

DJ/Paradox/WTX

Wattenberg

New Drills

Costigan 23-20

Wellbore #1

Plan: Design #1

Standard Planning Report - Geographic

10 March, 2010

EnCana Corporation
Planning Report - Geographic

Database:	EDM	Local Co-ordinate Reference:	Well Costigan 23-20
Company:	DJ/Paradox/WTX	TVD Reference:	WELL @ 5101.0ft (Original Well Elev)
Project:	Wattenberg	MD Reference:	WELL @ 5101.0ft (Original Well Elev)
Site:	New Drills	North Reference:	True
Well:	Costigan 23-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Wattenberg,		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

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

Well		Costigan 23-20				
Well Position	+N/-S	2,970.5 ft	Northing:	1,255,473.76 ft	Latitude:	40° 2' 1.392 N
	+E/-W	10,014.6 ft	Easting:	3,130,626.43 ft	Longitude:	105° 2' 0.600 W
Position Uncertainty		ft	Wellhead Elevation:	ft	Ground Level:	5,088.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/31/2009	9.13	66.77	53,080

Design	Design #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	69.82

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(ft)	(°)	(°)	(ft)	(ft)	(ft)	(°/100ft)	(°/100ft)	(°/100ft)	(°)	
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
950.0	0.00	0.00	950.0	0.0	0.0	0.00	0.00	0.00	0.00	
1,464.8	10.30	69.82	1,462.0	15.9	43.3	2.00	2.00	0.00	69.82	
6,740.7	10.30	69.82	6,653.0	341.1	928.3	0.00	0.00	0.00	0.00	
7,255.5	0.00	0.00	7,165.0	357.0	971.6	2.00	-2.00	0.00	180.00	
8,463.5	0.00	0.00	8,373.0	357.0	971.6	0.00	0.00	0.00	0.00	23-20 BHL

