

# **DJ/Paradox/WTX**

**Wattenberg  
New Drills  
Townsend 8-6-5**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**09 February, 2010**

# EnCana Corporation

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Townsend 8-6-5
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Townsend 8-6-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	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		

<b>Site</b>	New Drills				
<b>Site Position:</b>		<b>Northing:</b>	1,252,450.66ft	<b>Latitude:</b>	40° 1' 32.016 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,120,627.66ft	<b>Longitude:</b>	105° 4' 9.336 W
<b>Position Uncertainty:</b>	ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b>	0.28 °

<b>Well</b>	Townsend 8-6-5					
<b>Well Position</b>	<b>+N/-S</b>	49,649.3 ft	<b>Northing:</b>	1,302,404.36 ft	<b>Latitude:</b>	40° 9' 43.092 N
	<b>+E/-W</b>	45,648.0 ft	<b>Easting:</b>	3,165,942.09 ft	<b>Longitude:</b>	104° 54' 22.536 W
<b>Position Uncertainty</b>		ft	<b>Wellhead Elevation:</b>	ft	<b>Ground Level:</b>	4,905.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	12/31/2009	9.08	66.89	53,163

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	35.08

<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	
900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,285.9	7.72	35.08	1,284.7	21.2	14.9	2.00	2.00	0.00	35.08	
6,766.1	7.72	35.08	6,715.3	623.6	437.8	0.00	0.00	0.00	0.00	
7,152.0	0.00	0.00	7,100.0	644.8	452.8	2.00	-2.00	0.00	180.00	
8,052.0	0.00	0.00	8,000.0	644.8	452.8	0.00	0.00	0.00	0.00	Townsend 8-6-5 PE

# EnCana Corporation

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Townsend 8-6-5
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Townsend 8-6-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
850.0	0.00	0.00	850.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>8-5/8" Surface</b>									
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	2.00	35.08	1,000.0	1.4	1.0	1.7	2.00	2.00	0.00
1,100.0	4.00	35.08	1,099.8	5.7	4.0	7.0	2.00	2.00	0.00
1,200.0	6.00	35.08	1,199.5	12.8	9.0	15.7	2.00	2.00	0.00
1,285.9	7.72	35.08	1,284.7	21.2	14.9	26.0	2.00	2.00	0.00
1,300.0	7.72	35.08	1,298.7	22.8	16.0	27.8	0.00	0.00	0.00
1,400.0	7.72	35.08	1,397.8	33.8	23.7	41.3	0.00	0.00	0.00
1,500.0	7.72	35.08	1,496.9	44.8	31.4	54.7	0.00	0.00	0.00
1,600.0	7.72	35.08	1,596.0	55.8	39.2	68.1	0.00	0.00	0.00
1,700.0	7.72	35.08	1,695.1	66.8	46.9	81.6	0.00	0.00	0.00
1,800.0	7.72	35.08	1,794.2	77.7	54.6	95.0	0.00	0.00	0.00
1,900.0	7.72	35.08	1,893.3	88.7	62.3	108.4	0.00	0.00	0.00
2,000.0	7.72	35.08	1,992.4	99.7	70.0	121.9	0.00	0.00	0.00
2,100.0	7.72	35.08	2,091.5	110.7	77.7	135.3	0.00	0.00	0.00
2,200.0	7.72	35.08	2,190.6	121.7	85.5	148.7	0.00	0.00	0.00
2,300.0	7.72	35.08	2,289.6	132.7	93.2	162.1	0.00	0.00	0.00
2,400.0	7.72	35.08	2,388.7	143.7	100.9	175.6	0.00	0.00	0.00
2,500.0	7.72	35.08	2,487.8	154.7	108.6	189.0	0.00	0.00	0.00
2,600.0	7.72	35.08	2,586.9	165.7	116.3	202.4	0.00	0.00	0.00
2,700.0	7.72	35.08	2,686.0	176.7	124.0	215.9	0.00	0.00	0.00
2,800.0	7.72	35.08	2,785.1	187.7	131.8	229.3	0.00	0.00	0.00
2,900.0	7.72	35.08	2,884.2	198.6	139.5	242.7	0.00	0.00	0.00
3,000.0	7.72	35.08	2,983.3	209.6	147.2	256.2	0.00	0.00	0.00
3,100.0	7.72	35.08	3,082.4	220.6	154.9	269.6	0.00	0.00	0.00
3,200.0	7.72	35.08	3,181.5	231.6	162.6	283.0	0.00	0.00	0.00
3,300.0	7.72	35.08	3,280.6	242.6	170.4	296.4	0.00	0.00	0.00
3,400.0	7.72	35.08	3,379.7	253.6	178.1	309.9	0.00	0.00	0.00
3,500.0	7.72	35.08	3,478.8	264.6	185.8	323.3	0.00	0.00	0.00
3,600.0	7.72	35.08	3,577.9	275.6	193.5	336.7	0.00	0.00	0.00
3,700.0	7.72	35.08	3,677.0	286.6	201.2	350.2	0.00	0.00	0.00
3,800.0	7.72	35.08	3,776.1	297.6	208.9	363.6	0.00	0.00	0.00
3,900.0	7.72	35.08	3,875.2	308.5	216.7	377.0	0.00	0.00	0.00
4,000.0	7.72	35.08	3,974.2	319.5	224.4	390.4	0.00	0.00	0.00
4,100.0	7.72	35.08	4,073.3	330.5	232.1	403.9	0.00	0.00	0.00
4,200.0	7.72	35.08	4,172.4	341.5	239.8	417.3	0.00	0.00	0.00
4,300.0	7.72	35.08	4,271.5	352.5	247.5	430.7	0.00	0.00	0.00
4,311.6	7.72	35.08	4,283.0	353.8	248.4	432.3	0.00	0.00	0.00
<b>Sussex</b>									
4,400.0	7.72	35.08	4,370.6	363.5	255.2	444.2	0.00	0.00	0.00
4,500.0	7.72	35.08	4,469.7	374.5	263.0	457.6	0.00	0.00	0.00
4,600.0	7.72	35.08	4,568.8	385.5	270.7	471.0	0.00	0.00	0.00
4,700.0	7.72	35.08	4,667.9	396.5	278.4	484.5	0.00	0.00	0.00
4,800.0	7.72	35.08	4,767.0	407.5	286.1	497.9	0.00	0.00	0.00

