

# **DJ/Paradox/WTX**

**Wattenberg**

**New Drills**

**Bury Crandell 42-23**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**02 September, 2009**

# EnCana Corporation

## Planning Report

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Bury Crandell 42-23
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	RKB @ 5129.0ft (TBD)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 5129.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Bury Crandell 42-23	<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		

Site		New Drills				
Site Position:		Northing:	1,263,581.84 ft	Latitude:	40° 3' 21.888 N	
From:	Lat/Long	Easting:	3,123,347.66 ft	Longitude:	105° 3' 33.660 W	
Position Uncertainty:		ft	Slot Radius:	in	Grid Convergence:	0.28 °

Well	Bury Crandell 42-23					
Well Position	+N-S	-5,401.7 ft	Northing:	1,258,339.77 ft	Latitude:	40° 2' 28.644 N
	+E-W	26,441.6 ft	Easting:	3,149,821.31 ft	Longitude:	104° 57' 53.604 W
Position Uncertainty		ft	Wellhead Elevation:	ft	Ground Level:	5,114.0 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	08/31/2009	9.14	66.79	53,125

<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	151.10	

<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	
1,400.4	10.01	151.10	1,397.8	-38.2	21.1	2.00	2.00	0.00	151.10	
6,932.9	10.01	151.10	6,846.2	-879.8	485.7	0.00	0.00	0.00	0.00	
7,433.3	0.00	0.00	7,344.0	-918.0	506.8	2.00	-2.00	0.00	180.00	
8,533.3	0.00	0.00	8,444.0	-918.0	506.8	0.00	0.00	0.00	0.00	B Crandell 42-23 PI

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 5129.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Bury Crandell 42-23	<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
<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	151.10	1,000.0	-1.5	0.8	1.7	2.00	2.00	0.00
1,100.0	4.00	151.10	1,099.8	-6.1	3.4	7.0	2.00	2.00	0.00
1,200.0	6.00	151.10	1,199.5	-13.7	7.6	15.7	2.00	2.00	0.00
1,300.0	8.00	151.10	1,298.7	-24.4	13.5	27.9	2.00	2.00	0.00
1,400.4	10.01	151.10	1,397.8	-38.2	21.1	43.6	2.00	2.00	0.00
1,500.0	10.01	151.10	1,495.9	-53.3	29.4	60.9	0.00	0.00	0.00
1,600.0	10.01	151.10	1,594.4	-68.5	37.8	78.3	0.00	0.00	0.00
1,700.0	10.01	151.10	1,692.9	-83.7	46.2	95.7	0.00	0.00	0.00
1,800.0	10.01	151.10	1,791.4	-99.0	54.6	113.0	0.00	0.00	0.00
1,900.0	10.01	151.10	1,889.9	-114.2	63.0	130.4	0.00	0.00	0.00
2,000.0	10.01	151.10	1,988.3	-129.4	71.4	147.8	0.00	0.00	0.00
2,100.0	10.01	151.10	2,086.8	-144.6	79.8	165.2	0.00	0.00	0.00
2,200.0	10.01	151.10	2,185.3	-159.8	88.2	182.5	0.00	0.00	0.00
2,300.0	10.01	151.10	2,283.8	-175.0	96.6	199.9	0.00	0.00	0.00
2,400.0	10.01	151.10	2,382.3	-190.2	105.0	217.3	0.00	0.00	0.00
2,500.0	10.01	151.10	2,480.7	-205.4	113.4	234.7	0.00	0.00	0.00
2,600.0	10.01	151.10	2,579.2	-220.7	121.8	252.0	0.00	0.00	0.00
2,700.0	10.01	151.10	2,677.7	-235.9	130.2	269.4	0.00	0.00	0.00
2,800.0	10.01	151.10	2,776.2	-251.1	138.6	286.8	0.00	0.00	0.00
2,900.0	10.01	151.10	2,874.6	-266.3	147.0	304.2	0.00	0.00	0.00
3,000.0	10.01	151.10	2,973.1	-281.5	155.4	321.6	0.00	0.00	0.00
3,100.0	10.01	151.10	3,071.6	-296.7	163.8	338.9	0.00	0.00	0.00
3,200.0	10.01	151.10	3,170.1	-311.9	172.2	356.3	0.00	0.00	0.00
3,300.0	10.01	151.10	3,268.6	-327.1	180.6	373.7	0.00	0.00	0.00
3,400.0	10.01	151.10	3,367.0	-342.4	189.0	391.1	0.00	0.00	0.00
3,500.0	10.01	151.10	3,465.5	-357.6	197.4	408.4	0.00	0.00	0.00
3,600.0	10.01	151.10	3,564.0	-372.8	205.8	425.8	0.00	0.00	0.00
3,700.0	10.01	151.10	3,662.5	-388.0	214.2	443.2	0.00	0.00	0.00
3,800.0	10.01	151.10	3,761.0	-403.2	222.6	460.6	0.00	0.00	0.00
3,900.0	10.01	151.10	3,859.4	-418.4	231.0	478.0	0.00	0.00	0.00
4,000.0	10.01	151.10	3,957.9	-433.6	239.4	495.3	0.00	0.00	0.00
4,100.0	10.01	151.10	4,056.4	-448.8	247.8	512.7	0.00	0.00	0.00
4,200.0	10.01	151.10	4,154.9	-464.1	256.2	530.1	0.00	0.00	0.00
4,300.0	10.01	151.10	4,253.3	-479.3	264.6	547.5	0.00	0.00	0.00
4,400.0	10.01	151.10	4,351.8	-494.5	273.0	564.8	0.00	0.00	0.00
4,500.0	10.01	151.10	4,450.3	-509.7	281.4	582.2	0.00	0.00	0.00
4,600.0	10.01	151.10	4,548.8	-524.9	289.8	599.6	0.00	0.00	0.00
4,700.0	10.01	151.10	4,647.3	-540.1	298.2	617.0	0.00	0.00	0.00
4,783.0	10.01	151.10	4,729.0	-552.7	305.2	631.4	0.00	0.00	0.00
<b>Sussex</b>									
4,800.0	10.01	151.10	4,745.7	-555.3	306.6	634.3	0.00	0.00	0.00
4,900.0	10.01	151.10	4,844.2	-570.5	315.0	651.7	0.00	0.00	0.00
5,000.0	10.01	151.10	4,942.7	-585.8	323.4	669.1	0.00	0.00	0.00