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Site:	New Drills	North Reference:	True
Well:	Costigan 23-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
100.0	0.00	0.00	100.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
200.0	0.00	0.00	200.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
300.0	0.00	0.00	300.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
400.0	0.00	0.00	400.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
500.0	0.00	0.00	500.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
600.0	0.00	0.00	600.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
700.0	0.00	0.00	700.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
800.0	0.00	0.00	800.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
900.0	0.00	0.00	900.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
950.0	0.00	0.00	950.0	0.0	0.0	1,255,473.76	3,130,626.43	40° 2' 1.392 N	105° 2' 0.600 W
1,000.0	1.00	69.82	1,000.0	0.2	0.4	1,255,473.91	3,130,626.84	40° 2' 1.393 N	105° 2' 0.595 W
1,100.0	3.00	69.82	1,099.9	1.4	3.7	1,255,475.13	3,130,630.11	40° 2' 1.405 N	105° 2' 0.553 W
1,200.0	5.00	69.82	1,199.7	3.8	10.2	1,255,477.57	3,130,636.64	40° 2' 1.429 N	105° 2' 0.468 W
1,300.0	7.00	69.82	1,299.1	7.4	20.0	1,255,481.23	3,130,646.43	40° 2' 1.465 N	105° 2' 0.342 W
1,400.0	9.00	69.82	1,398.2	12.2	33.1	1,255,486.10	3,130,659.47	40° 2' 1.512 N	105° 2' 0.174 W
1,464.8	10.30	69.82	1,462.0	15.9	43.3	1,255,489.89	3,130,669.64	40° 2' 1.549 N	105° 2' 0.043 W
1,500.0	10.30	69.82	1,496.7	18.1	49.2	1,255,492.10	3,130,675.54	40° 2' 1.571 N	105° 1' 59.967 W
1,600.0	10.30	69.82	1,595.1	24.2	66.0	1,255,498.35	3,130,692.28	40° 2' 1.631 N	105° 1' 59.752 W
1,700.0	10.30	69.82	1,693.4	30.4	82.8	1,255,504.60	3,130,709.02	40° 2' 1.692 N	105° 1' 59.536 W
1,800.0	10.30	69.82	1,791.8	36.6	99.5	1,255,510.85	3,130,725.76	40° 2' 1.753 N	105° 1' 59.320 W
1,900.0	10.30	69.82	1,890.2	42.7	116.3	1,255,517.10	3,130,742.51	40° 2' 1.814 N	105° 1' 59.105 W
2,000.0	10.30	69.82	1,988.6	48.9	133.1	1,255,523.36	3,130,759.25	40° 2' 1.875 N	105° 1' 58.889 W
2,100.0	10.30	69.82	2,087.0	55.1	149.9	1,255,529.61	3,130,775.99	40° 2' 1.936 N	105° 1' 58.673 W
2,200.0	10.30	69.82	2,185.4	61.2	166.6	1,255,535.86	3,130,792.73	40° 2' 1.997 N	105° 1' 58.458 W
2,300.0	10.30	69.82	2,283.8	67.4	183.4	1,255,542.11	3,130,809.48	40° 2' 2.058 N	105° 1' 58.242 W
2,400.0	10.30	69.82	2,382.2	73.6	200.2	1,255,548.36	3,130,826.22	40° 2' 2.119 N	105° 1' 58.026 W
2,500.0	10.30	69.82	2,480.6	79.7	217.0	1,255,554.62	3,130,842.96	40° 2' 2.180 N	105° 1' 57.811 W
2,600.0	10.30	69.82	2,579.0	85.9	233.7	1,255,560.87	3,130,859.70	40° 2' 2.241 N	105° 1' 57.595 W
2,700.0	10.30	69.82	2,677.3	92.0	250.5	1,255,567.12	3,130,876.45	40° 2' 2.302 N	105° 1' 57.379 W
2,800.0	10.30	69.82	2,775.7	98.2	267.3	1,255,573.37	3,130,893.19	40° 2' 2.362 N	105° 1' 57.164 W
2,900.0	10.30	69.82	2,874.1	104.4	284.1	1,255,579.62	3,130,909.93	40° 2' 2.423 N	105° 1' 56.948 W
3,000.0	10.30	69.82	2,972.5	110.5	300.8	1,255,585.88	3,130,926.68	40° 2' 2.484 N	105° 1' 56.732 W
3,100.0	10.30	69.82	3,070.9	116.7	317.6	1,255,592.13	3,130,943.42	40° 2' 2.545 N	105° 1' 56.517 W
3,200.0	10.30	69.82	3,169.3	122.9	334.4	1,255,598.38	3,130,960.16	40° 2' 2.606 N	105° 1' 56.301 W
3,300.0	10.30	69.82	3,267.7	129.0	351.2	1,255,604.63	3,130,976.90	40° 2' 2.667 N	105° 1' 56.085 W
3,400.0	10.30	69.82	3,366.1	135.2	367.9	1,255,610.89	3,130,993.65	40° 2' 2.728 N	105° 1' 55.870 W
3,500.0	10.30	69.82	3,464.5	141.4	384.7	1,255,617.14	3,131,010.39	40° 2' 2.789 N	105° 1' 55.654 W
3,600.0	10.30	69.82	3,562.9	147.5	401.5	1,255,623.39	3,131,027.13	40° 2' 2.850 N	105° 1' 55.438 W
3,700.0	10.30	69.82	3,661.2	153.7	418.3	1,255,629.64	3,131,043.87	40° 2' 2.911 N	105° 1' 55.223 W
3,800.0	10.30	69.82	3,759.6	159.8	435.0	1,255,635.89	3,131,060.62	40° 2' 2.972 N	105° 1' 55.007 W
3,900.0	10.30	69.82	3,858.0	166.0	451.8	1,255,642.15	3,131,077.36	40° 2' 3.032 N	105° 1' 54.791 W
4,000.0	10.30	69.82	3,956.4	172.2	468.6	1,255,648.40	3,131,094.10	40° 2' 3.093 N	105° 1' 54.576 W
4,100.0	10.30	69.82	4,054.8	178.3	485.4	1,255,654.65	3,131,110.84	40° 2' 3.154 N	105° 1' 54.360 W
4,200.0	10.30	69.82	4,153.2	184.5	502.1	1,255,660.90	3,131,127.59	40° 2' 3.215 N	105° 1' 54.144 W
4,300.0	10.30	69.82	4,251.6	190.7	518.9	1,255,667.15	3,131,144.33	40° 2' 3.276 N	105° 1' 53.929 W
4,400.0	10.30	69.82	4,350.0	196.8	535.7	1,255,673.41	3,131,161.07	40° 2' 3.337 N	105° 1' 53.713 W
4,500.0	10.30	69.82	4,448.4	203.0	552.5	1,255,679.66	3,131,177.81	40° 2' 3.398 N	105° 1' 53.497 W
4,600.0	10.30	69.82	4,546.8	209.2	569.2	1,255,685.91	3,131,194.56	40° 2' 3.459 N	105° 1' 53.282 W
4,700.0	10.30	69.82	4,645.1	215.3	586.0	1,255,692.16	3,131,211.30	40° 2' 3.520 N	105° 1' 53.066 W
4,800.0	10.30	69.82	4,743.5	221.5	602.8	1,255,698.41	3,131,228.04	40° 2' 3.581 N	105° 1' 52.850 W
4,900.0	10.30	69.82	4,841.9	227.7	619.6	1,255,704.67	3,131,244.78	40° 2' 3.642 N	105° 1' 52.635 W
5,000.0	10.30	69.82	4,940.3	233.8	636.3	1,255,710.92	3,131,261.53	40° 2' 3.703 N	105° 1' 52.419 W
5,100.0	10.30	69.82	5,038.7	240.0	653.1	1,255,717.17	3,131,278.27	40° 2' 3.763 N	105° 1' 52.203 W
5,200.0	10.30	69.82	5,137.1	246.1	669.9	1,255,723.42	3,131,295.01	40° 2' 3.824 N	105° 1' 51.988 W

