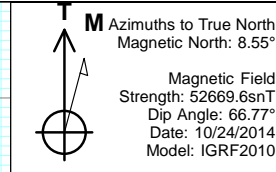


DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Drieth 4F-6H-I368 PBHL P2	-706.4	-4156.1	1335012.78	3124648.56	40.252140	-105.053440



FINAL
 Drieth 4F-6H-I368
 325555 145290; LR
 30' KB @ 5141.0ft (H&P 522)
 Ground Elevation @ 5111.0
 North American Datum 1983
 Well Drieth 4F-6H-I368, True North

Vertical Section at 270.00° (1000 ft/in)

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 4F-6H-I368
Project:	DJ Wattenberg	TVD Reference:	30' KB @ 5141.0ft (H&P 522)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	30' KB @ 5141.0ft (H&P 522)
Well:	Drieth 4F-6H-I368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

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

Site		S6-T3N-R68W (Zisch/Drieth)			
Site Position:		Northing:	1,333,692.14 ft	Latitude:	40.248510
From:	Lat/Long	Easting:	3,124,995.76 ft	Longitude:	-105.052220
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.29 °

Well	Drieth 4F-6H-I368					
Well Position	+N/-S	0.0 ft	Northing:	1,335,740.75 ft	Latitude:	40.254080
	+E/-W	0.0 ft	Easting:	3,128,800.90 ft	Longitude:	-105.038550
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,111.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/24/2014	8.55	66.77	52,670

Design	FINAL				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	270.00	

Survey Program	Date	11/4/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
140.0	11,486.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
140.0	0.50	111.40	140.0	-0.2	0.6	-0.6	0.36	0.36		
232.0	0.20	52.60	232.0	-0.3	1.1	-1.1	0.47	-0.33		
324.0	0.60	148.70	324.0	-0.6	1.4	-1.4	0.71	0.43		
415.0	1.40	173.40	415.0	-2.1	1.8	-1.8	0.98	0.88		
507.0	2.40	175.30	506.9	-5.1	2.1	-2.1	1.09	1.09		
599.0	3.60	170.00	598.8	-9.9	2.8	-2.8	1.34	1.30		
691.0	4.00	156.70	690.6	-15.7	4.5	-4.5	1.05	0.43		
783.0	4.60	155.60	782.3	-22.0	7.3	-7.3	0.66	0.65		
814.0	4.90	154.40	813.2	-24.3	8.4	-8.4	1.02	0.97		
932.0	4.40	149.30	930.8	-32.8	12.9	-12.9	0.55	-0.42		
1,026.0	5.70	149.80	1,024.5	-39.9	17.1	-17.1	1.38	1.38		
1,118.0	6.90	154.20	1,115.9	-48.8	21.8	-21.8	1.41	1.30		

