	661.0	654.6	6.45	102.503			
1,900.0	1,894.9	1,874.9	1,874.9	3.6	3.3	103.25	561.0	-329.1	664.1	657.2	6.87	96.640			
2,000.0	1,993.9	1,973.9	1,973.9	3.9	3.4	104.41	561.0	-329.1	667.4	660.2	7.30	91.440			
2,100.0	2,093.0	2,073.0	2,073.0	4.1	3.6	105.55	561.0	-329.1	671.1	663.3	7.73	86.817			
2,200.0	2,192.0	2,172.0	2,172.0	4.4	3.8	106.67	561.0	-329.1	675.0	666.8	8.16	82.696			
2,300.0	2,291.0	2,271.0	2,271.0	4.7	4.0	107.79	561.0	-329.1	679.1	670.5	8.60	79.011			
2,400.0	2,390.1	2,370.1	2,370.1	5.0	4.1	108.89	561.0	-329.1	683.6	674.5	9.03	75.706			
2,500.0	2,489.1	2,469.1	2,469.1	5.3	4.3	109.98	561.0	-329.1	688.2	678.8	9.46	72.733			
2,600.0	2,588.1	2,568.1	2,568.1	5.5	4.5	111.05	561.0	-329.1	693.1	683.3	9.89	70.050			
2,700.0	2,687.1	2,667.1	2,667.1	5.8	4.7	112.11	561.0	-329.1	698.3	688.0	10.33	67.624			
2,800.0	2,786.2	2,766.2	2,766.2	6.1	4.8	113.15	561.0	-329.1	703.7	693.0	10.76	65.423			
2,900.0	2,885.2	2,865.2	2,865.2	6.4	5.0	114.17	561.0	-329.1	709.3	698.2	11.18	63.422			
3,000.0	2,984.2	2,964.2	2,964.2	6.7	5.2	115.18	561.0	-329.1	715.2	703.6	11.61	61.599			
3,100.0	3,083.2	3,063.2	3,063.2	7.0	5.3	116.18	561.0	-329.1	721.3	709.2	12.03	59.933			
3,200.0	3,182.3	3,162.3	3,162.3	7.3	5.5	117.15	561.0	-329.1	727.6	715.1	12.46	58.409			
3,300.0	3,281.3	3,261.3	3,261.3	7.6	5.7	118.11	561.0	-329.1	734.1	721.2	12.88	57.012			
3,400.0	3,380.3	3,360.3	3,360.3	7.8	5.9	119.05	561.0	-329.1	740.8	727.5	13.29	55.728			
3,500.0	3,479.3	3,459.3	3,459.3	8.1	6.0	119.98	561.0	-329.1	747.7	734.0	13.71	54.547			
3,600.0	3,578.4	3,558.4	3,558.4	8.4	6.2	120.89	561.0	-329.1	754.8	740.7	14.12	53.459			
3,700.0	3,677.4	3,657.4	3,657.4	8.7	6.4	121.78	561.0	-329.1	762.1	747.6	14.53	52.454			
3,800.0	3,776.4	3,756.4	3,756.4	9.0	6.6	122.65	561.0	-329.1	769.6	754.6	14.94	51.526			
3,900.0	3,875.5	3,855.5	3,855.5	9.3	6.7	123.51	561.0	-329.1	777.2	761.9	15.34	50.667			
4,000.0	3,974.5	3,954.5	3,954.5	9.6	6.9	124.35	561.0	-329.1	785.0	769.3	15.74	49.871			
4,100.0	4,073.5	4,053.5	4,053.5	9.9	7.1	125.18	561.0	-329.1	793.0	776.9	16.14	49.133			
4,200.0	4,172.5	4,152.5	4,152.5	10.2	7.2	125.99	561.0	-329.1	801.2	784.6	16.54	48.448			
4,300.0	4,271.6	4,251.6	4,251.6	10.5	7.4	126.78	561.0	-329.1	809.5	792.5	16.93	47.811			
4,400.0	4,370.6	4,350.6	4,350.6	10.8	7.6	127.55	561.0	-329.1	817.9	800.6	17.32	47.218			
4,500.0	4,469.6	4,449.6	4,449.6	11.1	7.8	128.31	561.0	-329.1	826.5	808.8	17.71	46.666			
4,600.0	4,568.6	4,548.6	4,548.6	11.4	7.9	129.06	561.0	-329.1	835.3	817.2	18.10	46.152			
4,700.0	4,667.7	4,647.7	4,647.7	11.7	8.1	129.83	561.0	-329.1	844.1	825.6	18.48	45.668			
4,800.0	4,767.2	4,747.2	4,747.2	11.9	8.3	130.50	561.0	-329.1	850.6	831.8	18.83	45.177			
4,900.0	4,867.0	4,847.0	4,847.0	12.0	8.5	130.82	561.0	-329.1	853.8	834.7	19.14	44.604			
5,000.0	4,967.0	4,947.0	4,947.0	12.2	8.6	3.85	561.0	-329.1	854.1	834.7	19.45	43.910			
5,100.0	5,067.0	5,047.0	5,047.0	12.3	8.8	3.85	561.0	-329.1	854.1	834.4	19.77	43.210			

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 Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chapin 34-4 (Existing) - Existing - Existing													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	5,167.0	5,147.0	5,147.0	12.4	9.0	3.85	561.0	-329.1	854.1	834.0	20.08	42.529		
5,300.0	5,267.0	5,247.0	5,247.0	12.5	9.2	3.85	561.0	-329.1	854.1	833.7	20.40	41.867		
5,400.0	5,367.0	5,347.0	5,347.0	12.7	9.3	3.85	561.0	-329.1	854.1	833.4	20.72	41.224		
5,500.0	5,467.0	5,447.0	5,447.0	12.8	9.5	3.85	561.0	-329.1	854.1	833.1	21.04	40.599		
5,600.0	5,567.0	5,547.0	5,547.0	12.9	9.7	3.85	561.0	-329.1	854.1	832.8	21.36	39.991		
