

# EnCana Corporation

## Planning Report - Geographic

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Minch 23-4
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	WELL @ 5092.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 5092.0ft (Original Well Elev)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Minch 23-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Minch 23-4		

<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>	1,278,589.08ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,130,247.44ft
<b>Position Uncertainty:</b>	ft	<b>Slot Radius:</b>	in
		<b>Latitude:</b>	40° 5' 49.848 N
		<b>Longitude:</b>	105° 2' 3.912 W
		<b>Grid Convergence:</b>	0.30 °

<b>Well</b> Minch 23-4			
<b>Well Position</b>	<b>+N-S</b>	56,390.4 ft	<b>Northing:</b>
	<b>+E-W</b>	4,934.9 ft	<b>Easting:</b>
<b>Position Uncertainty</b>		ft	<b>Wellhead Elevation:</b>
			ft
			<b>Latitude:</b>
			40° 15' 7.128 N
			<b>Longitude:</b>
			105° 1' 0.408 W
			<b>Ground Level:</b>
			5,079.0ft

<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	9.14	66.95	53,197

<b>Design</b> Minch 23-4				
<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	77.47

<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	
750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,587.4	16.75	77.47	1,575.6	26.4	118.6	2.00	2.00	0.00	77.47	
6,280.4	16.75	77.47	6,069.4	319.8	1,438.8	0.00	0.00	0.00	0.00	
7,117.8	0.00	0.00	6,895.0	346.1	1,557.5	2.00	-2.00	0.00	180.00	
8,117.8	0.00	0.00	7,895.0	346.1	1,557.5	0.00	0.00	0.00	0.00	Minch 23-4

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 5092.0ft (Original Well Elev)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Minch 23-4	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Minch 23-4		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
0.0	0.00	0.00	0.0	0.0	0.0	1,335,005.46	3,134,874.95	40° 15' 7.128 N	105° 1' 0.408 W	
700.0	0.00	0.00	700.0	0.0	0.0	1,335,005.46	3,134,874.95	40° 15' 7.128 N	105° 1' 0.408 W	
<b>Surface</b>										
750.0	0.00	0.00	750.0	0.0	0.0	1,335,005.46	3,134,874.95	40° 15' 7.128 N	105° 1' 0.408 W	
1,587.4	16.75	77.47	1,575.6	26.4	118.6	1,335,032.47	3,134,993.44	40° 15' 7.388 N	105° 0' 58.878 W	
4,163.1	16.75	77.47	4,042.0	187.4	843.2	1,335,197.45	3,135,717.13	40° 15' 8.980 N	105° 0' 49.532 W	
<b>Sussex</b>										
4,612.2	16.75	77.47	4,472.0	215.5	969.5	1,335,226.21	3,135,843.30	40° 15' 9.257 N	105° 0' 47.903 W	
<b>Shannon</b>										
6,280.4	16.75	77.47	6,069.4	319.8	1,438.8	1,335,333.06	3,136,312.01	40° 15' 10.287 N	105° 0' 41.850 W	
7,117.8	0.00	0.00	6,895.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	
7,342.8	0.00	0.00	7,120.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	
<b>Niobrara</b>										
7,619.8	0.00	0.00	7,397.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	
<b>Codell</b>										
7,967.8	0.00	0.00	7,745.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	
<b>J Sand</b>										
8,023.8	0.00	0.00	7,801.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	
<b>A Marker</b>										
8,117.8	0.00	0.00	7,895.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	
<b>Production - Minch 23-4</b>										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
Minch 23-4 - hit/miss target - Shape - Point	0.00	0.00	7,895.0	346.1	1,557.5	1,335,360.07	3,136,430.50	40° 15' 10.548 N	105° 0' 40.320 W	

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
700.0	700.0	Surface	8.625	12.250		
8,117.8	7,895.0	Production	4.500	7.785		

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,163.1	4,042.0	Sussex		0.00		
4,612.2	4,472.0	Shannon		0.00		
7,342.8	7,120.0	Niobrara		0.00		
7,619.8	7,397.0	Codell		0.00		
7,967.8	7,745.0	J Sand		0.00		
8,023.8	7,801.0	A Marker		0.00		

**REFERENCE INFORMATION**

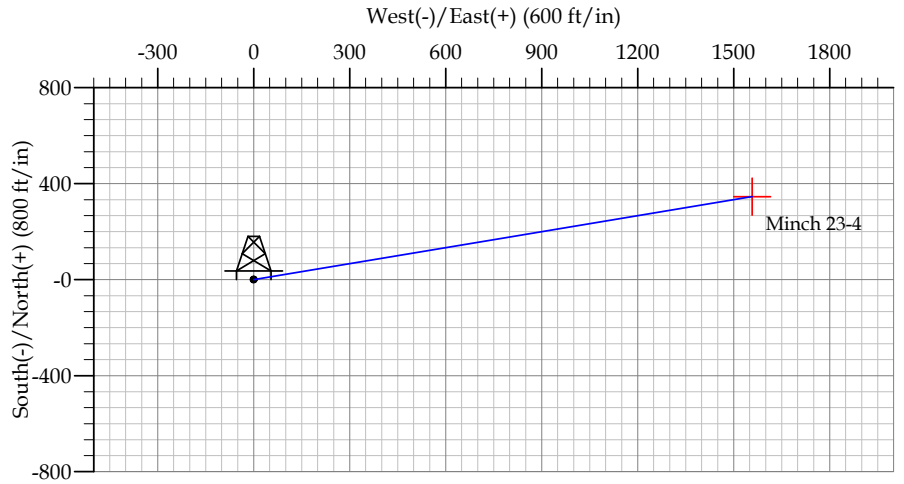
Co-ordinate (N/E) Reference: Well Minch 23-4, True North  
 Vertical (TVD) Reference: WELL @ 5092.0ft (Original Well Elev)  
 Section (VS) Reference: Slot - (0.0N, 0.0E)  
 Measured Depth Reference: WELL @ 5092.0ft (Original Well Elev)  
 Calculation Method:

**WELL DETAILS: Minch 23-4**

+N/-S	+E/-W	Northing	Ground Level: Easting	5079.0 Latitude	Longitude	Slot
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**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	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	1587.4	16.75	77.47	1575.6	26.4	118.6	2.00	77.47	121.5	
4	6280.4	16.75	77.47	6069.4	319.8	1438.8	0.00	0.00	1473.9	
5	7117.8	0.00	0.00	6895.0	346.1	1557.5	2.00	180.00	1595.5	
6	8117.8	0.00	0.00	7895.0	346.1	1557.5	0.00	0.00	1595.5	Minch 23-4



**FORMATION TOP DETAILS**

TVDPath	MDPath	Formation
4042.0	4163.1	Sussex
4472.0	4612.2	Shannon
7120.0	7342.8	Niobrara
7397.0	7619.8	Codell
7745.0	7967.8	J Sand
7801.0	8023.8	A Marker

**CASING DETAILS**

TVD	MD	Name	Size
700.0	700.0	Surface	8.625
7895.0	8117.8	Production	4.500

