

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site:	NESE S17-T2N-R65W (Melbon Ranch)	North Reference:	True
Well:	Melbon Ranch 3A-17H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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		NESE S17-T2N-R65W (Melbon Ranch)			
Site Position:		Northing:	1,293,771.71 ft	Latitude:	40.136880
From:	Lat/Long	Easting:	3,229,276.43 ft	Longitude:	-104.679970
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.53 °

Well	Melbon Ranch 3A-17H					
Well Position	+N/-S	0.0 ft	Northing:	1,293,206.63 ft	Latitude:	40.135420
	+E/-W	0.0 ft	Easting:	3,225,657.92 ft	Longitude:	-104.692930
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,940.0 ft

Wellbore	HZ				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/6/2011	8.76	66.84	52,966

Design	Plan #3				
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	90.00	

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	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,601.0	30.03	244.37	4,555.8	-110.9	-231.1	3.00	3.00	0.00	244.37	
6,667.0	30.03	244.37	6,344.5	-558.2	-1,163.3	0.00	0.00	0.00	0.00	
7,733.4	90.50	90.00	7,077.3	-743.3	-694.1	11.00	5.67	-14.48	-150.87	
12,023.4	90.50	90.00	7,039.9	-743.3	3,595.8	0.00	0.00	0.00	0.00	Melbon Ranch 3A-17I

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Well:	Melbon Ranch 3A-17H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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	Melbon Ranch 3A-17H Section Line - Melbon R
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	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	KOP @ 3600'
3,700.0	3.00	244.37	3,700.0	-1.1	-2.4	-2.4	3.00	3.00	
3,800.0	6.00	244.37	3,799.6	-4.5	-9.4	-9.4	3.00	3.00	
3,900.0	9.00	244.37	3,898.8	-10.2	-21.2	-21.2	3.00	3.00	
4,000.0	12.00	244.37	3,997.1	-18.1	-37.6	-37.6	3.00	3.00	
4,100.0	15.00	244.37	4,094.3	-28.2	-58.7	-58.7	3.00	3.00	
4,200.0	18.00	244.37	4,190.2	-40.4	-84.3	-84.3	3.00	3.00	
4,300.0	21.00	244.37	4,284.4	-54.9	-114.4	-114.4	3.00	3.00	
4,400.0	24.00	244.37	4,376.8	-71.4	-148.9	-148.9	3.00	3.00	
4,421.1	24.63	244.37	4,396.0	-75.2	-156.7	-156.7	3.00	3.00	Sussex
4,500.0	27.00	244.37	4,467.1	-90.1	-187.7	-187.7	3.00	3.00	
4,600.0	30.00	244.37	4,554.9	-110.7	-230.7	-230.7	3.00	3.00	
4,601.0	30.03	244.37	4,555.8	-110.9	-231.1	-231.1	3.00	3.00	EOB; Inc=30°
4,700.0	30.03	244.37	4,641.5	-132.3	-275.8	-275.8	0.00	0.00	
4,772.2	30.03	244.37	4,704.0	-148.0	-308.4	-308.4	0.00	0.00	Sussex Marker
4,800.0	30.03	244.37	4,728.1	-154.0	-320.9	-320.9	0.00	0.00	

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Well:	Melbon Ranch 3A-17H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