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 5129.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Bury Crandell 42-23	<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)
5,100.0	10.01	151.10	5,041.2	-601.0	331.8	686.5	0.00	0.00	0.00
5,200.0	10.01	151.10	5,139.7	-616.2	340.2	703.9	0.00	0.00	0.00
5,300.0	10.01	151.10	5,238.1	-631.4	348.6	721.2	0.00	0.00	0.00
5,341.5	10.01	151.10	5,279.0	-637.7	352.1	728.4	0.00	0.00	0.00
<b>Shannon</b>									
5,400.0	10.01	151.10	5,336.6	-646.6	357.0	738.6	0.00	0.00	0.00
5,500.0	10.01	151.10	5,435.1	-661.8	365.4	756.0	0.00	0.00	0.00
5,600.0	10.01	151.10	5,533.6	-677.0	373.8	773.4	0.00	0.00	0.00
5,700.0	10.01	151.10	5,632.0	-692.2	382.2	790.7	0.00	0.00	0.00
5,800.0	10.01	151.10	5,730.5	-707.5	390.6	808.1	0.00	0.00	0.00
5,900.0	10.01	151.10	5,829.0	-722.7	399.0	825.5	0.00	0.00	0.00
6,000.0	10.01	151.10	5,927.5	-737.9	407.4	842.9	0.00	0.00	0.00
6,100.0	10.01	151.10	6,026.0	-753.1	415.8	860.2	0.00	0.00	0.00
6,200.0	10.01	151.10	6,124.4	-768.3	424.2	877.6	0.00	0.00	0.00
6,300.0	10.01	151.10	6,222.9	-783.5	432.6	895.0	0.00	0.00	0.00
6,400.0	10.01	151.10	6,321.4	-798.7	441.0	912.4	0.00	0.00	0.00
6,500.0	10.01	151.10	6,419.9	-814.0	449.4	929.8	0.00	0.00	0.00
6,600.0	10.01	151.10	6,518.4	-829.2	457.8	947.1	0.00	0.00	0.00
6,700.0	10.01	151.10	6,616.8	-844.4	466.2	964.5	0.00	0.00	0.00
6,800.0	10.01	151.10	6,715.3	-859.6	474.6	981.9	0.00	0.00	0.00
6,900.0	10.01	151.10	6,813.8	-874.8	483.0	999.3	0.00	0.00	0.00
6,932.9	10.01	151.10	6,846.2	-879.8	485.7	1,005.0	0.00	0.00	0.00
7,000.0	8.67	151.10	6,912.4	-889.3	491.0	1,015.9	2.00	-2.00	0.00
7,100.0	6.67	151.10	7,011.5	-901.0	497.4	1,029.2	2.00	-2.00	0.00
7,200.0	4.67	151.10	7,111.0	-909.7	502.2	1,039.1	2.00	-2.00	0.00
7,300.0	2.67	151.10	7,210.8	-915.2	505.3	1,045.5	2.00	-2.00	0.00
7,400.0	0.67	151.10	7,310.7	-917.8	506.7	1,048.4	2.00	-2.00	0.00
7,433.3	0.00	0.00	7,344.0	-918.0	506.8	1,048.6	2.00	-2.00	0.00
7,500.0	0.00	0.00	7,410.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
7,558.3	0.00	0.00	7,469.0	-918.0	506.8	1,048.6	0.00	0.00	0.00
<b>Niobrara</b>									
7,600.0	0.00	0.00	7,510.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
7,700.0	0.00	0.00	7,610.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
7,800.0	0.00	0.00	7,710.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
7,900.0	0.00	0.00	7,810.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
7,948.3	0.00	0.00	7,859.0	-918.0	506.8	1,048.6	0.00	0.00	0.00
<b>Codell</b>									
8,000.0	0.00	0.00	7,910.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
8,100.0	0.00	0.00	8,010.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
8,200.0	0.00	0.00	8,110.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
8,300.0	0.00	0.00	8,210.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
8,383.3	0.00	0.00	8,294.0	-918.0	506.8	1,048.6	0.00	0.00	0.00
<b>J Sand</b>									
8,400.0	0.00	0.00	8,310.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
8,440.3	0.00	0.00	8,351.0	-918.0	506.8	1,048.6	0.00	0.00	0.00
<b>A Marker</b>									
8,500.0	0.00	0.00	8,410.7	-918.0	506.8	1,048.6	0.00	0.00	0.00
8,533.3	0.00	0.00	8,444.0	-918.0	506.8	1,048.6	0.00	0.00	0.00
<b>4-1/2" Production</b>									