5,700.0	5,667.0	5,647.0	5,647.0	13.1	9.9	3.85	561.0	-329.1	854.1	832.5	21.68	39.400		
5,800.0	5,767.0	5,747.0	5,747.0	13.2	10.0	3.85	561.0	-329.1	854.1	832.1	22.00	38.824		
5,900.0	5,867.0	5,847.0	5,847.0	13.3	10.2	3.85	561.0	-329.1	854.1	831.8	22.32	38.264		
6,000.0	5,967.0	5,947.0	5,947.0	13.5	10.4	3.85	561.0	-329.1	854.1	831.5	22.65	37.718		
6,100.0	6,067.0	6,047.0	6,047.0	13.6	10.6	3.85	561.0	-329.1	854.1	831.2	22.97	37.187		
6,200.0	6,167.0	6,147.0	6,147.0	13.7	10.7	3.85	561.0	-329.1	854.1	830.8	23.29	36.669		
6,300.0	6,267.0	6,247.0	6,247.0	13.9	10.9	3.85	561.0	-329.1	854.1	830.5	23.62	36.165		
6,400.0	6,367.0	6,347.0	6,347.0	14.0	11.1	3.85	561.0	-329.1	854.1	830.2	23.94	35.673		
6,500.0	6,467.0	6,447.0	6,447.0	14.2	11.3	3.85	561.0	-329.1	854.1	829.9	24.27	35.194		
6,600.0	6,567.0	6,547.0	6,547.0	14.3	11.4	3.85	561.0	-329.1	854.1	829.5	24.60	34.727		
6,700.0	6,666.8	6,646.8	6,646.8	14.4	11.6	3.91	561.0	-329.1	849.3	824.5	24.71	34.364		
6,800.0	6,764.0	6,744.0	6,744.0	14.4	11.8	4.20	561.0	-329.1	826.2	802.0	24.20	34.147		
6,900.0	6,854.9	6,834.9	6,834.9	14.3	11.9	4.82	561.0	-329.1	785.2	762.1	23.09	34.012		
7,000.0	6,936.3	6,916.3	6,916.3	14.2	12.1	5.96	561.0	-329.1	727.6	706.1	21.50	33.845		
7,100.0	7,005.3	6,985.3	6,985.3	14.2	12.2	8.09	561.0	-329.1	655.6	635.9	19.65	33.360		
7,200.0	7,059.1	7,039.1	7,039.1	14.3	12.3	12.45	561.0	-329.1	571.9	553.9	17.98	31.799		
7,300.0	7,095.9	7,075.9	7,075.9	14.5	12.3	23.41	561.0	-329.1	479.6	461.9	17.73	27.056		
7,400.0	7,114.4	7,094.4	7,094.4	15.0	12.4	59.40	561.0	-329.1	382.4	359.0	23.36	16.365		
7,500.0	7,115.6	7,095.6	7,095.6	15.7	12.4	94.84	561.0	-329.1	284.0	257.5	26.48	10.722		
7,600.0	7,113.9	7,093.9	7,093.9	16.5	12.4	93.10	561.0	-329.1	187.1	159.7	27.40	6.828		
7,700.0	7,112.1	7,092.1	7,092.1	17.4	12.4	91.36	561.0	-329.1	96.9	68.5	28.45	3.406		
7,778.1	7,110.8	7,090.8	7,090.8	18.3	12.4	90.00	561.0	-329.1	57.3	28.0	29.35	1.953 CC, ES, SF		
7,800.0	7,110.4	7,090.4	7,090.4	18.5	12.4	89.62	561.0	-329.1	61.3	31.7	29.60	2.072		
7,900.0	7,108.7	7,088.7	7,088.7	19.7	12.4	87.88	561.0	-329.1	134.6	103.8	30.83	4.368		
8,000.0	7,106.9	7,086.9	7,086.9	20.9	12.4	86.14	561.0	-329.1	229.1	197.0	32.10	7.137		
8,100.0	7,105.2	7,085.2	7,085.2	22.3	12.4	84.40	561.0	-329.1	326.9	293.4	33.42	9.782		
8,200.0	7,103.4	7,083.4	7,083.4	23.6	12.4	82.68	561.0	-329.1	425.7	390.9	34.75	12.250		
8,300.0	7,101.7	7,081.7	7,081.7	25.1	12.4	80.97	561.0	-329.1	524.9	488.8	36.09	14.545		
8,400.0	7,099.9	7,079.9	7,079.9	26.5	12.4	79.28	561.0	-329.1	624.4	587.0	37.43	16.683		
8,500.0	7,098.2	7,078.2	7,078.2	28.0	12.4	77.61	561.0	-329.1	724.0	685.3	38.75	18.683		
8,600.0	7,096.4	7,076.4	7,076.4	29.5	12.4	75.95	561.0	-329.1	823.7	783.7	40.06	20.563		
8,700.0	7,094.7	7,074.7	7,074.7	31.1	12.3	74.32	561.0	-329.1	923.5	882.1	41.34	22.338		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chapin 44-4 (Existing) - Existing - Existing													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	13.0	13.0	0.0	0.0	65.39	400.0	873.1	960.4					
100.0	100.0	113.0	113.0	0.2	0.2	65.39	400.0	873.1	960.4	960.0	0.35	2,751.271		
200.0	200.0	213.0	213.0	0.3	0.4	65.39	400.0	873.1	960.4	959.7	0.70	1,375.636		
300.0	300.0	313.0	313.0	0.5	0.5	65.39	400.0	873.1	960.4	959.3	1.05	917.090		
400.0	400.0	413.0	413.0	0.7	0.7	65.39	400.0	873.1	960.4	959.0	1.40	687.818		
500.0	500.0	513.0	513.0	0.8	0.9	65.39	400.0	873.1	960.4	958.6	1.75	550.254		
600.0	600.0	613.0	613.0	1.0	1.1	65.39	400.0	873.1	960.4	958.3	2.09	458.545		
700.0	700.0	713.0	713.0	1.2	1.2	65.39	400.0	873.1	960.4	957.9	2.44	393.039		
800.0	800.0	813.0	813.0	1.4	1.4	65.39	400.0	873.1	960.4	957.6	2.79	343.909		