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
4,900.0	30.03	244.37	4,814.7	-175.6	-366.0	-366.0	0.00	0.00	
5,000.0	30.03	244.37	4,901.2	-197.3	-411.2	-411.2	0.00	0.00	
5,070.2	30.03	244.37	4,962.0	-212.5	-442.8	-442.8	0.00	0.00	Shannon
5,100.0	30.03	244.37	4,987.8	-218.9	-456.3	-456.3	0.00	0.00	
5,200.0	30.03	244.37	5,074.4	-240.6	-501.4	-501.4	0.00	0.00	
5,300.0	30.03	244.37	5,161.0	-262.2	-546.5	-546.5	0.00	0.00	
5,400.0	30.03	244.37	5,247.5	-283.9	-591.6	-591.6	0.00	0.00	
5,500.0	30.03	244.37	5,334.1	-305.5	-636.8	-636.8	0.00	0.00	
5,600.0	30.03	244.37	5,420.7	-327.2	-681.9	-681.9	0.00	0.00	
5,700.0	30.03	244.37	5,507.3	-348.8	-727.0	-727.0	0.00	0.00	
5,800.0	30.03	244.37	5,593.9	-370.5	-772.1	-772.1	0.00	0.00	
5,900.0	30.03	244.37	5,680.4	-392.1	-817.2	-817.2	0.00	0.00	
6,000.0	30.03	244.37	5,767.0	-413.8	-862.4	-862.4	0.00	0.00	
6,100.0	30.03	244.37	5,853.6	-435.4	-907.5	-907.5	0.00	0.00	
6,200.0	30.03	244.37	5,940.2	-457.1	-952.6	-952.6	0.00	0.00	
6,300.0	30.03	244.37	6,026.7	-478.7	-997.7	-997.7	0.00	0.00	
6,400.0	30.03	244.37	6,113.3	-500.4	-1,042.8	-1,042.8	0.00	0.00	
6,500.0	30.03	244.37	6,199.9	-522.0	-1,088.0	-1,088.0	0.00	0.00	
6,600.0	30.03	244.37	6,286.5	-543.7	-1,133.1	-1,133.1	0.00	0.00	
6,667.0	30.03	244.37	6,344.5	-558.2	-1,163.3	-1,163.3	0.00	0.00	Start 11° Build @ 6667' MD
6,700.0	26.91	240.46	6,373.5	-565.4	-1,177.3	-1,177.3	11.00	-9.45	
6,800.0	18.54	221.62	6,465.8	-588.5	-1,207.6	-1,207.6	11.00	-8.37	
6,900.0	14.15	184.88	6,561.9	-612.7	-1,219.2	-1,219.2	11.00	-4.39	
7,000.0	17.14	144.68	6,658.5	-637.0	-1,211.7	-1,211.7	11.00	2.99	
7,100.0	24.98	122.75	6,751.9	-660.5	-1,185.4	-1,185.4	11.00	7.85	
7,200.0	34.52	111.55	6,838.7	-682.4	-1,141.1	-1,141.1	11.00	9.53	
7,300.0	44.67	104.85	6,915.7	-701.8	-1,080.6	-1,080.6	11.00	10.15	
7,355.3	50.41	102.11	6,953.0	-711.3	-1,040.9	-1,040.9	11.00	10.38	Sharon Springs
7,400.0	55.09	100.22	6,980.0	-718.2	-1,006.0	-1,006.0	11.00	10.47	
7,469.4	62.40	97.67	7,016.0	-727.3	-947.5	-947.5	11.00	10.54	Niobrara
7,500.0	65.65	96.65	7,029.4	-730.8	-920.2	-920.2	11.00	10.59	
7,600.0	76.27	93.64	7,062.0	-739.2	-826.2	-826.2	11.00	10.63	
7,700.0	86.93	90.90	7,076.6	-743.0	-727.5	-727.5	11.00	10.66	
7,709.1	87.91	90.65	7,077.0	-743.2	-718.3	-718.3	11.00	10.67	Target
7,733.4	90.50	90.00	7,077.3	-743.3	-694.1	-694.1	11.00	10.67	Landing Pt @ 7077' TVD; 90.5°
7,800.0	90.50	90.00	7,076.8	-743.3	-627.5	-627.5	0.00	0.00	
7,900.0	90.50	90.00	7,075.9	-743.3	-527.5	-527.5	0.00	0.00	
8,000.0	90.50	90.00	7,075.0	-743.3	-427.5	-427.5	0.00	0.00	
8,100.0	90.50	90.00	7,074.1	-743.3	-327.5	-327.5	0.00	0.00	
8,200.0	90.50	90.00	7,073.3	-743.3	-227.5	-227.5	0.00	0.00	
8,300.0	90.50	90.00	7,072.4	-743.3	-127.5	-127.5	0.00	0.00	
8,400.0	90.50	90.00	7,071.5	-743.3	-27.5	-27.5	0.00	0.00	
8,500.0	90.50	90.00	7,070.6	-743.3	72.5	72.5	0.00	0.00	
8,600.0	90.50	90.00	7,069.8	-743.3	172.5	172.5	0.00	0.00	
8,700.0	90.50	90.00	7,068.9	-743.3	272.5	272.5	0.00	0.00	
8,800.0	90.50	90.00	7,068.0	-743.3	372.5	372.5	0.00	0.00	
8,900.0	90.50	90.00	7,067.2	-743.3	472.5	472.5	0.00	0.00	
9,000.0	90.50	90.00	7,066.3	-743.3	572.5	572.5	0.00	0.00	
9,100.0	90.50	90.00	7,065.4	-743.3	672.5	672.5	0.00	0.00	
9,200.0	90.50	90.00	7,064.5	-743.3	772.5	772.5	0.00	0.00	
9,300.0	90.50	90.00	7,063.7	-743.3	872.4	872.4	0.00	0.00	
9,400.0	90.50	90.00	7,062.8	-743.3	972.4	972.4	0.00	0.00	