# EnCana Corporation

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Townsend 8-6-5
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Townsend 8-6-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

### Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,871.6	7.72	35.08	4,838.0	415.3	291.6	507.5	0.00	0.00	0.00
<b>Shannon</b>									
4,900.0	7.72	35.08	4,866.1	418.5	293.8	511.3	0.00	0.00	0.00
5,000.0	7.72	35.08	4,965.2	429.4	301.5	524.7	0.00	0.00	0.00
5,100.0	7.72	35.08	5,064.3	440.4	309.3	538.2	0.00	0.00	0.00
5,200.0	7.72	35.08	5,163.4	451.4	317.0	551.6	0.00	0.00	0.00
5,300.0	7.72	35.08	5,262.5	462.4	324.7	565.0	0.00	0.00	0.00
5,400.0	7.72	35.08	5,361.6	473.4	332.4	578.5	0.00	0.00	0.00
5,500.0	7.72	35.08	5,460.7	484.4	340.1	591.9	0.00	0.00	0.00
5,600.0	7.72	35.08	5,559.8	495.4	347.9	605.3	0.00	0.00	0.00
5,700.0	7.72	35.08	5,658.8	506.4	355.6	618.8	0.00	0.00	0.00
5,800.0	7.72	35.08	5,757.9	517.4	363.3	632.2	0.00	0.00	0.00
5,900.0	7.72	35.08	5,857.0	528.4	371.0	645.6	0.00	0.00	0.00
6,000.0	7.72	35.08	5,956.1	539.4	378.7	659.0	0.00	0.00	0.00
6,100.0	7.72	35.08	6,055.2	550.3	386.4	672.5	0.00	0.00	0.00
6,200.0	7.72	35.08	6,154.3	561.3	394.2	685.9	0.00	0.00	0.00
6,300.0	7.72	35.08	6,253.4	572.3	401.9	699.3	0.00	0.00	0.00
6,400.0	7.72	35.08	6,352.5	583.3	409.6	712.8	0.00	0.00	0.00
6,500.0	7.72	35.08	6,451.6	594.3	417.3	726.2	0.00	0.00	0.00
6,600.0	7.72	35.08	6,550.7	605.3	425.0	739.6	0.00	0.00	0.00
6,700.0	7.72	35.08	6,649.8	616.3	432.7	753.0	0.00	0.00	0.00
6,766.1	7.72	35.08	6,715.3	623.6	437.8	761.9	0.00	0.00	0.00
6,800.0	7.04	35.08	6,748.9	627.1	440.4	766.3	2.00	-2.00	0.00
6,900.0	5.04	35.08	6,848.3	635.7	446.4	776.8	2.00	-2.00	0.00
7,000.0	3.04	35.08	6,948.1	641.5	450.4	783.8	2.00	-2.00	0.00
7,100.0	1.04	35.08	7,048.0	644.4	452.5	787.4	2.00	-2.00	0.00
7,152.0	0.00	0.00	7,100.0	644.8	452.8	787.9	2.00	-2.00	0.00
7,200.0	0.00	0.00	7,148.0	644.8	452.8	787.9	0.00	0.00	0.00
7,220.0	0.00	0.00	7,168.0	644.8	452.8	787.9	0.00	0.00	0.00
<b>Niobrara</b>									
7,300.0	0.00	0.00	7,248.0	644.8	452.8	787.9	0.00	0.00	0.00
7,400.0	0.00	0.00	7,348.0	644.8	452.8	787.9	0.00	0.00	0.00
7,472.0	0.00	0.00	7,420.0	644.8	452.8	787.9	0.00	0.00	0.00
<b>Codell</b>									
7,500.0	0.00	0.00	7,448.0	644.8	452.8	787.9	0.00	0.00	0.00
7,600.0	0.00	0.00	7,548.0	644.8	452.8	787.9	0.00	0.00	0.00
7,700.0	0.00	0.00	7,648.0	644.8	452.8	787.9	0.00	0.00	0.00
7,800.0	0.00	0.00	7,748.0	644.8	452.8	787.9	0.00	0.00	0.00
7,900.0	0.00	0.00	7,848.0	644.8	452.8	787.9	0.00	0.00	0.00
7,902.0	0.00	0.00	7,850.0	644.8	452.8	787.9	0.00	0.00	0.00
<b>J Sand</b>									
7,975.0	0.00	0.00	7,923.0	644.8	452.8	787.9	0.00	0.00	0.00
<b>A Marker</b>									
8,000.0	0.00	0.00	7,948.0	644.8	452.8	787.9	0.00	0.00	0.00
8,052.0	0.00	0.00	8,000.0	644.8	452.8	787.9	0.00	0.00	0.00
<b>4-1/2" production</b>									