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Project:	Wattenberg	MD Reference:	WELL @ 5101.0ft (Original Well Elev)
Site:	New Drills	North Reference:	True
Well:	Costigan 23-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude	
5,300.0	10.30	69.82	5,235.5	252.3	686.7	1,255,729.67	3,131,311.75	40° 2' 3.885 N	105° 1' 51.772 W	
5,400.0	10.30	69.82	5,333.9	258.5	703.4	1,255,735.93	3,131,328.50	40° 2' 3.946 N	105° 1' 51.556 W	
5,500.0	10.30	69.82	5,432.3	264.6	720.2	1,255,742.18	3,131,345.24	40° 2' 4.007 N	105° 1' 51.341 W	
5,600.0	10.30	69.82	5,530.7	270.8	737.0	1,255,748.43	3,131,361.98	40° 2' 4.068 N	105° 1' 51.125 W	
5,700.0	10.30	69.82	5,629.0	277.0	753.8	1,255,754.68	3,131,378.72	40° 2' 4.129 N	105° 1' 50.909 W	
5,800.0	10.30	69.82	5,727.4	283.1	770.5	1,255,760.93	3,131,395.47	40° 2' 4.190 N	105° 1' 50.693 W	
5,900.0	10.30	69.82	5,825.8	289.3	787.3	1,255,767.19	3,131,412.21	40° 2' 4.251 N	105° 1' 50.478 W	
6,000.0	10.30	69.82	5,924.2	295.5	804.1	1,255,773.44	3,131,428.95	40° 2' 4.312 N	105° 1' 50.262 W	
6,100.0	10.30	69.82	6,022.6	301.6	820.9	1,255,779.69	3,131,445.69	40° 2' 4.373 N	105° 1' 50.046 W	
6,200.0	10.30	69.82	6,121.0	307.8	837.6	1,255,785.94	3,131,462.44	40° 2' 4.433 N	105° 1' 49.831 W	
6,300.0	10.30	69.82	6,219.4	313.9	854.4	1,255,792.19	3,131,479.18	40° 2' 4.494 N	105° 1' 49.615 W	
6,400.0	10.30	69.82	6,317.8	320.1	871.2	1,255,798.45	3,131,495.92	40° 2' 4.555 N	105° 1' 49.399 W	
6,500.0	10.30	69.82	6,416.2	326.3	888.0	1,255,804.70	3,131,512.66	40° 2' 4.616 N	105° 1' 49.184 W	
6,600.0	10.30	69.82	6,514.6	332.4	904.7	1,255,810.95	3,131,529.41	40° 2' 4.677 N	105° 1' 48.968 W	
6,700.0	10.30	69.82	6,612.9	338.6	921.5	1,255,817.20	3,131,546.15	40° 2' 4.738 N	105° 1' 48.752 W	
6,740.7	10.30	69.82	6,653.0	341.1	928.3	1,255,819.75	3,131,552.97	40° 2' 4.763 N	105° 1' 48.665 W	
6,800.0	9.11	69.82	6,711.4	344.6	937.7	1,255,823.24	3,131,562.33	40° 2' 4.797 N	105° 1' 48.544 W	
6,900.0	7.11	69.82	6,810.4	349.4	951.0	1,255,828.18	3,131,575.54	40° 2' 4.845 N	105° 1' 48.374 W	
7,000.0	5.11	69.82	6,909.9	353.1	961.0	1,255,831.90	3,131,585.51	40° 2' 4.881 N	105° 1' 48.245 W	
7,100.0	3.11	69.82	7,009.6	355.6	967.7	1,255,834.41	3,131,592.22	40° 2' 4.906 N	105° 1' 48.159 W	
7,200.0	1.11	69.82	7,109.5	356.8	971.1	1,255,835.69	3,131,595.67	40° 2' 4.918 N	105° 1' 48.114 W	
7,255.5	0.00	0.00	7,165.0	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,300.0	0.00	0.00	7,209.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,400.0	0.00	0.00	7,309.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,500.0	0.00	0.00	7,409.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,600.0	0.00	0.00	7,509.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,700.0	0.00	0.00	7,609.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,800.0	0.00	0.00	7,709.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
7,900.0	0.00	0.00	7,809.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
8,000.0	0.00	0.00	7,909.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
8,100.0	0.00	0.00	8,009.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
8,200.0	0.00	0.00	8,109.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
8,300.0	0.00	0.00	8,209.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
8,400.0	0.00	0.00	8,309.5	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
8,463.5	0.00	0.00	8,373.0	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	