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 4F-6H-I368
Project:	DJ Wattenberg	TVD Reference:	30' KB @ 5141.0ft (H&P 522)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	30' KB @ 5141.0ft (H&P 522)
Well:	Drieth 4F-6H-I368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,210.0	12.90	138.20	1,206.5	-61.5	31.1	-31.1	7.11	6.52	
1,301.0	12.20	137.20	1,295.4	-76.1	44.4	-44.4	0.81	-0.77	
1,393.0	12.00	131.80	1,385.3	-89.6	58.1	-58.1	1.25	-0.22	
1,485.0	11.80	131.40	1,475.3	-102.2	72.3	-72.3	0.24	-0.22	
1,577.0	11.60	128.60	1,565.4	-114.2	86.6	-86.6	0.65	-0.22	
1,669.0	10.20	142.10	1,655.8	-126.4	98.8	-98.8	3.15	-1.52	
1,761.0	10.40	137.60	1,746.3	-138.9	109.4	-109.4	0.90	0.22	
1,853.0	7.60	156.20	1,837.2	-150.7	117.5	-117.5	4.35	-3.04	
1,946.0	7.60	156.20	1,929.4	-161.9	122.4	-122.4	0.00	0.00	
2,038.0	7.20	153.70	2,020.6	-172.6	127.4	-127.4	0.56	-0.43	
2,129.0	7.00	153.70	2,110.9	-182.7	132.4	-132.4	0.22	-0.22	
2,221.0	6.90	150.80	2,202.2	-192.6	137.6	-137.6	0.40	-0.11	
2,313.0	6.60	152.10	2,293.6	-202.1	142.8	-142.8	0.37	-0.33	
2,405.0	8.40	141.90	2,384.8	-212.0	149.4	-149.4	2.43	1.96	
2,497.0	7.60	144.30	2,475.9	-222.3	157.1	-157.1	0.94	-0.87	
2,589.0	8.60	137.40	2,567.0	-232.3	165.3	-165.3	1.51	1.09	
2,681.0	7.70	137.00	2,658.0	-241.8	174.2	-174.2	0.98	-0.98	
2,773.0	7.00	135.80	2,749.3	-250.4	182.3	-182.3	0.78	-0.76	
2,865.0	6.10	139.90	2,840.7	-258.1	189.3	-189.3	1.10	-0.98	
2,957.0	5.10	139.70	2,932.3	-265.0	195.1	-195.1	1.09	-1.09	
3,049.0	6.20	144.10	3,023.8	-272.1	200.7	-200.7	1.28	1.20	
3,141.0	6.80	134.90	3,115.2	-280.0	207.4	-207.4	1.30	0.65	
3,233.0	5.90	131.20	3,206.6	-287.0	214.9	-214.9	1.07	-0.98	
3,327.0	7.30	126.60	3,300.0	-293.7	223.3	-223.3	1.59	1.49	
3,421.0	8.60	126.50	3,393.1	-301.4	233.7	-233.7	1.38	1.38	
3,515.0	7.80	121.40	3,486.2	-308.9	244.8	-244.8	1.15	-0.85	
3,610.0	9.00	130.90	3,580.1	-317.2	256.0	-256.0	1.93	1.26	
3,704.0	8.70	134.90	3,673.0	-327.0	266.5	-266.5	0.73	-0.32	
3,798.0	8.60	135.00	3,766.0	-337.0	276.6	-276.6	0.11	-0.11	
3,892.0	7.90	136.20	3,859.0	-346.6	286.0	-286.0	0.77	-0.74	
3,987.0	7.90	139.90	3,953.1	-356.3	294.7	-294.7	0.54	0.00	
4,081.0	7.20	141.60	4,046.3	-365.9	302.5	-302.5	0.78	-0.74	
4,175.0	8.30	141.70	4,139.4	-375.8	310.4	-310.4	1.17	1.17	
4,269.0	9.70	147.50	4,232.2	-387.8	318.9	-318.9	1.77	1.49	
4,364.0	9.10	152.00	4,326.0	-401.2	326.7	-326.7	1.00	-0.63	
4,459.0	7.40	153.00	4,420.0	-413.3	333.0	-333.0	1.80	-1.79	
4,553.0	8.70	136.80	4,513.1	-423.9	340.6	-340.6	2.77	1.38	
4,647.0	8.60	141.30	4,606.0	-434.5	349.9	-349.9	0.73	-0.11	
4,742.0	8.30	141.40	4,700.0	-445.4	358.6	-358.6	0.32	-0.32	
4,836.0	7.60	140.30	4,793.1	-455.5	366.8	-366.8	0.76	-0.74	
4,931.0	6.80	140.10	4,887.3	-464.7	374.4	-374.4	0.84	-0.84	
5,026.0	6.10	142.50	4,981.7	-473.0	381.1	-381.1	0.79	-0.74	
5,120.0	6.20	135.50	5,075.2	-480.6	387.7	-387.7	0.80	0.11	
5,215.0	7.20	135.70	5,169.5	-488.5	395.4	-395.4	1.05	1.05	
5,309.0	7.90	140.40	5,262.7	-497.7	403.7	-403.7	0.99	0.74	
5,403.0	7.80	131.10	5,355.8	-506.9	412.6	-412.6	1.35	-0.11	
5,498.0	6.10	139.40	5,450.1	-514.9	420.7	-420.7	2.07	-1.79	
5,593.0	8.20	146.60	5,544.4	-524.4	427.8	-427.8	2.40	2.21	
5,687.0	9.30	145.00	5,637.3	-536.2	435.8	-435.8	1.20	1.17	
5,782.0	7.80	150.30	5,731.3	-548.1	443.4	-443.4	1.78	-1.58	
5,876.0	8.80	140.20	5,824.3	-559.2	451.2	-451.2	1.88	1.06	
5,971.0	9.30	137.20	5,918.1	-570.4	461.0	-461.0	0.72	0.53	
6,066.0	7.50	137.90	6,012.1	-580.6	470.4	-470.4	1.90	-1.89	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 4F-6H-I368