# EnCana Corporation

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Townsend 8-6-5
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 4918.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Townsend 8-6-5	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

### Design Targets

#### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Townsend 8-6-5 PBHI - plan hits target - Circle (radius 100.0)	0.00	0.00	8,000.0	644.8	452.8	1,303,052.16	3,166,390.53	40° 9' 49.464 N	104° 54' 16.704 W

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
850.0	850.0	8-5/8' Surface	8.625	12.250
8,052.0	8,000.0	4-1/2" production	4.500	7.875

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,311.6	4,283.0	Sussex		0.00	
4,871.6	4,838.0	Shannon		0.00	
7,220.0	7,168.0	Niobrara		0.00	
7,472.0	7,420.0	Codell		0.00	
7,902.0	7,850.0	J Sand		0.00	
7,975.0	7,923.0	A Marker		0.00	

**REFERENCE INFORMATION**

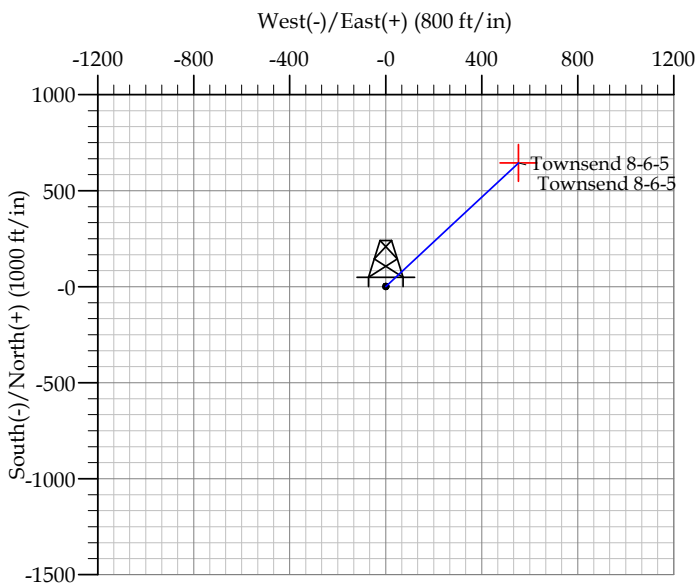
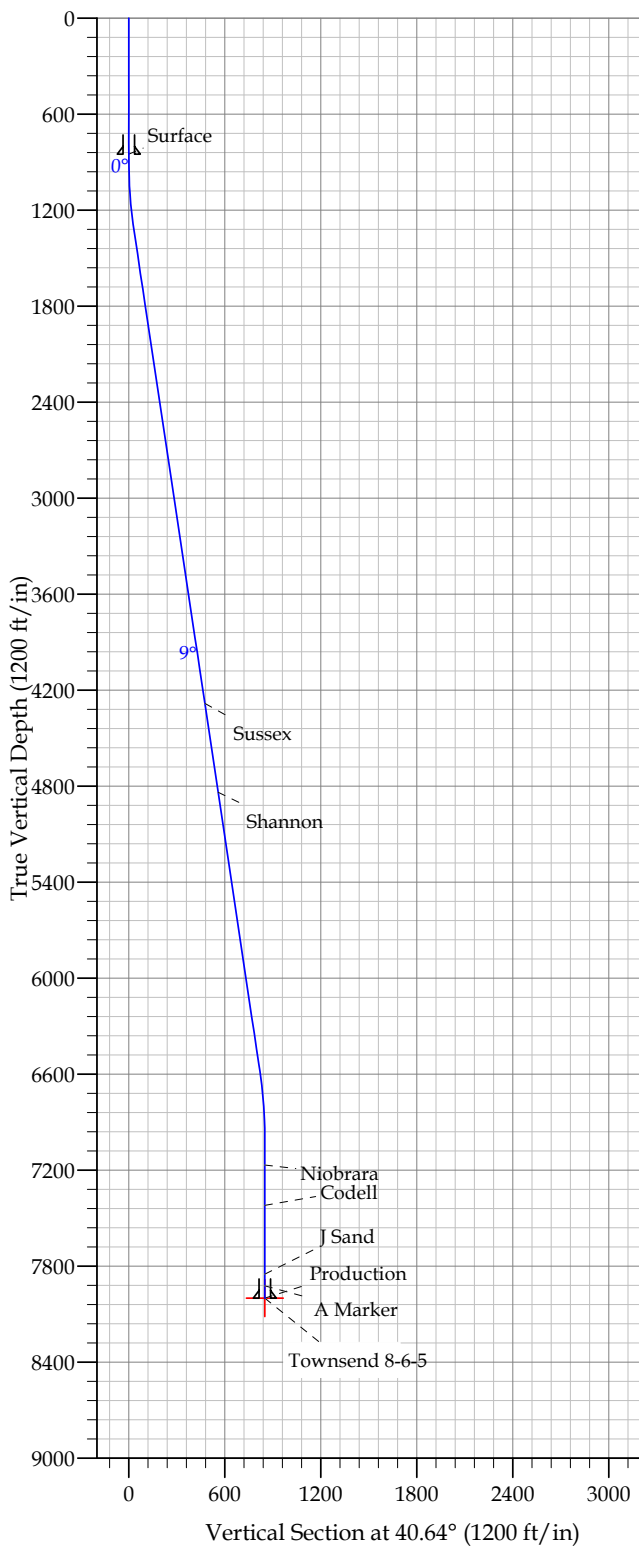
