



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 1A-6H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5100.0ft (Ensign 135)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	WELL @ 5100.0ft (Ensign 135)
Well:	Drieth 1A-6H-A368	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 1A-6H-A368					
Well Position	+N/-S	0.0 ft	Northing:	1,337,963.46 ft	Latitude:	40.260180
	+E/-W	0.0 ft	Easting:	3,128,900.97 ft	Longitude:	-105.038150
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,087.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/30/2014	8.55	66.78	52,680

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

Survey Program	Date	10/14/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	11,498.0	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		
143.0	0.60	17.90	143.0	0.7	0.2	-0.2	0.42	0.42		
235.0	0.30	10.00	235.0	1.4	0.4	-0.4	0.33	-0.33		
326.0	1.10	19.60	326.0	2.5	0.8	-0.8	0.89	0.88		
418.0	2.20	39.40	417.9	4.7	2.2	-2.2	1.33	1.20		
510.0	3.40	28.10	509.8	8.4	4.6	-4.6	1.43	1.30		
601.0	4.40	27.30	600.6	13.9	7.4	-7.4	1.10	1.10		
692.0	5.30	34.30	691.3	20.5	11.4	-11.4	1.18	0.99		
805.0	5.90	33.40	803.8	29.6	17.6	-17.6	0.54	0.53		
915.0	6.00	24.10	913.2	39.6	23.0	-23.0	0.88	0.09		
1,006.0	6.40	26.20	1,003.6	48.5	27.2	-27.2	0.51	0.44		
1,097.0	7.60	44.00	1,094.0	57.4	33.6	-33.6	2.71	1.32		
1,189.0	7.70	28.90	1,185.2	67.2	40.8	-40.8	2.18	0.11		

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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
1,281.0	7.40	55.50	1,276.4	75.9	48.7	-48.7	3.78	-0.33	
1,373.0	7.80	49.20	1,367.6	83.4	58.3	-58.3	1.00	0.43	
1,464.0	8.10	42.40	1,457.7	92.1	67.3	-67.3	1.08	0.33	
1,556.0	5.60	51.00	1,549.1	99.7	75.2	-75.2	2.93	-2.72	
1,648.0	5.20	52.80	1,640.6	105.1	82.0	-82.0	0.47	-0.43	
1,739.0	5.30	51.40	1,731.3	110.2	88.5	-88.5	0.18	0.11	
1,831.0	5.20	41.70	1,822.9	116.0	94.6	-94.6	0.97	-0.11	
1,923.0	5.40	31.80	1,914.5	122.8	99.7	-99.7	1.02	0.22	
2,015.0	5.40	30.70	2,006.1	130.2	104.2	-104.2	0.11	0.00	
2,106.0	5.60	23.20	2,096.7	137.9	108.1	-108.1	0.82	0.22	
2,198.0	5.60	16.90	2,188.2	146.3	111.2	-111.2	0.67	0.00	
2,289.0	7.40	41.70	2,278.7	155.0	116.4	-116.4	3.62	1.98	
2,381.0	7.50	32.00	2,369.9	164.5	123.5	-123.5	1.37	0.11	
2,476.0	7.40	22.70	2,464.1	175.4	129.1	-129.1	1.27	-0.11	
2,571.0	7.10	39.50	2,558.3	185.6	135.2	-135.2	2.25	-0.32	
2,665.0	6.90	29.10	2,651.6	195.0	141.7	-141.7	1.36	-0.21	
2,760.0	6.00	44.30	2,746.0	203.5	147.9	-147.9	2.02	-0.95	
2,854.0	5.60	34.00	2,839.6	210.8	153.9	-153.9	1.18	-0.43	
2,949.0	5.10	27.40	2,934.1	218.4	158.5	-158.5	0.83	-0.53	
3,043.0	4.10	17.90	3,027.8	225.3	161.4	-161.4	1.33	-1.06	
3,138.0	6.90	20.80	3,122.4	233.9	164.5	-164.5	2.96	2.95	
3,233.0	6.80	49.60	3,216.7	242.9	170.8	-170.8	3.58	-0.11	
3,327.0	5.80	42.00	3,310.2	250.0	178.2	-178.2	1.38	-1.06	
3,422.0	4.90	39.90	3,404.8	256.7	184.0	-184.0	0.97	-0.95	
3,516.0	4.50	36.40	3,498.5	262.7	188.8	-188.8	0.52	-0.43	
3,611.0	4.10	31.60	3,593.2	268.6	192.8	-192.8	0.57	-0.42	
3,705.0	6.10	46.60	3,686.8	274.9	198.2	-198.2	2.54	2.13	
3,800.0	5.70	43.10	3,781.3	281.8	205.1	-205.1	0.57	-0.42	
3,895.0	6.20	38.90	3,875.8	289.3	211.5	-211.5	0.70	0.53	
3,990.0	5.30	31.00	3,970.3	297.0	217.0	-217.0	1.26	-0.95	
4,084.0	7.70	37.10	4,063.7	305.8	223.0	-223.0	2.65	2.55	
4,179.0	7.30	32.80	4,157.9	315.9	230.1	-230.1	0.73	-0.42	
4,274.0	6.60	31.60	4,252.2	325.7	236.3	-236.3	0.75	-0.74	
4,368.0	5.50	26.30	4,345.7	334.3	241.1	-241.1	1.31	-1.17	
4,463.0	6.70	48.50	4,440.1	342.1	247.3	-247.3	2.76	1.26	
4,557.0	6.40	44.40	4,533.5	349.4	255.0	-255.0	0.59	-0.32	
4,651.0	6.00	39.10	4,627.0	357.0	261.8	-261.8	0.74	-0.43	
4,746.0	4.90	32.00	4,721.6	364.3	267.1	-267.1	1.36	-1.16	
4,840.0	5.50	48.50	4,815.2	370.7	272.6	-272.6	1.71	0.64	
4,935.0	4.20	41.80	4,909.8	376.3	278.3	-278.3	1.49	-1.37	
5,029.0	5.80	45.60	5,003.5	382.2	284.0	-284.0	1.74	1.70	
5,124.0	5.20	49.70	5,098.0	388.3	290.7	-290.7	0.75	-0.63	
5,218.0	6.00	41.90	5,191.6	394.7	297.2	-297.2	1.17	0.85	
5,313.0	6.40	53.50	5,286.0	401.6	304.8	-304.8	1.38	0.42	
5,407.0	4.60	45.10	5,379.6	407.3	311.7	-311.7	2.09	-1.91	
5,502.0	6.00	28.60	5,474.2	414.4	316.8	-316.8	2.16	1.47	
5,596.0	7.50	26.80	5,567.5	424.2	321.9	-321.9	1.61	1.60	
5,691.0	6.00	16.90	5,661.9	434.5	326.1	-326.1	1.99	-1.58	
5,786.0	7.30	36.70	5,756.3	444.1	331.2	-331.2	2.75	1.37	
5,880.0	5.00	23.80	5,849.7	452.6	336.4	-336.4	2.84	-2.45	
5,975.0	6.00	35.90	5,944.3	460.4	341.0	-341.0	1.61	1.05	
6,069.0	5.60	36.90	6,037.8	468.1	346.6	-346.6	0.44	-0.43	
6,164.0	6.30	48.80	6,132.3	475.2	353.3	-353.3	1.49	0.74	

