



FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4525.0	4533.5	Sussex
4753.0	4764.1	Sussex Marker
5090.0	5105.0	Shannon
6247.0	6275.4	Teepee Buttes
7073.0	7161.3	Sharon Springs
7139.0	7277.7	Niobrara
7182.0	7392.3	B Chalk

Plan #4 Melbon Ranch 3A-17H 115xxx; LR KB=13' @ 4971.0ft North American Datum 1983 Well Melbon Ranch 3A-17H, True North							
Type	Target	Azimuth	Origin	Type	N/S	E/W	From TVD
User	No Target (Freehand)	90.00	Slot		0.0	0.0	0.0
Name	TVD	+N/-S	+E/-W	Latitude	Longitude		
Melbon Ranch 3A-17H PBHL (2.29.12)	7202.0	-484.1	4633.1	40.133580	-104.680060		

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>North Reference:</b>	True
<b>Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #4		

<b>Project</b>	DJ Wattenberg		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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:	1,293,011.46 ft	Latitude:	40.134910
	+E/-W	0.0 ft	Easting:	3,224,625.13 ft	Longitude:	-104.696630
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,958.0 ft

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

<b>Design</b>	Plan #4				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PLAN		<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	90.00	

<b>Plan Sections</b>										
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	
3,889.3	8.68	203.46	3,888.2	-20.1	-8.7	3.00	3.00	0.00	203.46	
6,688.3	8.68	203.46	6,655.2	-407.5	-176.9	0.00	0.00	0.00	0.00	
7,537.8	90.00	90.00	7,202.0	-484.1	343.1	11.00	9.57	-13.36	-113.22	
11,827.8	90.00	90.00	7,202.0	-484.1	4,633.1	0.00	0.00	0.00	0.00	Melbon Ranch 3A-17I

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<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>North Reference:</b>	True
<b>Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #4		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
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	203.46	3,700.0	-2.4	-1.0	-1.0	3.00	3.00	
3,800.0	6.00	203.46	3,799.6	-9.6	-4.2	-4.2	3.00	3.00	
3,889.3	8.68	203.46	3,888.2	-20.1	-8.7	-8.7	3.00	3.00	EOB; Inc=8.68°
3,900.0	8.68	203.46	3,898.8	-21.5	-9.4	-9.4	0.00	0.00	
4,000.0	8.68	203.46	3,997.6	-35.4	-15.4	-15.4	0.00	0.00	
4,100.0	8.68	203.46	4,096.5	-49.2	-21.4	-21.4	0.00	0.00	
4,200.0	8.68	203.46	4,195.3	-63.1	-27.4	-27.4	0.00	0.00	
4,300.0	8.68	203.46	4,294.2	-76.9	-33.4	-33.4	0.00	0.00	
4,400.0	8.68	203.46	4,393.0	-90.7	-39.4	-39.4	0.00	0.00	
4,500.0	8.68	203.46	4,491.9	-104.6	-45.4	-45.4	0.00	0.00	
4,533.5	8.68	203.46	4,525.0	-109.2	-47.4	-47.4	0.00	0.00	Sussex
4,600.0	8.68	203.46	4,590.8	-118.4	-51.4	-51.4	0.00	0.00	
4,700.0	8.68	203.46	4,689.6	-132.3	-57.4	-57.4	0.00	0.00	
4,764.1	8.68	203.46	4,753.0	-141.1	-61.3	-61.3	0.00	0.00	Sussex Marker
4,800.0	8.68	203.46	4,788.5	-146.1	-63.4	-63.4	0.00	0.00	