900.0	900.0	913.0	913.0	1.5	1.6	65.39	400.0	873.1	960.4	957.2	3.14	305.697		
1,000.0	1,000.0	1,013.0	1,013.0	1.7	1.8	65.39	400.0	873.1	960.4	956.9	3.49	275.127		
1,100.0	1,100.0	1,113.0	1,113.0	1.9	1.9	65.39	400.0	873.1	960.4	956.5	3.84	250.116		
1,200.0	1,200.0	1,213.0	1,213.0	2.1	2.1	65.39	400.0	873.1	960.4	956.2	4.19	229.273 CC, ES		
1,300.0	1,300.0	1,313.0	1,313.0	2.2	2.3	-167.63	400.0	873.1	962.9	958.4	4.53	212.382		
1,400.0	1,399.6	1,412.6	1,412.6	2.4	2.5	-167.68	400.0	873.1	970.6	965.7	4.87	199.269		
1,500.0	1,498.8	1,511.8	1,511.8	2.6	2.6	-167.79	400.0	873.1	983.1	977.9	5.21	188.808		
1,600.0	1,597.8	1,610.8	1,610.8	2.9	2.8	-167.96	400.0	873.1	996.7	991.1	5.56	179.382 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chavez 4B-4H - 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	1.0	1.0	0.0	0.0	90.02	0.0	28.0	28.0					
100.0	100.0	101.0	101.0	0.2	0.2	90.02	0.0	28.0	28.0	27.7	0.31	91.624		
200.0	200.0	201.0	201.0	0.3	0.3	90.02	0.0	28.0	28.0	27.3	0.65	42.758		
300.0	300.0	301.0	301.0	0.5	0.5	90.02	0.0	28.0	28.0	27.0	1.00	27.886		
400.0	400.0	401.0	401.0	0.7	0.7	90.02	0.0	28.0	28.0	26.6	1.35	20.689		
500.0	500.0	501.0	501.0	0.8	0.9	90.02	0.0	28.0	28.0	26.3	1.70	16.445		
600.0	600.0	601.0	601.0	1.0	1.0	90.02	0.0	28.0	28.0	25.9	2.05	13.646		
700.0	700.0	701.0	701.0	1.2	1.2	90.02	0.0	28.0	28.0	25.6	2.40	11.661		
800.0	800.0	801.0	801.0	1.4	1.4	90.02	0.0	28.0	28.0	25.2	2.75	10.180		
900.0	900.0	901.0	901.0	1.5	1.5	90.02	0.0	28.0	28.0	24.9	3.10	9.033		
1,000.0	1,000.0	1,001.0	1,001.0	1.7	1.7	90.02	0.0	28.0	28.0	24.5	3.45	8.119		
1,100.0	1,100.0	1,101.0	1,101.0	1.9	1.9	90.02	0.0	28.0	28.0	24.2	3.80	7.372		
1,166.3	1,166.3	1,167.3	1,167.3	2.0	2.0	90.02	0.0	28.0	28.0	24.0	4.03	6.948 CC		
1,200.0	1,200.0	1,201.0	1,201.0	2.1	2.1	90.02	0.0	28.0	28.0	23.8	4.15	6.751 ES		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	-143.36	-1.3	30.3	32.4	27.9	4.49	7.205		
1,400.0	1,399.6	1,397.0	1,396.7	2.4	2.4	-144.08	-5.1	36.8	45.3	40.5	4.83	9.376		
1,500.0	1,498.8	1,493.1	1,492.0	2.6	2.6	-144.65	-11.1	47.3	66.3	61.2	5.19	12.791		
1,600.0	1,597.8	1,590.4	1,588.4	2.9	2.9	-145.06	-17.9	59.0	89.4	83.8	5.56	16.076		
1,700.0	1,696.9	1,687.7	1,684.7	3.1	3.1	-145.30	-24.7	70.7	112.4	106.5	5.94	18.922		
1,800.0	1,795.9	1,785.0	1,781.1	3.4	3.3	-145.46	-31.5	82.5	135.5	129.2	6.33	21.403		
1,900.0	1,894.9	1,882.3	1,877.4	3.6	3.6	-145.58	-38.2	94.2	158.5	151.8	6.72	23.579		
2,000.0	1,993.9	1,979.7	1,973.8	3.9	3.8	-145.66	-45.0	105.9	181.6	174.5	7.12	25.498		
2,100.0	2,093.0	2,077.0	2,070.2	4.1	4.1	-145.73	-51.8	117.6	204.6	197.1	7.52	27.200		
2,200.0	2,192.0	2,174.3	2,166.5	4.4	4.4	-145.78	-58.5	129.4	227.7	219.8	7.93	28.718		
2,300.0	2,291.0	2,271.6	2,262.9	4.7	4.6	-145.82	-65.3	141.1	250.8	242.4	8.34	30.078		
2,400.0	2,390.1	2,368.9	2,359.2	5.0	4.9	-145.86	-72.1	152.8	273.8	265.1	8.75	31.304		
2,500.0	2,489.1	2,466.2	2,455.6	5.3	5.2	-145.89	-78.9	164.6	296.9	287.7	9.16	32.412		
2,600.0	2,588.1	2,563.5	2,552.0	5.5	5.4	-145.91	-85.6	176.3	319.9	310.3	9.57	33.419		
2,700.0	2,687.1	2,660.8	2,648.3	5.8	5.7	-145.93	-92.4	188.0	343.0	333.0	9.99	34.336		
2,800.0	2,786.2	2,758.1	2,744.7	6.1	6.0	-145.95	-99.2	199.7	366.0	355.6	10.41	35.176		
2,900.0	2,885.2	2,855.4	2,841.0	6.4	6.3	-145.97	-105.9	211.5	389.1	378.3	10.82	35.948		
3,000.0	2,984.2	2,952.7	2,937.4	6.7	6.6	-145.99	-112.7	223.2	412.1	400.9	11.24	36.658		
3,100.0	3,083.2	3,050.0	3,033.7	7.0	6.8	-146.00	-119.5	234.9	435.2	423.5	11.66	37.314		
3,200.0	3,182.3	3,147.3	3,130.1	7.3	7.1	-146.01	-126.3	246.6	458.2	446.2	12.08	37.922		
3,300.0	3,281.3	3,244.6	3,226.5	7.6	7.4	-146.02	-133.0	258.4	481.3	468.8	12.51	38.487		