Project:	DJ Wattenberg	TVD Reference:	30' KB @ 5141.0ft (H&P 522)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	30' KB @ 5141.0ft (H&P 522)
Well:	Drieth 4F-6H-I368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,160.0	8.10	141.90	6,105.2	-590.4	478.6	-478.6	0.86	0.64	
6,255.0	6.50	141.20	6,199.4	-599.9	486.1	-486.1	1.69	-1.68	
6,349.0	5.50	140.60	6,292.9	-607.5	492.3	-492.3	1.07	-1.06	
6,397.0	4.10	171.50	6,340.7	-611.0	494.0	-494.0	6.02	-2.92	
6,444.0	4.50	216.60	6,387.6	-614.1	493.2	-493.2	7.06	0.85	
6,491.0	7.20	245.90	6,434.4	-616.8	489.4	-489.4	8.39	5.74	
6,538.0	11.20	253.60	6,480.8	-619.3	482.3	-482.3	8.89	8.51	
6,586.0	13.70	256.70	6,527.6	-621.9	472.3	-472.3	5.39	5.21	
6,633.0	17.40	256.20	6,572.9	-624.9	460.1	-460.1	7.88	7.87	
6,681.0	19.20	259.90	6,618.5	-628.0	445.3	-445.3	4.46	3.75	
6,728.0	22.20	261.50	6,662.4	-630.6	428.9	-428.9	6.49	6.38	
6,775.0	26.80	263.60	6,705.2	-633.1	409.6	-409.6	9.96	9.79	
6,822.0	30.50	263.40	6,746.4	-635.7	387.2	-387.2	7.87	7.87	
6,870.0	32.30	265.10	6,787.4	-638.2	362.3	-362.3	4.18	3.75	
6,917.0	32.20	260.10	6,827.2	-641.4	337.5	-337.5	5.68	-0.21	
6,964.0	33.50	263.40	6,866.7	-645.0	312.3	-312.3	4.71	2.77	
7,004.0	34.50	263.10	6,899.8	-647.7	290.1	-290.1	2.54	2.50	
7,052.0	40.70	262.70	6,937.8	-651.3	261.0	-261.0	12.93	12.92	
7,099.0	46.90	263.00	6,971.7	-655.3	228.7	-228.7	13.20	13.19	
7,146.0	50.60	262.60	7,002.7	-659.8	193.7	-193.7	7.90	7.87	
7,193.0	56.90	262.90	7,030.5	-664.6	156.1	-156.1	13.41	13.40	
7,241.0	64.00	263.40	7,054.1	-669.5	114.7	-114.7	14.82	14.79	
7,288.0	68.50	265.30	7,073.1	-673.7	71.9	-71.9	10.26	9.57	
7,335.0	73.80	263.50	7,088.3	-678.1	27.6	-27.6	11.84	11.28	
7,382.0	78.90	260.90	7,099.3	-684.3	-17.6	17.6	12.11	10.85	
7,438.0	86.60	259.70	7,106.4	-693.7	-72.3	72.3	13.91	13.75	
7,498.0	87.90	262.40	7,109.3	-703.0	-131.5	131.5	4.99	2.17	
7,593.0	90.60	264.70	7,110.5	-713.7	-225.9	225.9	3.73	2.84	
7,687.0	93.50	266.60	7,107.2	-720.8	-319.5	319.5	3.69	3.09	
7,782.0	94.00	268.80	7,100.9	-724.6	-414.3	414.3	2.37	0.53	
7,877.0	94.10	269.00	7,094.2	-726.4	-509.0	509.0	0.23	0.11	
7,971.0	92.40	269.40	7,088.9	-727.7	-602.8	602.8	1.86	-1.81	
8,066.0	94.80	272.00	7,082.9	-726.6	-697.6	697.6	3.72	2.53	
8,160.0	93.10	272.70	7,076.5	-722.7	-791.3	791.3	1.96	-1.81	
8,255.0	90.80	272.70	7,073.2	-718.2	-886.2	886.2	2.42	-2.42	
8,349.0	88.70	271.00	7,073.6	-715.2	-980.1	980.1	2.87	-2.23	
8,444.0	90.70	269.80	7,074.1	-714.5	-1,075.1	1,075.1	2.46	2.11	
8,539.0	90.20	268.50	7,073.4	-715.9	-1,170.1	1,170.1	1.47	-0.53	
8,633.0	89.10	267.80	7,074.0	-719.0	-1,264.0	1,264.0	1.39	-1.17	
8,728.0	88.90	269.40	7,075.6	-721.3	-1,359.0	1,359.0	1.70	-0.21	
8,822.0	89.40	270.60	7,077.0	-721.3	-1,453.0	1,453.0	1.38	0.53	
8,917.0	88.30	270.00	7,078.9	-720.8	-1,547.9	1,547.9	1.32	-1.16	
9,012.0	91.90	269.70	7,078.8	-721.1	-1,642.9	1,642.9	3.80	3.79	
9,106.0	92.70	271.80	7,075.0	-719.8	-1,736.8	1,736.8	2.39	0.85	
9,201.0	90.20	271.50	7,072.6	-717.1	-1,831.7	1,831.7	2.65	-2.63	
9,295.0	90.30	271.10	7,072.2	-715.0	-1,925.7	1,925.7	0.44	0.11	
9,390.0	89.10	270.30	7,072.7	-713.8	-2,020.7	2,020.7	1.52	-1.26	
9,485.0	91.20	270.60	7,072.4	-713.1	-2,115.7	2,115.7	2.23	2.21	
9,579.0	91.40	270.60	7,070.3	-712.1	-2,209.7	2,209.7	0.21	0.21	
9,674.0	92.20	270.10	7,067.3	-711.5	-2,304.6	2,304.6	0.99	0.84	
9,768.0	90.10	269.80	7,065.4	-711.6	-2,398.6	2,398.6	2.26	-2.23	
9,863.0	90.10	270.20	7,065.3	-711.6	-2,493.6	2,493.6	0.42	0.00	
9,958.0	88.90	268.90	7,066.1	-712.3	-2,588.6	2,588.6	1.86	-1.26	