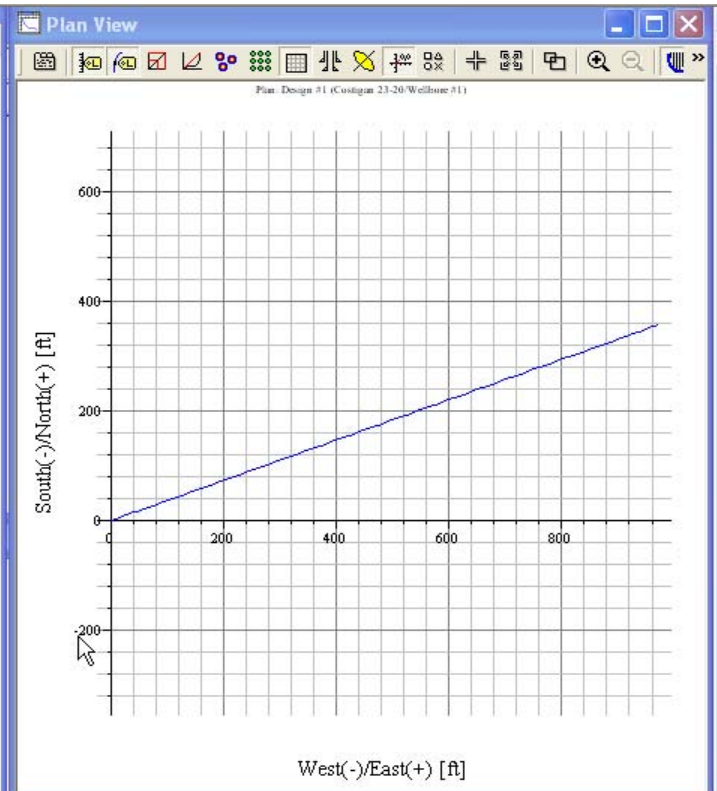
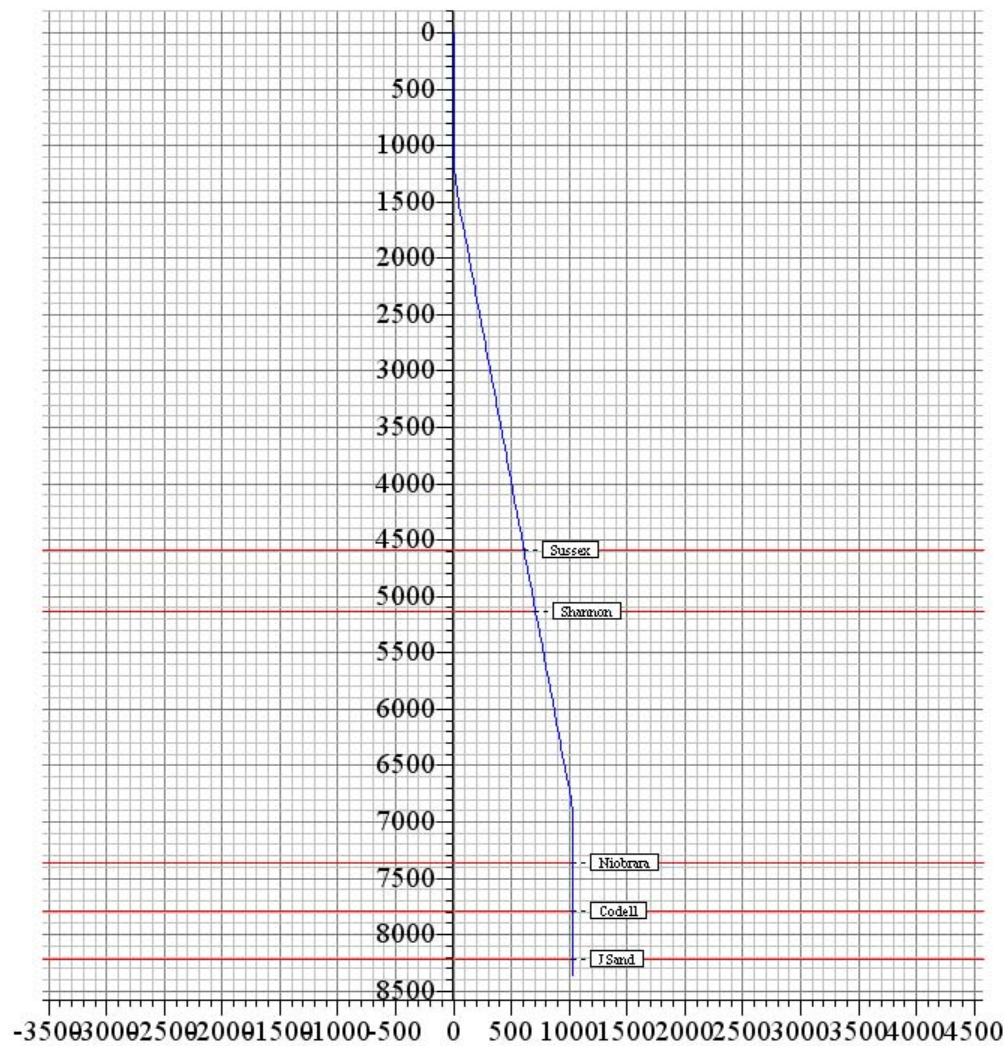
Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
- hit/miss target										
- Shape										
23-20 BHL	0.00	0.00	8,373.0	357.0	971.6	1,255,835.88	3,131,596.17	40° 2' 4.920 N	105° 1' 48.108 W	
- plan hits target										
- Point										