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Wellbore:	HZ		
Design:	Plan #3		

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
9,500.0	90.50	90.00	7,061.9	-743.3	1,072.4	1,072.4	0.00	0.00	
9,600.0	90.50	90.00	7,061.0	-743.3	1,172.4	1,172.4	0.00	0.00	
9,700.0	90.50	90.00	7,060.2	-743.3	1,272.4	1,272.4	0.00	0.00	
9,800.0	90.50	90.00	7,059.3	-743.3	1,372.4	1,372.4	0.00	0.00	
9,900.0	90.50	90.00	7,058.4	-743.3	1,472.4	1,472.4	0.00	0.00	
10,000.0	90.50	90.00	7,057.6	-743.3	1,572.4	1,572.4	0.00	0.00	
10,100.0	90.50	90.00	7,056.7	-743.3	1,672.4	1,672.4	0.00	0.00	
10,200.0	90.50	90.00	7,055.8	-743.3	1,772.4	1,772.4	0.00	0.00	
10,300.0	90.50	90.00	7,054.9	-743.3	1,872.4	1,872.4	0.00	0.00	
10,400.0	90.50	90.00	7,054.1	-743.3	1,972.4	1,972.4	0.00	0.00	
10,500.0	90.50	90.00	7,053.2	-743.3	2,072.4	2,072.4	0.00	0.00	
10,600.0	90.50	90.00	7,052.3	-743.3	2,172.4	2,172.4	0.00	0.00	
10,700.0	90.50	90.00	7,051.4	-743.3	2,272.4	2,272.4	0.00	0.00	
10,800.0	90.50	90.00	7,050.6	-743.3	2,372.4	2,372.4	0.00	0.00	
10,900.0	90.50	90.00	7,049.7	-743.3	2,472.4	2,472.4	0.00	0.00	
11,000.0	90.50	90.00	7,048.8	-743.3	2,572.4	2,572.4	0.00	0.00	
11,100.0	90.50	90.00	7,048.0	-743.3	2,672.4	2,672.4	0.00	0.00	
11,200.0	90.50	90.00	7,047.1	-743.3	2,772.4	2,772.4	0.00	0.00	
11,300.0	90.50	90.00	7,046.2	-743.3	2,872.4	2,872.4	0.00	0.00	
11,400.0	90.50	90.00	7,045.3	-743.3	2,972.4	2,972.4	0.00	0.00	
11,500.0	90.50	90.00	7,044.5	-743.3	3,072.4	3,072.4	0.00	0.00	
11,600.0	90.50	90.00	7,043.6	-743.3	3,172.4	3,172.4	0.00	0.00	
11,700.0	90.50	90.00	7,042.7	-743.3	3,272.4	3,272.4	0.00	0.00	
11,800.0	90.50	90.00	7,041.8	-743.3	3,372.4	3,372.4	0.00	0.00	
11,900.0	90.50	90.00	7,041.0	-743.3	3,472.3	3,472.3	0.00	0.00	
12,000.0	90.50	90.00	7,040.1	-743.3	3,572.3	3,572.3	0.00	0.00	
12,023.4	90.50	90.00	7,039.9	-743.3	3,595.8	3,595.8	0.00	0.00	TD at 12023.4 - Melbon Ranch 3A-17H PBHL