3,400.0	3,380.3	3,341.9	3,322.8	7.8	7.7	-146.03	-139.8	270.1	504.3	491.4	12.93	39.012		
3,500.0	3,479.3	3,439.2	3,419.2	8.1	8.0	-146.04	-146.6	281.8	527.4	514.1	13.35	39.503		
3,600.0	3,578.4	3,536.6	3,515.5	8.4	8.3	-146.05	-153.3	293.6	550.5	536.7	13.77	39.962		
3,700.0	3,677.4	3,633.9	3,611.9	8.7	8.5	-146.06	-160.1	305.3	573.5	559.3	14.20	40.391		
3,800.0	3,776.4	3,731.2	3,708.3	9.0	8.8	-146.07	-166.9	317.0	596.6	581.9	14.62	40.795		
3,900.0	3,875.5	3,828.5	3,804.6	9.3	9.1	-146.07	-173.7	328.7	619.6	604.6	15.05	41.175		
4,000.0	3,974.5	3,925.8	3,901.0	9.6	9.4	-146.08	-180.4	340.5	642.7	627.2	15.47	41.532		
4,100.0	4,073.5	4,023.1	3,997.3	9.9	9.7	-146.08	-187.2	352.2	665.7	649.8	15.90	41.870		
4,200.0	4,172.5	4,120.4	4,093.7	10.2	10.0	-146.09	-194.0	363.9	688.8	672.5	16.33	42.189		
4,300.0	4,271.6	4,217.7	4,190.1	10.5	10.3	-146.09	-200.7	375.7	711.8	695.1	16.75	42.491		
4,400.0	4,370.6	4,315.0	4,286.4	10.8	10.5	-146.10	-207.5	387.4	734.9	717.7	17.18	42.778		
4,500.0	4,469.6	4,412.3	4,382.8	11.1	10.8	-146.10	-214.3	399.1	757.9	740.3	17.61	43.049		
4,600.0	4,568.6	4,509.6	4,479.1	11.4	11.1	-146.11	-221.0	410.8	781.0	763.0	18.03	43.308		
4,700.0	4,667.7	4,606.9	4,575.5	11.7	11.4	-146.20	-227.8	422.6	803.9	785.5	18.47	43.515		
4,800.0	4,767.2	4,704.9	4,672.5	11.9	11.7	-146.39	-234.6	434.4	823.9	804.9	18.92	43.535		
4,900.0	4,867.0	4,803.5	4,770.2	12.0	12.0	-146.31	-241.5	446.3	839.5	820.2	19.33	43.440		
5,000.0	4,967.0	4,902.5	4,868.2	12.2	12.3	87.10	-248.4	458.2	851.6	831.9	19.70	43.239		

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 Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chavez 4B-4H - 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						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		
5,100.0	5,067.0	5,001.6	4,966.3	12.3	12.6	87.60	-255.3	470.1	863.4	843.3	20.06	43.039		
5,200.0	5,167.0	5,100.6	5,064.4	12.4	12.9	88.08	-262.2	482.1	875.2	854.8	20.42	42.852		
5,300.0	5,267.0	5,199.6	5,162.4	12.5	13.2	88.56	-269.1	494.0	887.1	866.3	20.78	42.679		
5,400.0	5,367.0	5,354.1	5,316.0	12.7	13.5	89.11	-277.4	508.4	896.5	875.2	21.22	42.240		
5,500.0	5,467.0	5,506.3	5,468.0	12.8	13.7	89.25	-279.5	512.2	898.7	877.1	21.62	41.572		
5,600.0	5,567.0	5,606.3	5,568.0	12.9	13.9	89.25	-279.5	512.2	898.7	876.8	21.93	40.984		
5,700.0	5,667.0	5,706.3	5,668.0	13.1	14.0	89.25	-279.5	512.2	898.7	876.5	22.24	40.410		
5,800.0	5,767.0	5,806.3	5,768.0	13.2	14.1	89.25	-279.5	512.2	898.7	876.2	22.55	39.851		
5,900.0	5,867.0	5,906.3	5,868.0	13.3	14.2	89.25	-279.5	512.2	898.7	875.8	22.87	39.305		
6,000.0	5,967.0	6,006.3	5,968.0	13.5	14.4	89.25	-279.5	512.2	898.7	875.5	23.18	38.771		
6,100.0	6,067.0	6,106.3	6,068.0	13.6	14.5	89.25	-279.5	512.2	898.7	875.2	23.49	38.251		
6,200.0	6,167.0	6,206.3	6,168.0	13.7	14.6	89.25	-279.5	512.2	898.7	874.9	23.81	37.743		
6,300.0	6,267.0	6,306.3	6,268.0	13.9	14.7	89.25	-279.5	512.2	898.7	874.6	24.13	37.247		
6,400.0	6,367.0	6,406.3	6,368.0	14.0	14.9	89.25	-279.5	512.2	898.7	874.3	24.45	36.762		
6,500.0	6,467.0	6,506.3	6,468.0	14.2	15.0	89.25	-279.5	512.2	898.7	873.9	24.77	36.289		
6,600.0	6,567.0	6,606.3	6,568.0	14.3	15.1	89.25	-279.5	512.2	898.7	873.6	25.09	35.826		
6,700.0	6,666.8	6,704.0	6,665.4	14.4	15.2	89.08	-272.2	512.2	898.7	873.5	25.28	35.557		
6,800.0	6,764.0	6,801.1	6,759.0	14.4	15.2	88.90	-247.1	512.2	898.8	873.6	25.24	35.615		
6,900.0	6,854.9	6,897.6	6,845.9	14.3	15.1	88.76	-205.4	512.2	898.8	873.8	25.06	35.864		
7,000.0	6,936.3	6,993.9	6,923.5	14.2	15.0	88.66	-148.6	512.2	898.9	874.0	24.88	36.126		