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 4F-6H-I368
Project:	DJ Wattenberg	TVD Reference:	30' KB @ 5141.0ft (H&P 522)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	30' KB @ 5141.0ft (H&P 522)
Well:	Drieth 4F-6H-I368	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
10,052.0	88.20	268.20	7,068.5	-714.7	-2,682.5	2,682.5	1.05	-0.74	
10,146.0	89.90	268.60	7,070.0	-717.3	-2,776.5	2,776.5	1.86	1.81	
10,241.0	90.40	268.50	7,069.8	-719.7	-2,871.4	2,871.4	0.54	0.53	
10,336.0	89.90	270.60	7,069.5	-720.5	-2,966.4	2,966.4	2.27	-0.53	
10,430.0	90.80	272.80	7,069.0	-717.7	-3,060.4	3,060.4	2.53	0.96	
10,525.0	90.10	271.30	7,068.2	-714.3	-3,155.3	3,155.3	1.74	-0.74	
10,619.0	90.10	271.00	7,068.0	-712.4	-3,249.3	3,249.3	0.32	0.00	
10,714.0	89.20	269.80	7,068.6	-711.7	-3,344.3	3,344.3	1.58	-0.95	
10,808.0	88.50	270.20	7,070.5	-711.7	-3,438.3	3,438.3	0.86	-0.74	
10,903.0	87.10	269.60	7,074.2	-711.9	-3,533.2	3,533.2	1.60	-1.47	
10,998.0	87.50	271.00	7,078.6	-711.4	-3,628.1	3,628.1	1.53	0.42	
11,092.0	89.30	269.10	7,081.3	-711.3	-3,722.0	3,722.0	2.78	1.91	
11,187.0	92.70	269.00	7,079.6	-712.9	-3,817.0	3,817.0	3.58	3.58	
11,281.0	93.10	268.40	7,074.8	-715.0	-3,910.9	3,910.9	0.77	0.43	
11,376.0	93.50	268.40	7,069.4	-717.7	-4,005.7	4,005.7	0.42	0.42	
11,433.0	94.40	267.80	7,065.4	-719.6	-4,062.5	4,062.5	1.90	1.58	Last CES Survey @ 11,433' MD
11,486.0	94.40	267.80	7,061.4	-721.6	-4,115.3	4,115.3	0.00	0.00	PTB @ 11,486' MD

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									
Drieth 4F-6H-I368 7600'	0.00	0.00	7,100.0	-706.5	-216.9	1,335,033.13	3,128,587.73	40.252141	-105.039327
- actual wellpath misses target center by 12.3ft at 7583.1ft MD (7110.6 TVD, -712.7 N, -216.0 E)									
- Point									
Drieth 4F-6H-I368 PBHL	0.00	0.00	7,061.0	-706.4	-4,156.1	1,335,012.78	3,124,648.56	40.252140	-105.053440
- actual wellpath misses target center by 43.5ft at 11486.0ft MD (7061.4 TVD, -721.6 N, -4115.3 E)									
- Point									
Drieth 4F-6H-I368 PBHL	0.00	0.00	6,998.0	-706.4	-4,156.1	1,335,012.78	3,124,648.56	40.252140	-105.053440
- actual wellpath misses target center by 76.9ft at 11486.0ft MD (7061.4 TVD, -721.6 N, -4115.3 E)									
- Point									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,433.0	7,065.4	-719.6	-4,062.5	Last CES Survey @ 11,433' MD
11,486.0	7,061.4	-721.6	-4,115.3	PTB @ 11,486' MD

Checked By: _____	Approved By: _____	Date: _____
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