# Planning Report

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<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>North Reference:</b>	True
<b>Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #4		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,900.0	8.68	203.46	4,887.3	-160.0	-69.4	-69.4	0.00	0.00	
5,000.0	8.68	203.46	4,986.2	-173.8	-75.4	-75.4	0.00	0.00	
5,100.0	8.68	203.46	5,085.0	-187.6	-81.4	-81.4	0.00	0.00	
5,105.0	8.68	203.46	5,090.0	-188.3	-81.7	-81.7	0.00	0.00	Shannon
5,200.0	8.68	203.46	5,183.9	-201.5	-87.5	-87.5	0.00	0.00	
5,300.0	8.68	203.46	5,282.7	-215.3	-93.5	-93.5	0.00	0.00	
5,400.0	8.68	203.46	5,381.6	-229.2	-99.5	-99.5	0.00	0.00	
5,500.0	8.68	203.46	5,480.5	-243.0	-105.5	-105.5	0.00	0.00	
5,600.0	8.68	203.46	5,579.3	-256.8	-111.5	-111.5	0.00	0.00	
5,700.0	8.68	203.46	5,678.2	-270.7	-117.5	-117.5	0.00	0.00	
5,800.0	8.68	203.46	5,777.0	-284.5	-123.5	-123.5	0.00	0.00	
5,900.0	8.68	203.46	5,875.9	-298.4	-129.5	-129.5	0.00	0.00	
6,000.0	8.68	203.46	5,974.7	-312.2	-135.5	-135.5	0.00	0.00	
6,100.0	8.68	203.46	6,073.6	-326.1	-141.5	-141.5	0.00	0.00	
6,200.0	8.68	203.46	6,172.4	-339.9	-147.5	-147.5	0.00	0.00	
6,275.4	8.68	203.46	6,247.0	-350.3	-152.1	-152.1	0.00	0.00	Teepee Buttes
6,300.0	8.68	203.46	6,271.3	-353.7	-153.5	-153.5	0.00	0.00	
6,400.0	8.68	203.46	6,370.1	-367.6	-159.5	-159.5	0.00	0.00	
6,500.0	8.68	203.46	6,469.0	-381.4	-165.6	-165.6	0.00	0.00	
6,600.0	8.68	203.46	6,567.9	-395.3	-171.6	-171.6	0.00	0.00	
6,688.3	8.68	203.46	6,655.2	-407.5	-176.9	-176.9	0.00	0.00	Start 11° build @ 6688' MD
6,700.0	8.26	195.22	6,666.7	-409.1	-177.4	-177.4	11.00	-3.62	
6,800.0	11.88	131.72	6,765.4	-422.9	-171.6	-171.6	11.00	3.63	
6,900.0	21.32	111.02	6,861.2	-436.3	-146.9	-146.9	11.00	9.44	
7,000.0	31.76	103.07	6,950.6	-448.9	-104.2	-104.2	11.00	10.43	
7,100.0	42.45	98.80	7,030.3	-460.0	-45.0	-45.0	11.00	10.70	
7,161.3	49.07	96.97	7,073.0	-466.0	-1.5	-1.5	11.00	10.79	Sharon Springs
7,200.0	53.26	96.00	7,097.3	-469.4	28.4	28.4	11.00	10.82	
7,277.7	61.69	94.33	7,139.0	-475.2	93.6	93.6	11.00	10.85	Niobrara
7,300.0	64.11	93.90	7,149.2	-476.7	113.4	113.4	11.00	10.87	
7,392.3	74.15	92.28	7,182.0	-481.3	199.4	199.4	11.00	10.88	B Chalk
7,400.0	74.99	92.15	7,184.0	-481.5	206.8	206.8	11.00	10.89	
7,500.0	85.88	90.58	7,200.6	-483.9	305.3	305.3	11.00	10.89	
7,537.8	90.00	90.00	7,202.0	-484.1	343.1	343.1	11.00	10.89	Landing Pt @ 7537' MD; 90°
7,600.0	90.00	90.00	7,202.0	-484.1	405.2	405.2	0.00	0.00	
7,700.0	90.00	90.00	7,202.0	-484.1	505.2	505.2	0.00	0.00	
7,800.0	90.00	90.00	7,202.0	-484.1	605.2	605.2	0.00	0.00	
7,900.0	90.00	90.00	7,202.0	-484.1	705.2	705.2	0.00	0.00	
8,000.0	90.00	90.00	7,202.0	-484.1	805.2	805.2	0.00	0.00	
8,100.0	90.00	90.00	7,202.0	-484.1	905.2	905.2	0.00	0.00	
8,200.0	90.00	90.00	7,202.0	-484.1	1,005.2	1,005.2	0.00	0.00	
8,300.0	90.00	90.00	7,202.0	-484.1	1,105.2	1,105.2	0.00	0.00	
8,400.0	90.00	90.00	7,202.0	-484.1	1,205.2	1,205.2	0.00	0.00	
8,500.0	90.00	90.00	7,202.0	-484.1	1,305.2	1,305.2	0.00	0.00	
8,600.0	90.00	90.00	7,202.0	-484.1	1,405.2	1,405.2	0.00	0.00	
8,700.0	90.00	90.00	7,202.0	-484.1	1,505.2	1,505.2	0.00	0.00	
8,800.0	90.00	90.00	7,202.0	-484.1	1,605.2	1,605.2	0.00	0.00	
8,900.0	90.00	90.00	7,202.0	-484.1	1,705.2	1,705.2	0.00	0.00	
9,000.0	90.00	90.00	7,202.0	-484.1	1,805.2	1,805.2	0.00	0.00	
9,100.0	90.00	90.00	7,202.0	-484.1	1,905.2	1,905.2	0.00	0.00	
9,200.0	90.00	90.00	7,202.0	-484.1	2,005.2	2,005.2	0.00	0.00	
9,300.0	90.00	90.00	7,202.0	-484.1	2,105.2	2,105.2	0.00	0.00	