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Company:	DJ/Paradox/WTX	TVD Reference:	WELL @ 5101.0ft (Original Well Elev)
Project:	Wattenberg	MD Reference:	WELL @ 5101.0ft (Original Well Elev)
Site:	New Drills	North Reference:	True
Well:	Costigan 23-20	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations						
	Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	4,643.9	4,590.0	Sussex		0.00	
	5,192.8	5,130.0	Shannon		0.00	
	7,455.5	7,365.0	Niobrara		0.00	
	7,877.5	7,787.0	Codell		0.00	
	8,313.5	8,223.0	J Sand		0.00	

True Vertical Depth [ft]



Design Formation Top Editor - Costigan 23-20/Wellbore #1/D...

	MD (ft)	TVD WH (ft)	TVD Sys (ft)	TVD Path (ft)	Name	Lithology
1	4644.1	4590.0	-511.0	4590.0	Sussex	(none)
2	5193.1	5130.0	29.0	5130.0	Shannon	(none)
3	7456.3	7365.0	2264.0	7365.0	Niobrara	(none)
4	7878.3	7787.0	2686.0	7787.0	Codell	(none)
5	8314.3	8223.0	3122.0	8223.0	J Sand	(none)
6						

Surface location: 1625' FSL, 1008' FWL

Bottomhole location: 1975' FSL, 1980' FWL

EnCana Oil & Gas (USA) Inc.
Costigan 23-20