Targets

Target Name

- hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Melbon Ranch 3A-17H F - plan hits target center - Polygon	0.00	0.00	7,039.9	-743.3	3,595.8	1,292,496.09	3,229,260.30	40.133379	-104.680070
Point 1			7,039.9	200.0	460.0	1,292,700.27	3,229,718.46		
Point 2			7,039.9	-460.0	460.0	1,292,040.30	3,229,724.47		
Point 3			7,039.9	-460.0	-460.0	1,292,031.92	3,228,804.51		
Point 4			7,039.9	-460.0	460.0	1,292,040.30	3,229,724.47		
Melbon Ranch 3A-17H 5 - plan misses target center by 7077.0ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	-7,077.0	0.0	0.0	1,293,206.63	3,225,657.92	40.135420	-104.692930
Point 1			-7,077.0	500.0	-1,243.0	1,293,695.30	3,224,410.42		
Point 2			-7,077.0	-1,100.0	-1,243.0	1,292,095.37	3,224,424.98		
Melbon Ranch 3A-17H 4 - plan misses target center by 7077.0ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	-7,077.0	0.0	0.0	1,293,206.63	3,225,657.92	40.135420	-104.692930
Point 1			-7,077.0	500.0	-783.0	1,293,699.49	3,224,870.40		
Point 2			-7,077.0	-1,100.0	-783.0	1,292,099.55	3,224,884.96		

Cathedral Energy Services

Planning Report

Database:	USA EDM 5000 Multi Users DB	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Company:	EnCana Oil & Gas (USA) Inc	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Project:	DJ Wattenberg	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site:	NESE S17-T2N-R65W (Melbon Ranch)	North Reference:	True
Well:	Melbon Ranch 3A-17H	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	Plan #3		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,421.1	4,396.0	Sussex			
4,772.2	4,704.0	Sussex Marker			
5,070.2	4,962.0	Shannon			
7,355.3	6,953.0	Sharon Springs			
7,469.4	7,016.0	Niobrara			
7,709.1	7,077.0	Target			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
3,600.0	3,600.0	0.0	0.0	KOP @ 3600'
4,601.0	4,555.8	-110.9	-231.1	EOB; Inc=30°
6,667.0	6,344.5	-558.2	-1,163.3	Start 11° Build @ 6667' MD
7,733.4	7,077.3	-743.3	-694.1	Landing Pt @ 7077' TVD; 90.5°
12,023.4	7,039.9	-743.3	3,595.8	TD at 12023.4

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

NESE S17-T2N-R65W (Melbon Ranch)

Melbon Ranch 3A-17H

HZ

Plan #3

Anticollision Report

13 October, 2011

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Reference Site:	NESE S17-T2N-R65W (Melbon Ranch)	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Melbon Ranch 3A-17H	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 #3	Offset TVD Reference:	Offset Datum

Reference	Plan #3		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.0ft	Error Model:	Systematic Ellipse
Depth Range:	7,700.0 to 999,999.0ft	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	10/10/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.0	12,023.4	Plan #3 (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						
NESE S17-T2N-R65W (Melbon Ranch)						
Melbon Ranch 13-17 (Existing) - Wellbore #1 - Wellbore	8,427.5	7,069.3	805.2	774.7	26.355	CC, ES
Melbon Ranch 13-17 (Existing) - Wellbore #1 - Wellbore	8,900.0	7,065.2	933.6	895.3	24.393	SF
Melbon Ranch 14-17 (Existing) - Wellbore #1 - Plan #1	7,837.5	7,230.6	211.1	177.8	6.342	CC, ES, SF
Melbon Ranch 23-17 (Existing) - Wellbore #1 - Plan #1						Out of range
Melbon Ranch 2-4-17 (Existing) - Wellbore #1 - Plan #1						Out of range
Melbon Ranch 4-6-17 (Existing) - Wellbore #1 - Plan #1	9,772.4	7,206.6	641.3	583.9	11.155	CC
Melbon Ranch 4-6-17 (Existing) - Wellbore #1 - Plan #1	9,800.0	7,206.4	641.9	583.8	11.043	ES
Melbon Ranch 4-6-17 (Existing) - Wellbore #1 - Plan #1	9,900.0	7,205.5	653.9	593.5	10.817	SF
Melbon Ranch 4A-17H - HZ - Plan #2						Out of range