## Planning Report

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<b>Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #4		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,400.0	90.00	90.00	7,202.0	-484.1	2,205.2	2,205.2	0.00	0.00	
9,500.0	90.00	90.00	7,202.0	-484.1	2,305.2	2,305.2	0.00	0.00	
9,600.0	90.00	90.00	7,202.0	-484.1	2,405.2	2,405.2	0.00	0.00	
9,700.0	90.00	90.00	7,202.0	-484.1	2,505.2	2,505.2	0.00	0.00	
9,800.0	90.00	90.00	7,202.0	-484.1	2,605.2	2,605.2	0.00	0.00	
9,900.0	90.00	90.00	7,202.0	-484.1	2,705.2	2,705.2	0.00	0.00	
10,000.0	90.00	90.00	7,202.0	-484.1	2,805.2	2,805.2	0.00	0.00	
10,100.0	90.00	90.00	7,202.0	-484.1	2,905.2	2,905.2	0.00	0.00	
10,200.0	90.00	90.00	7,202.0	-484.1	3,005.2	3,005.2	0.00	0.00	
10,300.0	90.00	90.00	7,202.0	-484.1	3,105.2	3,105.2	0.00	0.00	
10,400.0	90.00	90.00	7,202.0	-484.1	3,205.2	3,205.2	0.00	0.00	
10,500.0	90.00	90.00	7,202.0	-484.1	3,305.2	3,305.2	0.00	0.00	
10,600.0	90.00	90.00	7,202.0	-484.1	3,405.2	3,405.2	0.00	0.00	
10,700.0	90.00	90.00	7,202.0	-484.1	3,505.2	3,505.2	0.00	0.00	
10,800.0	90.00	90.00	7,202.0	-484.1	3,605.2	3,605.2	0.00	0.00	
10,900.0	90.00	90.00	7,202.0	-484.1	3,705.2	3,705.2	0.00	0.00	
11,000.0	90.00	90.00	7,202.0	-484.1	3,805.2	3,805.2	0.00	0.00	
11,100.0	90.00	90.00	7,202.0	-484.1	3,905.2	3,905.2	0.00	0.00	
11,200.0	90.00	90.00	7,202.0	-484.1	4,005.2	4,005.2	0.00	0.00	
11,300.0	90.00	90.00	7,202.0	-484.1	4,105.2	4,105.2	0.00	0.00	
11,400.0	90.00	90.00	7,202.0	-484.1	4,205.2	4,205.2	0.00	0.00	
11,500.0	90.00	90.00	7,202.0	-484.1	4,305.2	4,305.2	0.00	0.00	
11,600.0	90.00	90.00	7,202.0	-484.1	4,405.2	4,405.2	0.00	0.00	
11,700.0	90.00	90.00	7,202.0	-484.1	4,505.2	4,505.2	0.00	0.00	
11,800.0	90.00	90.00	7,202.0	-484.1	4,605.2	4,605.2	0.00	0.00	
11,827.8	90.00	90.00	7,202.0	-484.1	4,633.1	4,633.1	0.00	0.00	TD at 11827.8 - Melbon Ranch 3A-17H PBHL (Z

### 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									
Melbon Ranch 3A-17H F	0.00	0.00	7,202.0	-484.1	4,633.1	1,292,569.41	3,229,262.39	40.133580	-104.680060
- plan hits target center									
- Point									

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,533.5	4,525.0	Sussex			
4,764.1	4,753.0	Sussex Marker			
5,105.0	5,090.0	Shannon			
6,275.4	6,247.0	Teepee Buttes			
7,161.3	7,073.0	Sharon Springs			
7,277.7	7,139.0	Niobrara			
7,392.3	7,182.0	B Chalk			