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6,258.0	6.00	48.00	6,225.7	481.9	360.9	-360.9	0.33	-0.32	
6,305.0	4.60	42.60	6,272.5	484.9	364.0	-364.0	3.16	-2.98	
6,353.0	4.00	30.10	6,320.4	487.8	366.1	-366.1	2.31	-1.25	
6,400.0	7.40	9.50	6,367.2	492.2	367.4	-367.4	8.33	7.23	
6,448.0	9.50	357.30	6,414.7	499.2	367.7	-367.7	5.73	4.37	
6,495.0	10.90	323.60	6,461.0	506.6	364.9	-364.9	12.84	2.98	
6,542.0	11.60	311.10	6,507.1	513.3	358.7	-358.7	5.39	1.49	
6,589.0	12.60	286.60	6,553.0	517.9	350.2	-350.2	11.05	2.13	
6,637.0	13.80	277.30	6,599.8	520.1	339.5	-339.5	5.07	2.50	
6,684.0	16.10	280.90	6,645.2	522.1	327.6	-327.6	5.28	4.89	
6,731.0	17.30	274.10	6,690.2	523.8	314.2	-314.2	4.87	2.55	
6,778.0	21.00	273.90	6,734.6	524.9	298.8	-298.8	7.87	7.87	
6,826.0	25.70	272.50	6,778.7	525.9	279.8	-279.8	9.86	9.79	
6,873.0	30.20	273.90	6,820.2	527.2	257.9	-257.9	9.68	9.57	
6,921.0	33.30	274.60	6,861.0	529.0	232.7	-232.7	6.50	6.46	
6,968.0	37.10	275.00	6,899.4	531.3	205.7	-205.7	8.10	8.09	
7,015.0	40.70	275.90	6,935.9	534.1	176.3	-176.3	7.75	7.66	
7,030.0	41.90	276.00	6,947.2	535.2	166.5	-166.5	8.01	8.00	
7,062.0	41.80	275.90	6,971.1	537.4	145.2	-145.2	0.38	-0.31	
7,110.0	47.30	273.30	7,005.3	540.0	111.7	-111.7	12.07	11.46	
7,141.0	51.90	271.10	7,025.3	540.9	88.1	-88.1	15.79	14.84	
7,173.0	57.60	267.90	7,043.8	540.7	62.0	-62.0	19.59	17.81	
7,205.0	63.90	265.90	7,059.4	539.1	34.1	-34.1	20.43	19.69	
7,236.0	70.90	266.10	7,071.3	537.2	5.6	-5.6	22.59	22.58	
7,258.0	75.50	267.20	7,077.7	535.9	-15.4	15.4	21.45	20.91	
7,322.0	84.30	275.20	7,088.9	537.3	-78.3	78.3	18.44	13.75	
7,417.0	86.20	273.40	7,096.8	544.4	-172.7	172.7	2.75	2.00	
7,512.0	88.30	273.00	7,101.4	549.7	-267.4	267.4	2.25	2.21	
7,606.0	90.70	271.80	7,102.2	553.6	-361.4	361.4	2.85	2.55	
7,701.0	93.10	271.30	7,099.0	556.2	-456.3	456.3	2.58	2.53	
7,795.0	91.30	270.30	7,095.4	557.5	-550.2	550.2	2.19	-1.91	
7,890.0	91.50	269.40	7,093.1	557.3	-645.1	645.1	0.97	0.21	
7,984.0	90.60	268.90	7,091.4	555.9	-739.1	739.1	1.10	-0.96	
8,079.0	87.60	268.30	7,092.9	553.5	-834.1	834.1	3.22	-3.16	
8,173.0	90.80	268.40	7,094.2	550.8	-928.0	928.0	3.41	3.40	
8,268.0	90.10	269.40	7,093.4	549.0	-1,023.0	1,023.0	1.28	-0.74	
8,363.0	91.90	271.30	7,091.8	549.6	-1,118.0	1,118.0	2.75	1.89	
8,457.0	92.30	270.30	7,088.3	550.9	-1,211.9	1,211.9	1.15	0.43	
8,552.0	91.60	268.70	7,085.1	550.1	-1,306.8	1,306.8	1.84	-0.74	
8,647.0	92.30	270.90	7,081.9	549.7	-1,401.8	1,401.8	2.43	0.74	
8,742.0	91.30	269.20	7,078.9	549.8	-1,496.7	1,496.7	2.08	-1.05	
8,836.0	92.70	271.30	7,075.6	550.2	-1,590.6	1,590.6	2.68	1.49	
8,931.0	92.40	270.20	7,071.4	551.5	-1,685.5	1,685.5	1.20	-0.32	
9,026.0	93.70	270.00	7,066.3	551.6	-1,780.4	1,780.4	1.38	1.37	
9,120.0	96.00	272.50	7,058.4	553.7	-1,874.0	1,874.0	3.61	2.45	
9,215.0	94.00	272.40	7,050.1	557.7	-1,968.6	1,968.6	2.11	-2.11	
9,309.0	89.20	271.50	7,047.5	560.9	-2,062.5	2,062.5	5.20	-5.11	
9,404.0	91.60	269.30	7,046.8	561.6	-2,157.4	2,157.4	3.43	2.53	
9,499.0	89.40	270.90	7,046.0	561.8	-2,252.4	2,252.4	2.86	-2.32	
9,593.0	87.90	270.40	7,048.2	562.8	-2,346.4	2,346.4	1.68	-1.60	
9,688.0	89.00	269.50	7,050.8	562.7	-2,441.4	2,441.4	1.50	1.16	
9,782.0	87.00	268.20	7,054.0	560.9	-2,535.3	2,535.3	2.54	-2.13	
9,877.0	87.80	268.40	7,058.3	558.0	-2,630.1	2,630.1	0.87	0.84	