Co-ordinate (N/E) Reference: Well Townsend 8-6-5, True North  
 Vertical (TVD) Reference: WELL @ 4918.0ft (Original Well Elev)  
 Section (VS) Reference: Slot - (0.0N, 0.0E)  
 Measured Depth Reference: WELL @ 4918.0ft (Original Well Elev)  
 Calculation Method:

**WELL DETAILS: Townsend 8-6-5**

+N/-S	+E/-W	Northing	Ground Level:	4905.0		
0.0	0.0	1302404.36	Easting	3165942.09	40° 9' 43.092" N	104° 54' 22.536" W

**SECTION DETAILS**

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	900.0	0.00	0.00	900.0	0.0	0.0	0.00	0.00	0.0	
3	1325.9	8.52	40.64	1324.3	24.0	20.6	2.00	40.64	31.6	
4	6635.8	8.52	40.64	6575.7	620.8	532.8	0.00	0.00	818.1	
5	7061.7	0.00	0.00	7000.0	644.8	553.4	2.00	180.00	849.7	
6	8061.7	0.00	0.00	8000.0	644.8	553.4	0.00	0.00	849.7	Townsend 8-6-5



**FORMATION TOP DETAILS**

TVDPath	MDPath	Formation
4283.0	4317.6	Sussex
4838.0	4878.8	Shannon
7168.0	7229.7	Niobrara
7420.0	7481.7	Codell
7850.0	7911.7	J Sand
7923.0	7984.7	A Marker

**CASING DETAILS**

TVD	MD	Name	Size
850.0	850.0	Surface	8.625
8000.0	8061.7	Production	4.500