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Reference Site:	NESE S17-T2N-R65W (Melbon Ranch)	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Melbon Ranch 3A-17H	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 #3	Offset TVD Reference:	Offset Datum

Offset Design													NESE S17-T2N-R65W (Melbon Ranch) - Melbon Ranch 13-17 (Existing) - Wellbore #1 - Wellbore #1		Offset Site Error:		0.0 ft
Survey Program:													8000-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					
7,900.0	7,075.9	7,073.9	7,073.9	21.3	12.3	-90.33	61.9	0.0	962.6	933.8	28.82	33.397					
8,000.0	7,075.0	7,073.0	7,073.0	20.7	12.3	-90.27	61.9	0.0	911.7	883.3	28.36	32.142					
8,100.0	7,074.1	7,072.1	7,072.1	20.3	12.3	-90.20	61.9	0.0	869.3	841.0	28.28	30.739					
8,200.0	7,073.3	7,071.3	7,071.3	20.2	12.3	-90.14	61.9	0.0	836.8	808.2	28.57	29.283					
8,300.0	7,072.4	7,070.4	7,070.4	20.4	12.3	-90.08	61.9	0.0	815.3	786.0	29.23	27.890					
8,400.0	7,071.5	7,069.5	7,069.5	21.0	12.3	-90.02	61.9	0.0	805.7	775.5	30.21	26.671					
8,427.5	7,071.3	7,069.3	7,069.3	21.2	12.3	-90.00	61.9	0.0	805.2	774.7	30.55	26.355	CC, ES				
8,500.0	7,070.6	7,068.6	7,068.6	22.0	12.3	-89.95	61.9	0.0	808.5	777.0	31.46	25.700					
8,600.0	7,069.8	7,067.8	7,067.8	23.3	12.3	-89.89	61.9	0.0	823.5	790.6	32.93	25.008					
8,700.0	7,068.9	7,066.9	7,066.9	24.9	12.3	-89.83	61.9	0.0	850.1	815.5	34.58	24.584					
8,800.0	7,068.0	7,066.0	7,066.0	26.6	12.3	-89.77	61.9	0.0	887.2	850.8	36.37	24.394					
8,900.0	7,067.2	7,065.2	7,065.2	28.3	12.3	-89.71	61.9	0.0	933.6	895.3	38.27	24.393	SF				
9,000.0	7,066.3	7,064.3	7,064.3	30.2	12.3	-89.64	61.9	0.0	988.0	947.7	40.27	24.536					

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Reference Site:	NESE S17-T2N-R65W (Melbon Ranch)	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Melbon Ranch 3A-17H	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 #3	Offset TVD Reference:	Offset Datum

Offset Design NESE S17-T2N-R65W (Melbon Ranch) - Melbon Ranch 14-17 (Existing) - Wellbore #1 - 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		
7,700.0	7,076.6	7,230.7	7,074.6	23.1	24.1	87.94	-954.4	-590.0	252.2	217.7	34.44	7.321		
7,800.0	7,076.8	7,230.9	7,074.8	22.1	24.1	90.09	-954.4	-590.0	214.4	180.8	33.58	6.384		
7,837.5	7,076.4	7,230.6	7,074.4	21.8	24.1	90.00	-954.4	-590.0	211.1	177.8	33.29	6.342	CC, ES, SF	
7,900.0	7,075.9	7,230.0	7,073.9	21.3	24.1	89.85	-954.4	-590.0	220.1	187.4	32.79	6.715		
8,000.0	7,075.0	7,229.2	7,073.0	20.7	24.1	89.62	-954.4	-590.0	266.4	234.0	32.33	8.239		
8,100.0	7,074.1	7,228.3	7,072.1	20.3	24.1	89.38	-954.4	-590.0	336.8	304.6	32.25	10.443		
8,200.0	7,073.3	7,227.4	7,071.3	20.2	24.1	89.14	-954.4	-590.0	419.5	386.9	32.56	12.884		
8,300.0	7,072.4	7,226.5	7,070.4	20.4	24.1	88.90	-954.4	-590.0	508.4	475.1	33.22	15.304		
8,400.0	7,071.5	7,225.7	7,069.5	21.0	24.1	88.67	-954.4	-590.0	600.8	566.6	34.20	17.566		
8,500.0	7,070.6	7,224.8	7,068.6	22.0	24.1	88.43	-954.4	-590.0	695.3	659.8	35.45	19.611		
8,600.0	7,069.8	7,223.9	7,067.8	23.3	24.1	88.19	-954.4	-590.0	791.1	754.2	36.93	21.425		
8,700.0	7,068.9	7,223.0	7,066.9	24.9	24.1	87.96	-954.4	-590.0	887.9	849.3	38.58	23.017		
8,800.0	7,068.0	7,222.2	7,066.0	26.6	24.1	87.72	-954.4	-590.0	985.3	945.0	40.37	24.409		