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Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
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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
9,972.0	89.80	268.50	7,060.3	555.5	-2,725.1	2,725.1	2.11	2.11	
10,066.0	94.80	270.60	7,056.6	554.7	-2,819.0	2,819.0	5.77	5.32	
10,161.0	96.40	270.00	7,047.3	555.2	-2,913.5	2,913.5	1.80	1.68	
10,255.0	93.70	273.50	7,039.0	558.1	-3,007.1	3,007.1	4.69	-2.87	
10,350.0	94.10	272.70	7,032.6	563.2	-3,101.7	3,101.7	0.94	0.42	
10,444.0	92.60	271.30	7,027.1	566.5	-3,195.5	3,195.5	2.18	-1.60	
10,539.0	92.50	271.40	7,022.8	568.7	-3,290.4	3,290.4	0.15	-0.11	
10,634.0	90.80	270.50	7,020.1	570.3	-3,385.3	3,385.3	2.02	-1.79	
10,728.0	89.30	269.20	7,020.0	570.1	-3,479.3	3,479.3	2.11	-1.60	
10,823.0	89.50	269.80	7,021.0	569.2	-3,574.3	3,574.3	0.67	0.21	
10,917.0	92.10	268.70	7,019.7	568.0	-3,668.3	3,668.3	3.00	2.77	
11,012.0	91.60	266.90	7,016.6	564.3	-3,763.2	3,763.2	1.97	-0.53	
11,107.0	92.90	268.50	7,012.9	560.5	-3,858.0	3,858.0	2.17	1.37	
11,201.0	91.90	267.10	7,009.0	556.9	-3,951.8	3,951.8	1.83	-1.06	
11,296.0	92.90	265.80	7,005.0	551.1	-4,046.6	4,046.6	1.73	1.05	
11,390.0	92.60	265.60	7,000.5	544.0	-4,140.2	4,140.2	0.38	-0.32	
11,446.0	92.50	263.90	6,998.0	538.9	-4,195.9	4,195.9	3.04	-0.18	Last CES Survey @ 11,446' MD
11,498.0	92.50	263.90	6,995.7	533.4	-4,247.5	4,247.5	0.00	0.00	PTB @ 11,498'