## Planning Report

<b>Database:</b>	USA EDM 5000 Multi Users DB	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Project:</b>	DJ Wattenberg	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>North Reference:</b>	True
<b>Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	HZ		
<b>Design:</b>	Plan #4		

### 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'
3,889.3	3,888.2	-20.1	-8.7	EOB; Inc=8.68°
6,688.3	6,655.2	-407.5	-176.9	Start 11° build @ 6688' MD
7,537.8	7,202.0	-484.1	343.1	Landing Pt @ 7537' MD; 90°
11,827.8	7,202.0	-484.1	4,633.1	TD at 11827.8

# **EnCana Oil & Gas (USA) Inc**

**DJ Wattenberg**

**NESE S17-T2N-R65W (Melbon Ranch)**

**Melbon Ranch 3A-17H**

**HZ**

**Plan #4**

## **Anticollision Report**

**29 February, 2012**

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Reference Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #4	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	Plan #4		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.0ft	<b>Error Model:</b>	Systematic Ellipse
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 500.0ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	2/29/2012		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.0	11,827.8	Plan #4 (HZ)	MWD	Geolink MWD

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
NESE S17-T2N-R65W (Melbon Ranch)						
Melbon Ranch 13-17 (Existing) - Wellbore #1 - Plan #1						Out of range
Melbon Ranch 13-17 (Existing) - Wellbore #1 - Wellbore						Out of range
Melbon Ranch 14-17 (Existing) - Wellbore #1 - Plan #1	7,639.3	7,337.1	284.6	250.0	8.237	CC, ES
Melbon Ranch 14-17 (Existing) - Wellbore #1 - Plan #1	7,700.0	7,337.1	291.0	255.3	8.162	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 3B-17H - Hz - Plan #1	3,600.0	3,600.0	25.5	13.0	2.037	CC, ES, SF
Melbon Ranch 4-6-17 (Existing) - Wellbore #1 - Plan #1						Out of range



# Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Reference Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #4	<b>Offset TVD Reference:</b>	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 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					
7,300.0	7,149.2	7,284.3	7,128.2	15.5	24.1	60.36	-768.6	444.6	441.5	411.9	29.58	14.927					
7,400.0	7,184.0	7,319.2	7,163.0	16.3	24.2	76.97	-768.6	444.6	372.7	342.0	30.74	12.127					
7,500.0	7,200.6	7,335.8	7,179.6	17.4	24.2	87.94	-768.6	444.6	317.0	284.8	32.18	9.852					
7,600.0	7,202.0	7,337.1	7,181.0	18.8	24.2	90.00	-768.6	444.6	287.3	253.4	33.84	8.490					
7,639.3	7,202.0	7,337.1	7,181.0	19.4	24.2	90.00	-768.6	444.6	284.6	250.0	34.55	8.237 CC, ES					
7,700.0	7,202.0	7,337.1	7,181.0	20.4	24.2	90.00	-768.6	444.6	291.0	255.3	35.65	8.162 SF					
7,800.0	7,202.0	7,337.1	7,181.0	22.3	24.2	90.00	-768.6	444.6	326.8	289.2	37.60	8.692					
7,900.0	7,202.0	7,337.1	7,181.0	24.2	24.2	90.00	-768.6	444.6	385.9	346.3	39.65	9.734					
8,000.0	7,202.0	7,337.1	7,181.0	26.2	24.2	90.00	-768.6	444.6	459.4	417.6	41.77	10.998					

# Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Reference Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design NESE S17-T2N-R65W (Melbon Ranch) - Melbon Ranch 3B-17H - 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	0.00	25.5	0.0	25.5					
100.0	100.0	100.0	100.0	0.2	0.2	0.00	25.5	0.0	25.5	25.2	0.30	83.967		
200.0	200.0	200.0	200.0	0.3	0.3	0.00	25.5	0.0	25.5	24.8	0.65	39.065		
300.0	300.0	300.0	300.0	0.5	0.5	0.00	25.5	0.0	25.5	24.5	1.00	25.453		
400.0	400.0	400.0	400.0	0.7	0.7	0.00	25.5	0.0	25.5	24.1	1.35	18.876		
500.0	500.0	500.0	500.0	0.8	0.8	0.00	25.5	0.0	25.5	23.8	1.70	15.000		
600.0	600.0	600.0	600.0	1.0	1.0	0.00	25.5	0.0	25.5	23.5	2.05	12.445		
700.0	700.0	700.0	700.0	1.2	1.2	0.00	25.5	0.0	25.5	23.1	2.40	10.633		
800.0	800.0	800.0	800.0	1.4	1.4	0.00	25.5	0.0	25.5	22.8	2.75	9.282		
900.0	900.0	900.0	900.0	1.5	1.5	0.00	25.5	0.0	25.5	22.4	3.10	8.236		
1,000.0	1,000.0	1,000.0	1,000.0	1.7	1.7	0.00	25.5	0.0	25.5	22.1	3.45	7.401		
1,100.0	1,100.0	1,100.0	1,100.0	1.9	1.9	0.00	25.5	0.0	25.5	21.7	3.79	6.720		
1,200.0	1,200.0	1,200.0	1,200.0	2.1	2.1	0.00	25.5	0.0	25.5	21.4	4.14	6.154		
1,300.0	1,300.0	1,300.0	1,300.0	2.2	2.2	0.00	25.5	0.0	25.5	21.0	4.49	5.676		
1,400.0	1,400.0	1,400.0	1,400.0	2.4	2.4	0.00	25.5	0.0	25.5	20.7	4.84	5.267		
1,500.0	1,500.0	1,500.0	1,500.0	2.6	2.6	0.00	25.5	0.0	25.5	20.3	5.19	4.913		
1,600.0	1,600.0	1,600.0	1,600.0	2.8	2.8	0.00	25.5	0.0	25.5	20.0	5.54	4.603		
1,700.0	1,700.0	1,700.0	1,700.0	2.9	2.9	0.00	25.5	0.0	25.5	19.6	5.89	4.330		
1,800.0	1,800.0	1,800.0	1,800.0	3.1	3.1	0.00	25.5	0.0	25.5	19.3	6.24	4.088		
1,900.0	1,900.0	1,900.0	1,900.0	3.3	3.3	0.00	25.5	0.0	25.5	18.9	6.59	3.871		
2,000.0	2,000.0	2,000.0	2,000.0	3.5	3.5	0.00	25.5	0.0	25.5	18.6	6.94	3.676		
2,100.0	2,100.0	2,100.0	2,100.0	3.6	3.6	0.00	25.5	0.0	25.5	18.2	7.29	3.500		
2,200.0	2,200.0	2,200.0	2,200.0	3.8	3.8	0.00	25.5	0.0	25.5	17.9	7.63	3.340		
2,300.0	2,300.0	2,300.0	2,300.0	4.0	4.0	0.00	25.5	0.0	25.5	17.5	7.98	3.194		
2,400.0	2,400.0	2,400.0	2,400.0	4.2	4.2	0.00	25.5	0.0	25.5	17.2	8.33	3.060		
2,500.0	2,500.0	2,500.0	2,500.0	4.3	4.3	0.00	25.5	0.0	25.5	16.8	8.68	2.937		
2,600.0	2,600.0	2,600.0	2,600.0	4.5	4.5	0.00	25.5	0.0	25.5	16.5	9.03	2.824		
2,700.0	2,700.0	2,700.0	2,700.0	4.7	4.7	0.00	25.5	0.0	25.5	16.1	9.38	2.719		
2,800.0	2,800.0	2,800.0	2,800.0	4.9	4.9	0.00	25.5	0.0	25.5	15.8	9.73	2.621		
2,900.0	2,900.0	2,900.0	2,900.0	5.0	5.0	0.00	25.5	0.0	25.5	15.4	10.08	2.530		
3,000.0	3,000.0	3,000.0	3,000.0	5.2	5.2	0.00	25.5	0.0	25.5	15.1	10.43	2.446		
3,100.0	3,100.0	3,100.0	3,100.0	5.4	5.4	0.00	25.5	0.0	25.5	14.7	10.78	2.366		
3,200.0	3,200.0	3,200.0	3,200.0	5.6	5.6	0.00	25.5	0.0	25.5	14.4	11.12	2.292		
3,300.0	3,300.0	3,300.0	3,300.0	5.7	5.7	0.00	25.5	0.0	25.5	14.0	11.47	2.222		
3,400.0	3,400.0	3,400.0	3,400.0	5.9	5.9	0.00	25.5	0.0	25.5	13.7	11.82	2.157		
3,500.0	3,500.0	3,500.0	3,500.0	6.1	6.1	0.00	25.5	0.0	25.5	13.3	12.17	2.095		
3,600.0	3,600.0	3,600.0	3,600.0	6.3	6.3	0.00	25.5	0.0	25.5	13.0	12.52	2.037 CC, ES, SF		
3,700.0	3,700.0	3,700.0	3,700.0	6.4	6.4	158.65	25.5	0.0	27.9	15.1	12.86	2.171		
3,800.0	3,799.6	3,799.6	3,799.6	6.6	6.6	163.22	25.5	0.0	35.3	22.2	13.18	2.683		
3,900.0	3,898.8	3,898.8	3,898.8	6.8	6.8	167.64	25.5	0.0	48.0	34.5	13.47	3.560		
4,000.0	3,997.6	3,997.6	3,997.6	7.0	7.0	170.59	25.5	0.0	62.8	49.0	13.82	4.545		
4,100.0	4,096.5	4,093.6	4,093.6	7.2	7.1	171.22	27.5	-1.0	79.5	65.3	14.16	5.612		
4,200.0	4,195.3	4,188.2	4,187.9	7.4	7.3	169.75	33.7	-4.2	99.8	85.3	14.50	6.883		
4,300.0	4,294.2	4,280.9	4,279.9	7.6	7.5	167.41	43.9	-9.4	123.9	109.1	14.85	8.348		
4,400.0	4,393.0	4,375.4	4,373.2	7.9	7.7	164.95	57.3	-16.3	151.1	135.9	15.20	9.942		
4,500.0	4,491.9	4,471.4	4,467.9	8.1	7.9	163.16	71.1	-23.4	178.7	163.1	15.56	11.485		
4,600.0	4,590.8	4,567.4	4,562.6	8.4	8.1	161.85	84.9	-30.5	206.4	190.4	15.92	12.963		
4,700.0	4,689.6	4,663.4	4,657.4	8.6	8.3	160.85	98.8	-37.5	234.1	217.8	16.28	14.379		
4,800.0	4,788.5	4,759.4	4,752.1	8.8	8.5	160.07	112.6	-44.6	261.9	245.3	16.65	15.735		
4,900.0	4,887.3	4,855.4	4,846.8	9.1	8.7	159.43	126.4	-51.7	289.8	272.8	17.01	17.032		
5,000.0	4,986.2	4,951.4	4,941.6	9.4	8.9	158.90	140.3	-58.8	317.7	300.3	17.38	18.275		
5,100.0	5,085.0	5,047.4	5,036.3	9.6	9.2	158.46	154.1	-65.9	345.5	327.8	17.75	19.465		