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Reference Site:	NESE S17-T2N-R65W (Melbon Ranch)	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Melbon Ranch 3A-17H	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 #3	Offset TVD Reference:	Offset Datum

Offset Design NESE S17-T2N-R65W (Melbon Ranch) - Melbon Ranch 4-6-17 (Existing) - Wellbore #1 - 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	
9,100.0	7,065.4	7,212.5	7,063.4	32.2	23.5	-90.52	-102.0	1,344.9	929.2	886.7	42.51	21.857	
9,200.0	7,064.5	7,211.6	7,062.5	34.2	23.5	-90.45	-102.0	1,344.9	859.6	815.0	44.64	19.258	
9,300.0	7,063.7	7,210.7	7,061.7	36.3	23.5	-90.37	-102.0	1,344.9	796.6	749.8	46.81	17.017	
9,400.0	7,062.8	7,209.9	7,060.8	38.4	23.5	-90.29	-102.0	1,344.9	741.6	692.6	49.02	15.130	
9,500.0	7,061.9	7,209.0	7,059.9	40.6	23.5	-90.21	-102.0	1,344.9	696.8	645.6	51.26	13.594	
9,600.0	7,061.0	7,208.1	7,059.0	42.8	23.5	-90.13	-102.0	1,344.9	664.1	610.6	53.53	12.407	
9,700.0	7,060.2	7,207.2	7,058.2	45.0	23.5	-90.06	-102.0	1,344.9	645.4	589.6	55.82	11.563	
9,772.4	7,059.5	7,206.6	7,057.5	46.6	23.5	-90.00	-102.0	1,344.9	641.3	583.9	57.49	11.155 CC	
9,800.0	7,059.3	7,206.4	7,057.3	47.2	23.5	-89.98	-102.0	1,344.9	641.9	583.8	58.13	11.043 ES	
9,900.0	7,058.4	7,205.5	7,056.4	49.5	23.5	-89.90	-102.0	1,344.9	653.9	593.5	60.45	10.817 SF	
10,000.0	7,057.6	7,204.6	7,055.6	51.8	23.5	-89.82	-102.0	1,344.9	680.5	617.7	62.79	10.837	
10,100.0	7,056.7	7,203.7	7,054.7	54.1	23.5	-89.74	-102.0	1,344.9	720.1	655.0	65.15	11.054	
10,200.0	7,055.8	7,202.9	7,053.8	56.4	23.5	-89.67	-102.0	1,344.9	770.8	703.3	67.51	11.418	
10,300.0	7,054.9	7,202.0	7,052.9	58.7	23.5	-89.59	-102.0	1,344.9	830.4	760.6	69.88	11.883	
10,400.0	7,054.1	7,201.1	7,052.1	61.1	23.5	-89.51	-102.0	1,344.9	897.3	825.0	72.26	12.417	
10,500.0	7,053.2	7,200.3	7,051.2	63.4	23.5	-89.43	-102.0	1,344.9	969.9	895.2	74.65	12.992	

Anticollision Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Melbon Ranch 3A-17H
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4952.0ft (Original Well Elev)
Reference Site:	NESE S17-T2N-R65W (Melbon Ranch)	MD Reference:	KBE @ 4952.0ft (Original Well Elev)
Site Error:	0.0ft	North Reference:	True
Reference Well:	Melbon Ranch 3A-17H	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 #3	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 4952.0ft (Original Well Elev)

Offset Depths are relative to Offset Datum

Central Meridian is -105.500000 °

Coordinates are relative to: Melbon Ranch 3A-17H

Coordinate System is US State Plane 1983, Colorado Northern Zone

Grid Convergence at Surface is: 0.52°

