

# EnCana Corporation

## Planning Report - Geographic

<b>Database:</b>	EDM	<b>Local Co-ordinate Reference:</b>	Well Liberty 2-4-21
<b>Company:</b>	DJ/Paradox/WTX	<b>TVD Reference:</b>	WELL @ 5041.0ft (Original Well Elev)
<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 5041.0ft (Original Well Elev)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2-4-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Liberty 2-4-21		

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

Well	Liberty 2-4-21					
Well Position	+N-S	43,523.4 ft	Northing:	1,322,150.20 ft	Latitude:	40° 12' 59.976 N
	+E-W	6,960.3 ft	Easting:	3,136,966.90 ft	Longitude:	105° 0' 34.344 W
Position Uncertainty		ft	Wellhead Elevation:	ft	Ground Level:	5,028.0 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	9.14	66.92	53,180

<b>Design</b>	Liberty 2-4-21				
<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	203.96	

<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	
1,908.9	23.18	203.96	1,877.5	-211.3	-93.9	2.00	2.00	0.00	203.96	
6,010.9	23.18	203.96	5,648.5	-1,686.6	-749.5	0.00	0.00	0.00	0.00	
7,169.8	0.00	0.00	6,776.0	-1,897.9	-843.4	2.00	-2.00	0.00	180.00	
8,219.8	0.00	0.00	7,826.0	-1,897.9	-843.4	0.00	0.00	0.00	0.00	Liberty 2-4-21

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<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2-4-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Liberty 2-4-21		

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	1,322,150.20	3,136,966.90	40° 12' 59.976 N	105° 0' 34.344 W
700.0	0.00	0.00	700.0	0.0	0.0	1,322,150.20	3,136,966.90	40° 12' 59.976 N	105° 0' 34.344 W
<b>Surface</b>									
750.0	0.00	0.00	750.0	0.0	0.0	1,322,150.20	3,136,966.90	40° 12' 59.976 N	105° 0' 34.344 W
1,908.9	23.18	203.96	1,877.5	-211.3	-93.9	1,321,938.40	3,136,874.17	40° 12' 57.888 N	105° 0' 35.554 W
4,180.7	23.18	203.96	3,966.0	-1,028.4	-457.0	1,321,119.32	3,136,515.58	40° 12' 49.813 N	105° 0' 40.235 W
<b>Sussex</b>									
4,719.2	23.18	203.96	4,461.0	-1,222.0	-543.1	1,320,925.19	3,136,430.59	40° 12' 47.899 N	105° 0' 41.345 W
<b>Shannon</b>									
6,010.9	23.18	203.96	5,648.5	-1,686.6	-749.5	1,320,459.47	3,136,226.70	40° 12' 43.308 N	105° 0' 44.006 W
7,169.8	0.00	0.00	6,776.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
7,334.8	0.00	0.00	6,941.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
<b>Niobrara</b>									
7,629.8	0.00	0.00	7,236.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
<b>Codell</b>									
8,069.8	0.00	0.00	7,676.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
<b>J Sand</b>									
8,139.8	0.00	0.00	7,746.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
<b>A Marker</b>									
8,219.8	0.00	0.00	7,826.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
<b>Production - Liberty 2-4-21</b>									