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

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Reference Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #4	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design											NESE S17-T2N-R65W (Melbon Ranch) - Melbon Ranch 3B-17H - 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 +N/-S	+E/-W	Between Centres	Between Ellipses	Total Uncertainty Axis	Separation Factor				
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	(ft)	(ft)	(ft)	(ft)						
5,200.0	5,183.9	5,143.4	5,131.0	9.9	9.4	158.09	167.9	-73.0	373.5	355.3	18.12	20.606				
5,300.0	5,282.7	5,239.4	5,225.8	10.2	9.7	157.77	181.8	-80.1	401.4	382.9	18.50	21.700				
5,400.0	5,381.6	5,335.4	5,320.5	10.4	9.9	157.49	195.6	-87.2	429.3	410.4	18.87	22.750				
5,500.0	5,480.5	5,431.4	5,415.2	10.7	10.2	157.24	209.4	-94.3	457.3	438.0	19.25	23.757				
5,600.0	5,579.3	5,527.4	5,510.0	11.0	10.4	157.02	223.3	-101.4	485.2	465.6	19.62	24.725				

## Anticollision Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Melbon Ranch 3A-17H
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB=13' @ 4971.0ft
<b>Reference Site:</b>	NESE S17-T2N-R65W (Melbon Ranch)	<b>MD Reference:</b>	KB=13' @ 4971.0ft
<b>Site Error:</b>	0.0ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Melbon Ranch 3A-17H	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.0ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	USA EDM 5000 Multi Users DB
<b>Reference Design:</b>	Plan #4	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to KB=13' @ 4971.0ft

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°