7,100.0	7,005.3	7,089.9	6,989.1	14.2	15.0	88.61	-78.7	512.2	898.9	874.0	24.84	36.187		
7,200.0	7,059.1	7,185.9	7,040.8	14.3	15.1	88.61	2.0	512.1	898.9	873.8	25.08	35.838		
7,300.0	7,095.9	7,281.9	7,076.8	14.5	15.4	88.66	90.9	512.1	898.8	873.1	25.71	34.966		
7,400.0	7,114.4	7,378.2	7,096.0	15.0	15.8	88.75	185.1	512.1	898.8	872.0	26.76	33.589		
7,500.0	7,115.6	7,476.1	7,099.0	15.7	16.4	88.88	282.9	512.1	898.7	870.5	28.22	31.852		
7,600.0	7,113.9	7,576.1	7,099.0	16.5	17.2	88.99	382.9	512.1	898.7	868.7	30.03	29.928		
7,700.0	7,112.1	7,676.1	7,099.0	17.4	18.1	89.10	482.9	512.1	898.7	866.6	32.12	27.981		
7,800.0	7,110.4	7,776.1	7,099.0	18.5	19.2	89.21	582.8	512.1	898.6	864.2	34.44	26.095		
7,900.0	7,108.7	7,876.0	7,099.0	19.7	20.3	89.32	682.8	512.1	898.6	861.7	36.94	24.323		
8,000.0	7,106.9	7,976.0	7,099.0	20.9	21.5	89.43	782.8	512.1	898.6	859.0	39.60	22.689		
8,100.0	7,105.2	8,076.0	7,099.0	22.3	22.8	89.54	882.8	512.1	898.5	856.2	42.39	21.198		
8,200.0	7,103.4	8,176.0	7,099.0	23.6	24.2	89.65	982.8	512.1	898.5	853.3	45.27	19.847		
8,300.0	7,101.7	8,276.0	7,099.0	25.1	25.6	89.77	1,082.8	512.1	898.5	850.3	48.24	18.626		
8,400.0	7,099.9	8,376.0	7,099.0	26.5	27.0	89.88	1,182.8	512.1	898.5	847.2	51.28	17.523		
8,500.0	7,098.2	8,475.9	7,099.0	28.0	28.5	89.99	1,282.7	512.1	898.5	844.1	54.37	16.526		
8,600.0	7,096.4	8,575.9	7,099.0	29.5	30.0	90.10	1,382.7	512.1	898.5	841.0	57.51	15.624		
8,700.0	7,094.7	8,675.9	7,099.0	31.1	31.5	90.21	1,482.7	512.1	898.5	837.8	60.69	14.805		
8,798.6	7,093.0	8,774.5	7,099.0	32.6	33.0	90.32	1,581.3	512.1	898.5	834.6	63.86	14.070		
8,800.0	7,092.9	8,775.9	7,099.0	32.7	33.0	90.32	1,582.7	512.1	898.5	834.6	63.90	14.060		
8,900.0	7,091.2	8,875.9	7,099.0	34.3	34.6	90.43	1,682.7	512.1	898.5	831.3	67.14	13.381		
9,000.0	7,089.5	8,975.9	7,099.0	35.9	36.2	90.54	1,782.7	512.1	898.5	828.1	70.41	12.760		
9,100.0	7,087.7	9,075.9	7,099.0	37.5	37.8	90.66	1,882.6	512.1	898.5	824.8	73.70	12.191		
9,200.0	7,086.0	9,175.8	7,099.0	39.1	39.4	90.77	1,982.6	512.1	898.5	821.5	77.01	11.667		
9,300.0	7,084.2	9,275.8	7,099.0	40.7	41.0	90.88	2,082.6	512.1	898.5	818.2	80.33	11.185		
9,400.0	7,082.5	9,375.8	7,099.0	42.4	42.7	90.99	2,182.6	512.1	898.5	814.9	83.67	10.739		
9,500.0	7,080.7	9,475.8	7,099.0	44.0	44.3	91.10	2,282.6	512.1	898.5	811.5	87.02	10.325		
9,600.0	7,079.0	9,575.8	7,099.0	45.7	46.0	91.21	2,382.6	512.1	898.6	808.2	90.39	9.941		
9,700.0	7,077.2	9,675.8	7,099.0	47.4	47.6	91.32	2,482.6	512.1	898.6	804.8	93.76	9.584		
9,800.0	7,075.5	9,775.8	7,099.0	49.1	49.3	91.44	2,582.5	512.1	898.6	801.5	97.14	9.251		
9,900.0	7,073.7	9,875.7	7,099.0	50.7	51.0	91.55	2,682.5	512.1	898.7	798.1	100.53	8.939		
10,000.0	7,072.0	9,975.7	7,099.0	52.4	52.7	91.66	2,782.5	512.1	898.7	794.8	103.92	8.648		
10,100.0	7,070.3	10,075.7	7,099.0	54.1	54.3	91.77	2,882.5	512.1	898.7	791.4	107.33	8.374		

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 Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Chavez 4B-4H - 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		
10,200.0	7,068.5	10,175.7	7,099.0	55.8	56.0	91.88	2,982.5	512.1	898.8	788.1	110.73	8.117		
10,300.0	7,066.8	10,275.7	7,099.0	57.5	57.7	91.99	3,082.5	512.1	898.8	784.7	114.14	7.875		
10,400.0	7,065.0	10,375.7	7,099.0	59.2	59.4	92.10	3,182.4	512.1	898.9	781.3	117.56	7.646		
10,500.0	7,063.3	10,475.6	7,099.0	60.9	61.1	92.21	3,282.4	512.1	899.0	778.0	120.98	7.431		
10,600.0	7,061.5	10,575.6	7,099.0	62.6	62.8	92.32	3,382.4	512.1	899.0	774.6	124.40	7.227		
10,700.0	7,059.8	10,675.6	7,099.0	64.3	64.5	92.44	3,482.4	512.1	899.1	771.2	127.83	7.033		
10,800.0	7,058.0	10,775.6	7,099.0	66.0	66.2	92.55	3,582.4	512.1	899.1	767.9	131.26	6.850		