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<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	RKB @ 5129.0ft (TBD)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	RKB @ 5129.0ft (TBD)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Bury Crandell 42-23	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

### Design Targets

#### Target Name

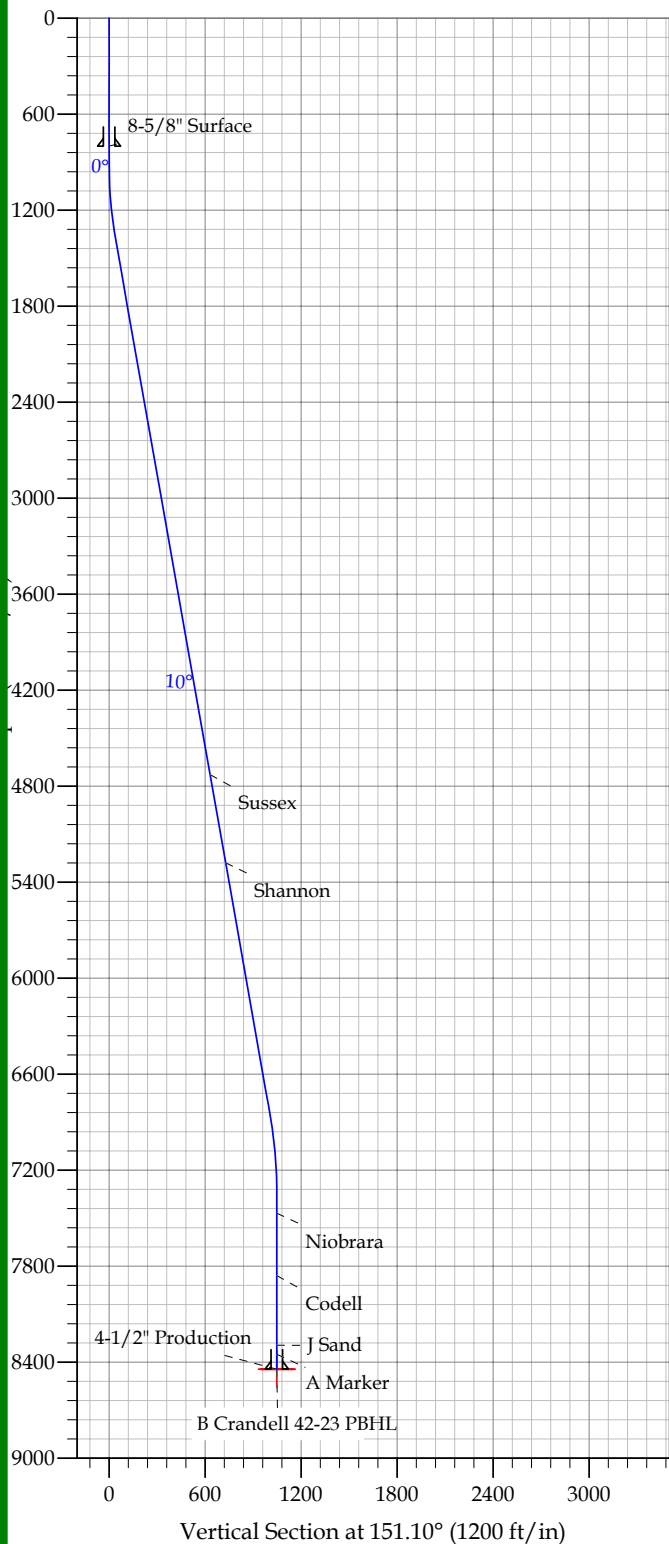
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
B Crandell 42-23 PBH	0.00	0.00	8,444.0	-918.0	506.8	1,257,424.89	3,150,333.63	40° 2' 19.572 N	104° 57' 47.088 W
- plan hits target									
- Circle (radius 100.0)									

### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
800.0	800.0	8-5/8" Surface	8.625	12.250
8,533.3	8,444.0	4-1/2" Production	4.500	7.875

### Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,783.0	4,729.0	Sussex		0.00	
5,341.5	5,279.0	Shannon		0.00	
7,558.3	7,469.0	Niobrara		0.00	
7,948.3	7,859.0	Codell		0.00	
8,383.3	8,294.0	J Sand		0.00	
8,440.3	8,351.0	A Marker		0.00	



## REFERENCE INFORMATION

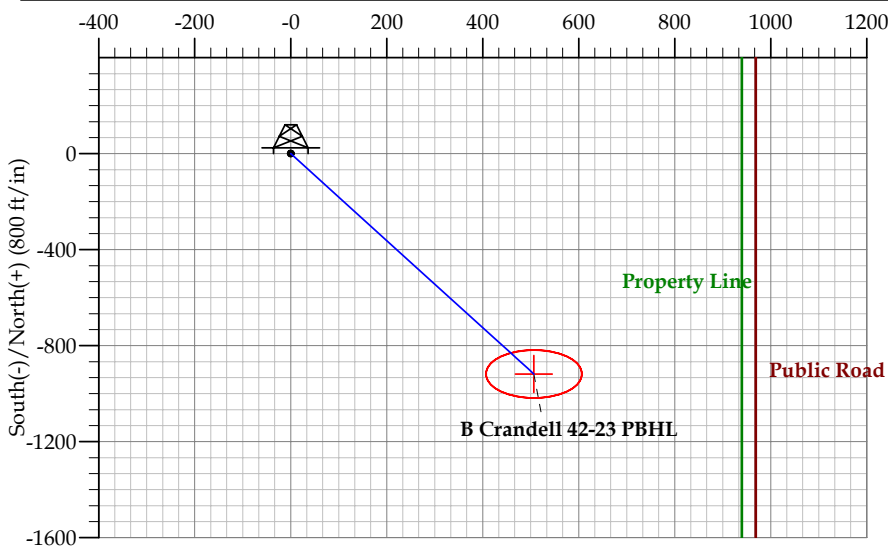
Co-ordinate (N/E) Reference: Well Bury Crandell 42-23, True North  
Vertical (TVD) Reference: RKB @ 5129.0ft (TBD)  
Section (VS) Reference: Slot - (0.0N, 0.0E)  
Measured Depth Reference: RKB @ 5129.0ft (TBD)  
Calculation Method:

## WELL DETAILS: Bury Crandell 42-23

+N/-S	+E/-W	Northing	Ground Level:	5114.0	Latitude	Longitude	Slot
0.0	0.0	1258339.77	Easting	3149821.31	40° 2' 28.644 N	4° 57' 53.604 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	1400.4	10.01	151.10	1397.8	-38.2	21.1	2.00	151.10	43.6	
4	6932.9	10.01	151.10	6846.2	-879.8	485.7	0.00	0.00	1005.0	
5	7433.3	0.00	0.00	7344.0	-918.0	506.8	2.00	180.00	1048.6	
6	8533.3	0.00	0.00	8444.0	-918.0	506.8	0.00	0.00	1048.6	B Crandell 42-23 PBHL



## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4729.0	4783.0	Sussex
5279.0	5341.5	Shannon
7469.0	7558.3	Niobrara
7859.0	7948.3	Codell
8294.0	8383.3	J Sand
8351.0	8440.3	A Marker

## CASING DETAILS

TVD	MD	Name	Size
800.0	800.0	8-5/8" Surface	8.625
8444.0	8533.3	4-1/2" Production	4.500