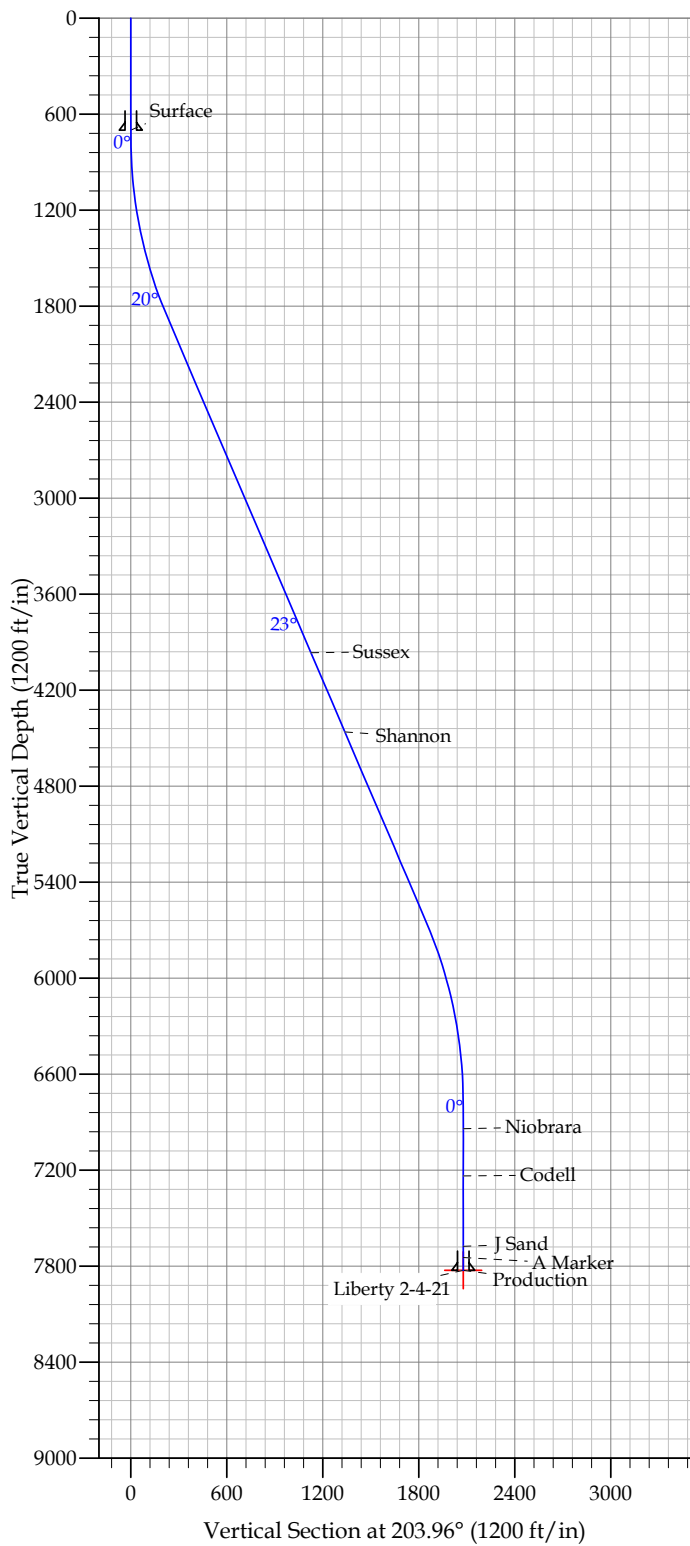
Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Liberty 2-4-21	0.00	0.00	7,826.0	-1,897.9	-843.4	1,320,247.67	3,136,133.97	40° 12' 41.220 N	105° 0' 45.216 W
- plan hits target									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
700.0	700.0	Surface	8.625	12.250	
8,219.8	7,826.0	Production	4.500	7.785	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,180.7	3,966.0	Sussex		0.00		
4,719.2	4,461.0	Shannon		0.00		
7,334.8	6,941.0	Niobrara		0.00		
7,629.8	7,236.0	Codell		0.00		
8,069.8	7,676.0	J Sand		0.00		
8,139.8	7,746.0	A Marker		0.00		

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<b>Project:</b>	Wattenberg	<b>MD Reference:</b>	WELL @ 5041.0ft (Original Well Elev)
<b>Site:</b>	New Drills	<b>North Reference:</b>	True
<b>Well:</b>	Liberty 2-4-21	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Liberty 2-4-21		



## REFERENCE INFORMATION

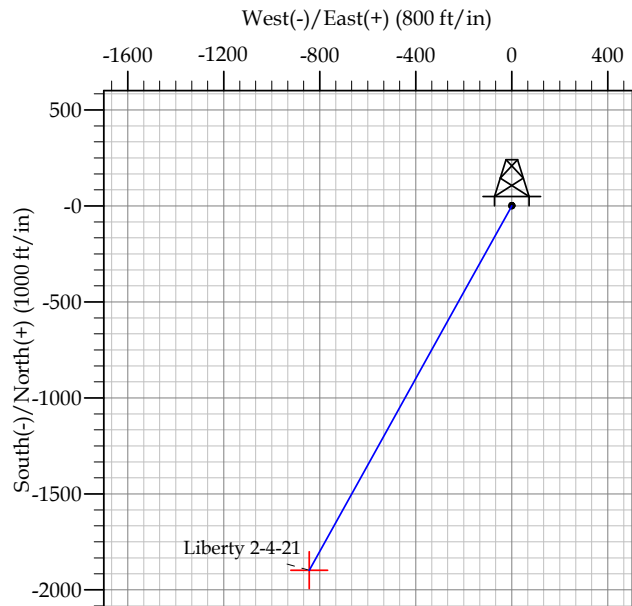
Co-ordinate (N/E) Reference: Well Liberty 2-4-21, True North  
Vertical (TVD) Reference: WELL @ 5041.0ft (Original Well Elev)  
Section (VS) Reference: Slot - (0.0N, 0.0E)  
Measured Depth Reference: WELL @ 5041.0ft (Original Well Elev)  
Calculation Method:

## WELL DETAILS: Liberty 2-4-21

+N/-S	+E/-W	Northing	Ground Level:	5028.0	Longitude	Slot
0.0	0.0	1322150.20	Easting	3136966.90	40° 12' 59.976 N105° 0' 34.344 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	750.0	0.00	0.00	750.0	0.0	0.0	0.00	0.00	0.0	
3	1908.9	23.18	203.96	1877.5	-211.3	-93.9	2.00	203.96	231.2	
4	6010.9	23.18	203.96	5648.5	-1686.6	-749.5	0.00	0.00	1845.7	
5	7169.8	0.00	0.00	6776.0	-1897.9	-843.4	2.00	180.00	2076.9	
6	8219.8	0.00	0.00	7826.0	-1897.9	-843.4	0.00	0.00	2076.9	Liberty 2-4-21



## FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3966.0	4180.7	Sussex
4461.0	4719.2	Shannon
6941.0	7334.8	Niobrara
7236.0	7629.8	Codell
7676.0	8069.8	J Sand
7746.0	8139.8	A Marker

## CASING DETAILS

TVD	MD	Name	Size
700.0	700.0	Surface	8.625
7826.0	8219.8	Production	4.500