10,900.0	7,056.3	10,875.6	7,099.0	67.8	67.9	92.66	3,682.4	512.1	899.2	764.5	134.69	6.676		
11,000.0	7,054.6	10,975.6	7,099.0	69.5	69.7	92.77	3,782.4	512.1	899.3	761.2	138.12	6.511		
11,100.0	7,052.8	11,075.6	7,099.0	71.2	71.4	92.88	3,882.3	512.0	899.4	757.8	141.56	6.353		
11,200.0	7,051.1	11,175.5	7,099.0	72.9	73.1	92.99	3,982.3	512.0	899.4	754.4	144.99	6.203		
11,300.0	7,049.3	11,275.5	7,099.0	74.6	74.8	93.10	4,082.3	512.0	899.5	751.1	148.43	6.060		
11,400.0	7,047.6	11,375.5	7,099.0	76.4	76.5	93.21	4,182.3	512.0	899.6	747.7	151.87	5.924		
11,500.0	7,045.8	11,475.5	7,099.0	78.1	78.2	93.32	4,282.3	512.0	899.7	744.4	155.31	5.793		
11,600.0	7,044.1	11,575.5	7,099.0	79.8	80.0	93.44	4,382.3	512.0	899.8	741.0	158.75	5.668		
11,700.0	7,042.3	11,675.5	7,099.0	81.5	81.7	93.55	4,482.3	512.0	899.9	737.7	162.19	5.548		
11,800.0	7,040.6	11,775.4	7,099.0	83.3	83.4	93.66	4,582.2	512.0	900.0	734.4	165.63	5.434		
11,823.2	7,040.2	11,798.7	7,099.0	83.7	83.8	93.68	4,605.5	512.0	900.0	733.6	166.43	5.408 SF		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Olin 1 (Existing) - Existing - Existing													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		
10,400.0	7,065.0	7,039.0	7,039.0	59.2	12.3	92.67	4,069.3	-54.3	947.0	875.9	71.05	13.329		
10,500.0	7,063.3	7,037.3	7,037.3	60.9	12.3	92.37	4,069.3	-54.3	854.1	781.3	72.77	11.736		
10,600.0	7,061.5	7,035.5	7,035.5	62.6	12.3	92.07	4,069.3	-54.3	762.9	688.4	74.50	10.241		
10,700.0	7,059.8	7,033.8	7,033.8	64.3	12.3	91.77	4,069.3	-54.3	674.3	598.1	76.22	8.847		
10,800.0	7,058.0	7,032.0	7,032.0	66.0	12.3	91.47	4,069.3	-54.3	589.3	511.4	77.95	7.560		
10,900.0	7,056.3	7,030.3	7,030.3	67.8	12.3	91.17	4,069.3	-54.3	509.8	430.1	79.68	6.399		
11,000.0	7,054.6	7,028.6	7,028.6	69.5	12.3	90.86	4,069.3	-54.3	438.8	357.4	81.40	5.390		
11,100.0	7,052.8	7,026.8	7,026.8	71.2	12.3	90.56	4,069.3	-54.3	381.0	297.8	83.13	4.583		
11,200.0	7,051.1	7,025.1	7,025.1	72.9	12.3	90.26	4,069.3	-54.3	343.1	258.3	84.85	4.043		
11,287.1	7,049.5	7,023.5	7,023.5	74.4	12.3	90.00	4,069.3	-54.3	331.9	245.5	86.36	3.843 CC, ES		
11,300.0	7,049.3	7,023.3	7,023.3	74.6	12.3	89.96	4,069.3	-54.3	332.1	245.6	86.58	3.836 SF		
11,400.0	7,047.6	7,021.6	7,021.6	76.4	12.3	89.66	4,069.3	-54.3	350.6	262.3	88.30	3.970		
11,500.0	7,045.8	7,019.8	7,019.8	78.1	12.3	89.36	4,069.3	-54.3	394.3	304.3	90.03	4.380		
11,600.0	7,044.1	7,018.1	7,018.1	79.8	12.2	89.06	4,069.3	-54.3	456.1	364.4	91.75	4.971		
11,700.0	7,042.3	7,016.3	7,016.3	81.5	12.2	88.76	4,069.3	-54.3	529.7	436.3	93.47	5.667		
11,800.0	7,040.6	7,014.6	7,014.6	83.3	12.2	88.46	4,069.3	-54.3	610.9	515.7	95.18	6.418		
11,823.2	7,040.2	7,014.2	7,014.2	83.7	12.2	88.39	4,069.3	-54.3	630.5	534.9	95.58	6.596		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Olin 31-4 (Existing) - Existing - Existing													Offset Site Error:	0.0 ft
Survey Program: 1160-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		
10,800.0	7,058.0	7,028.6	6,920.8	66.0	17.5	-54.91	4,550.7	-521.8	984.2	916.3	67.93	14.489		
10,900.0	7,056.3	7,039.8	6,931.9	67.8	17.6	-58.37	4,551.9	-522.9	885.8	814.0	71.77	12.342		
11,000.0	7,054.6	7,051.1	6,943.1	69.5	17.6	-62.10	4,553.0	-523.9	787.6	711.9	75.67	10.409		
11,100.0	7,052.8	7,061.6	6,953.5	71.2	17.6	-65.71	4,553.9	-524.8	689.8	610.5	79.33	8.695		
11,200.0	7,051.1	7,071.0	6,962.9	72.9	17.7	-69.11	4,554.8	-525.5	592.6	509.9	82.70	7.166		
11,300.0	7,049.3	7,079.4	6,971.2	74.6	17.7	-72.25	4,555.5	-526.2	496.4	410.6	85.77	5.788		
11,400.0	7,047.6	7,087.3	6,979.1	76.4	17.7	-75.29	4,556.2	-526.8	401.9	313.3	88.63	4.535		
11,500.0	7,045.8	7,094.9	6,986.6	78.1	17.7	-78.22	4,556.9	-527.4	310.7	219.4	91.28	3.404		
11,600.0	7,044.1	7,102.1	6,993.7	79.8	17.7	-81.08	4,557.5	-528.0	226.9	133.1	93.73	2.420		
11,700.0	7,042.3	7,109.0	7,000.6	81.5	17.8	-83.84	4,558.0	-528.5	162.2	66.2	95.98	1.689		
11,776.4	7,041.0	7,114.0	7,005.6	82.8	17.8	-85.82	4,558.4	-528.9	143.1	45.6	97.57	1.467	Level 3, CC, ES, SF	
11,800.0	7,040.6	7,115.5	7,007.0	83.3	17.8	-86.41	4,558.5	-529.0	145.1	47.0	98.03	1.480	Level 3	
11,823.2	7,040.2	7,116.9	7,008.5	83.7	17.8	-86.98	4,558.7	-529.1	150.6	52.1	98.48	1.529		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Olin 32-4 (Existing) - Existing - Existing													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		
9,400.0	7,082.5	7,061.5	7,061.5	42.4	12.3	-107.37	3,128.8	-439.0	947.7	895.7	52.00	18.224		
9,500.0	7,080.7	7,059.7	7,059.7	44.0	12.3	-105.63	3,128.8	-439.0	847.9	793.8	54.02	15.696		
9,600.0	7,079.0	7,058.0	7,058.0	45.7	12.3	-103.86	3,128.8	-439.0	748.1	692.1	56.03	13.351		
9,700.0	7,077.2	7,056.2	7,056.2	47.4	12.3	-102.06	3,128.8	-439.0	648.4	590.4	58.03	11.173		
9,800.0	7,075.5	7,054.5	7,054.5	49.1	12.3	-100.23	3,128.8	-439.0	548.8	488.8	60.02	9.144		
9,900.0	7,073.7	7,052.7	7,052.7	50.7	12.3	-98.39	3,128.8	-439.0	449.4	387.4	61.98	7.251		
10,000.0	7,072.0	7,051.0	7,051.0	52.4	12.3	-96.53	3,128.8	-439.0	350.3	286.4	63.90	5.482		
10,100.0	7,070.3	7,049.3	7,049.3	54.1	12.3	-94.65	3,128.8	-439.0	251.9	186.1	65.78	3.829		
10,200.0	7,068.5	7,047.5	7,047.5	55.8	12.3	-92.77	3,128.8	-439.0	155.5	87.9	67.62	2.300		
10,300.0	7,066.8	7,045.8	7,045.8	57.5	12.3	-90.88	3,128.8	-439.0	70.2	0.8	69.40	1.012 Level 2		
10,346.3	7,066.0	7,045.0	7,045.0	58.3	12.3	-90.00	3,128.8	-439.0	52.8	-17.4	70.20	0.752 Level 1, CC, ES, SF		
10,400.0	7,065.0	7,044.0	7,044.0	59.2	12.3	-88.98	3,128.8	-439.0	75.3	4.2	71.11	1.059 Level 2		
10,500.0	7,063.3	7,042.3	7,042.3	60.9	12.3	-87.09	3,128.8	-439.0	162.5	89.7	72.76	2.233		
10,600.0	7,061.5	7,040.5	7,040.5	62.6	12.3	-85.21	3,128.8	-439.0	259.1	184.7	74.33	3.485		
10,700.0	7,059.8	7,038.8	7,038.8	64.3	12.3	-83.33	3,128.8	-439.0	357.5	281.7	75.82	4.715		
10,800.0	7,058.0	7,037.0	7,037.0	66.0	12.3	-81.47	3,128.8	-439.0	456.7	379.4	77.23	5.913		
10,900.0	7,056.3	7,035.3	7,035.3	67.8	12.3	-79.63	3,128.8	-439.0	556.1	477.5	78.56	7.078		
11,000.0	7,054.6	7,033.6	7,033.6	69.5	12.3	-77.81	3,128.8	-439.0	655.7	575.9	79.81	8.216		
11,100.0	7,052.8	7,031.8	7,031.8	71.2	12.3	-76.01	3,128.8	-439.0	755.4	674.4	80.97	9.330		
11,200.0	7,051.1	7,030.1	7,030.1	72.9	12.3	-74.25	3,128.8	-439.0	855.2	773.1	82.04	10.424		
11,300.0	7,049.3	7,028.3	7,028.3	74.6	12.3	-72.51	3,128.8	-439.0	955.0	872.0	83.03	11.502		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Olin 41-4 (Existing) - Existing - Existing													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		
10,400.0	7,065.0	7,046.0	7,046.0	59.2	12.3	92.30	4,066.1	-2.2	963.5	892.4	71.08	13.555		
10,500.0	7,063.3	7,044.3	7,044.3	60.9	12.3	92.04	4,066.1	-2.2	872.7	799.9	72.80	11.988		
10,600.0	7,061.5	7,042.5	7,042.5	62.6	12.3	91.78	4,066.1	-2.2	784.1	709.6	74.52	10.522		
10,700.0	7,059.8	7,040.8	7,040.8	64.3	12.3	91.52	4,066.1	-2.2	698.6	622.4	76.24	9.163		
10,800.0	7,058.0	7,039.0	7,039.0	66.0	12.3	91.26	4,066.1	-2.2	617.6	539.6	77.97	7.921		
10,900.0	7,056.3	7,037.3	7,037.3	67.8	12.3	91.00	4,066.1	-2.2	542.8	463.1	79.69	6.811		
11,000.0	7,054.6	7,035.6	7,035.6	69.5	12.3	90.74	4,066.1	-2.2	477.4	396.0	81.42	5.864		
11,100.0	7,052.8	7,033.8	7,033.8	71.2	12.3	90.48	4,066.1	-2.2	425.6	342.5	83.14	5.119		
11,200.0	7,051.1	7,032.1	7,032.1	72.9	12.3	90.22	4,066.1	-2.2	393.0	308.1	84.87	4.630		
11,283.8	7,049.6	7,030.6	7,030.6	74.4	12.3	90.00	4,066.1	-2.2	383.9	297.6	86.31	4.448 CC, ES		
11,300.0	7,049.3	7,030.3	7,030.3	74.6	12.3	89.96	4,066.1	-2.2	384.3	297.7	86.59	4.438 SF		
11,400.0	7,047.6	7,028.6	7,028.6	76.4	12.3	89.70	4,066.1	-2.2	401.1	312.8	88.32	4.542		
11,500.0	7,045.8	7,026.8	7,026.8	78.1	12.3	89.44	4,066.1	-2.2	440.6	350.6	90.04	4.893		
11,600.0	7,044.1	7,025.1	7,025.1	79.8	12.3	89.18	4,066.1	-2.2	497.3	405.6	91.76	5.420		
11,700.0	7,042.3	7,023.3	7,023.3	81.5	12.3	88.92	4,066.1	-2.2	566.2	472.7	93.48	6.056		
11,800.0	7,040.6	7,021.6	7,021.6	83.3	12.3	88.66	4,066.1	-2.2	643.3	548.1	95.21	6.757		
11,823.2	7,040.2	7,021.2	7,021.2	83.7	12.3	88.60	4,066.1	-2.2	662.0	566.4	95.60	6.925		

Cathedral Energy Services

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Chavez 4A-4H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4928.0ft (Original Well Elev)
Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 SWSE S4-T1N-R65W (Chavez) - Olin 42-4A (Existing) - Existing - Existing												Offset Site Error:	0.0 ft
Survey Program: 0-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
10,400.0	7,065.0	7,056.0	7,056.0	59.2	12.3	92.16	4,066.1	23.2	973.9	902.8	71.10	13.697	
10,500.0	7,063.3	7,054.3	7,054.3	60.9	12.3	91.91	4,066.1	23.2	884.2	811.3	72.82	12.142	
10,600.0	7,061.5	7,052.5	7,052.5	62.6	12.3	91.67	4,066.1	23.2	796.9	722.3	74.54	10.691	
10,700.0	7,059.8	7,050.8	7,050.8	64.3	12.3	91.43	4,066.1	23.2	713.0	636.7	76.26	9.349	
10,800.0	7,058.0	7,049.0	7,049.0	66.0	12.3	91.18	4,066.1	23.2	633.7	555.7	77.99	8.126	
10,900.0	7,056.3	7,047.3	7,047.3	67.8	12.3	90.94	4,066.1	23.2	561.1	481.4	79.71	7.039	
11,000.0	7,054.6	7,045.6	7,045.6	69.5	12.3	90.69	4,066.1	23.2	498.1	416.7	81.43	6.117	
11,100.0	7,052.8	7,043.8	7,043.8	71.2	12.3	90.45	4,066.1	23.2	448.7	365.6	83.16	5.396	
11,200.0	7,051.1	7,042.1	7,042.1	72.9	12.3	90.20	4,066.1	23.2	417.9	333.0	84.88	4.923	
11,283.8	7,049.6	7,040.6	7,040.6	74.4	12.3	90.00	4,066.1	23.2	409.4	323.1	86.33	4.742 CC, ES	
11,300.0	7,049.3	7,040.3	7,040.3	74.6	12.3	89.96	4,066.1	23.2	409.7	323.1	86.61	4.731 SF	
11,400.0	7,047.6	7,038.6	7,038.6	76.4	12.3	89.72	4,066.1	23.2	425.6	337.2	88.33	4.818	
11,500.0	7,045.8	7,036.8	7,036.8	78.1	12.3	89.47	4,066.1	23.2	463.0	372.9	90.06	5.141	
11,600.0	7,044.1	7,035.1	7,035.1	79.8	12.3	89.23	4,066.1	23.2	517.3	425.5	91.78	5.636	
11,700.0	7,042.3	7,033.3	7,033.3	81.5	12.3	88.98	4,066.1	23.2	583.8	490.2	93.50	6.243	
11,800.0	7,040.6	7,031.6	7,031.6	83.3	12.3	88.74	4,066.1	23.2	658.8	563.5	95.23	6.918	
11,823.2	7,040.2	7,031.2	7,031.2	83.7	12.3	88.68	4,066.1	23.2	677.1	581.5	95.63	7.081	

Cathedral Energy Services

Anticollision Report

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Reference Site:	SWSE S4-T1N-R65W (Chavez)	MD Reference:	KBE @ 4928.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Chavez 4A-4H	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 KBE @ 4928.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

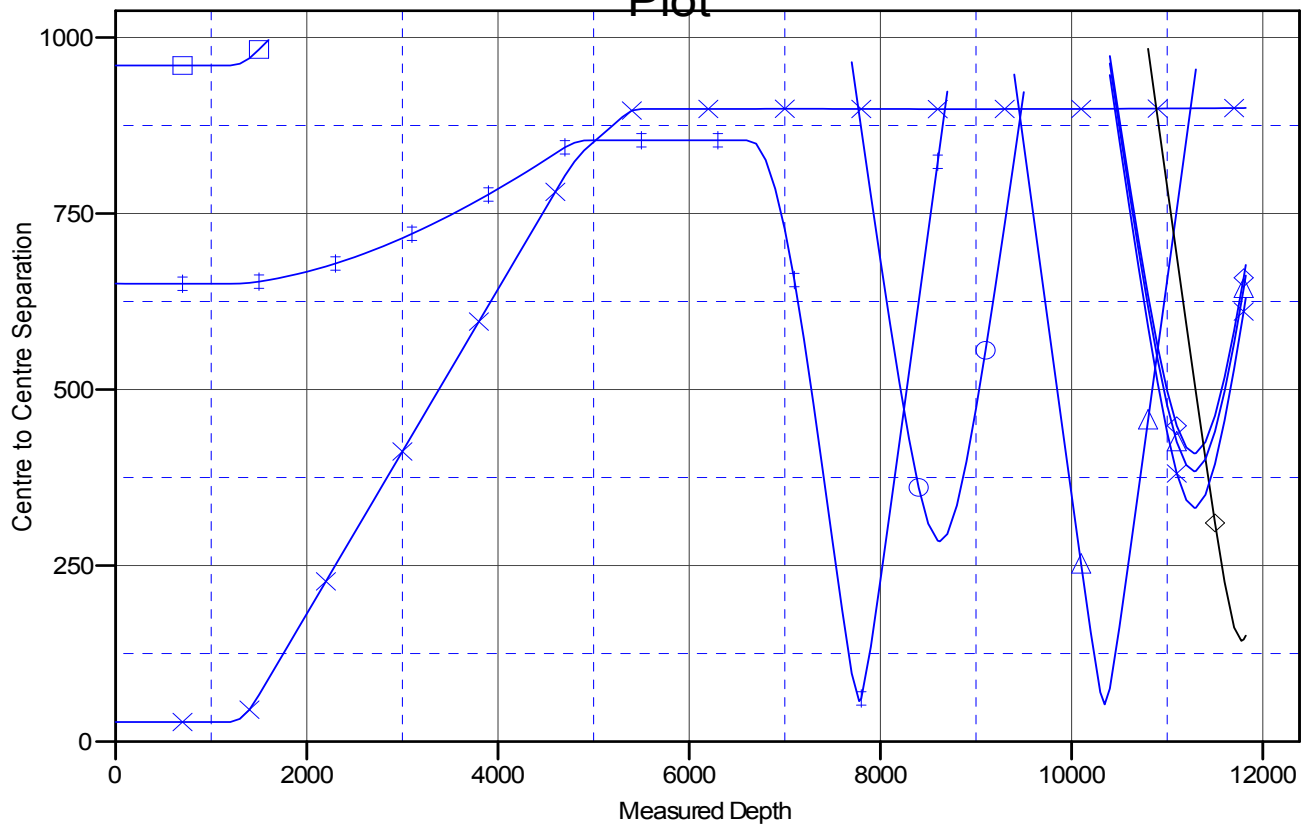
Central Meridian is -105.500000 °

Coordinates are relative to: Chavez 4A-4H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.54°

Ladder Plot



LEGEND

- ◆ Olin 42-4A (Existing), Existing, Existing V0
- ✕ Chavez 4B-4H, HZ, Plan #1 V0
- ▲ Olin 32-4 (Existing), Existing, Existing V0
- ◻ Chapin 44-4 (Existing), Existing, Existing V0
- ◆ Olin 31-4 (Existing), Existing, Existing V0
- Chapin 33-4 (Existing), Existing, Existing V0
- ✕ Olin 1 (Existing), Existing, Existing V0
- ▲ Olin 41-4 (Existing), Existing, Existing V0
- ✕ Chapin 34-4 (Existing), Existing, Existing V0