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Drieth 1A-6H PBHL - actual wellpath misses target center by 52.9ft at 11498.0ft MD (6995.7 TVD, 533.4 N, -4247.5 E) - Point	0.00	0.00	7,037.0	557.7	-4,269.9	1,338,498.95	3,124,628.22	40.261710	-105.053450
Drieth 1A-6H PBHL P2 - actual wellpath misses target center by 33.1ft at 11498.0ft MD (6995.7 TVD, 533.4 N, -4247.5 E) - Point	0.00	0.00	6,997.6	557.7	-4,269.9	1,338,498.95	3,124,628.22	40.261710	-105.053450
Drieth 1A-6H-A368 TGT - actual wellpath misses target center by 13.2ft at 7444.2ft MD (7098.5 TVD, 546.0 N, -199.8 E) - Point	0.00	0.00	7,105.0	557.4	-198.9	1,338,519.85	3,128,699.18	40.261710	-105.038863

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	+E/-W (ft)	Comment
11,446.0	6,998.0	538.9	-4,195.9	Last CES Survey @ 11,446' MD
11,498.0	6,995.7	533.4	-4,247.5	PTB @ 11,498'

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S6-T3N-R68W (Zisch/Drieth)

Drieth 1A-6H-A368

Hz

Design: FINAL

Survey Report - Geographic

14 October, 2014

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 1A-6H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5100.0ft (Ensign 135)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	WELL @ 5100.0ft (Ensign 135)
Well:	Drieth 1A-6H-A368	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 1A-6H-A368					
Well Position	+N/-S	0.0 ft	Northing:	1,337,963.46 ft	Latitude:	40.260180
	+E/-W	0.0 ft	Easting:	3,128,900.97 ft	Longitude:	-105.038150
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,087.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/30/2014	8.55	66.78	52,680

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

Survey Program	Date	10/14/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
143.0	11,498.0	Survey #1 (Hz)	Geolink MWD	Geolink MWD	

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	1,337,963.46	3,128,900.97	40.260180	-105.038150	
143.0	0.60	17.90	143.0	0.7	0.2	1,337,964.17	3,128,901.20	40.260182	-105.038149	
235.0	0.30	10.00	235.0	1.4	0.4	1,337,964.87	3,128,901.39	40.260184	-105.038149	
326.0	1.10	19.60	326.0	2.5	0.8	1,337,965.93	3,128,901.71	40.260187	-105.038148	
418.0	2.20	39.40	417.9	4.7	2.2	1,337,968.13	3,128,903.12	40.260193	-105.038142	
510.0	3.40	28.10	509.8	8.4	4.6	1,337,971.92	3,128,905.51	40.260203	-105.038134	
601.0	4.40	27.30	600.6	13.9	7.4	1,337,977.41	3,128,908.35	40.260218	-105.038124	
692.0	5.30	34.30	691.3	20.5	11.4	1,337,984.01	3,128,912.28	40.260236	-105.038109	
805.0	5.90	33.40	803.8	29.6	17.6	1,337,993.20	3,128,918.38	40.260261	-105.038087	
915.0	6.00	24.10	913.2	39.6	23.0	1,338,003.20	3,128,923.78	40.260289	-105.038068	
1,006.0	6.40	26.20	1,003.6	48.5	27.2	1,338,012.11	3,128,927.92	40.260313	-105.038053	
1,097.0	7.60	44.00	1,094.0	57.4	33.6	1,338,021.02	3,128,934.29	40.260338	-105.038030	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 1A-6H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5100.0ft (Ensign 135)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	WELL @ 5100.0ft (Ensign 135)
Well:	Drieth 1A-6H-A368	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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
1,189.0	7.70	28.90	1,185.2	67.2	40.8	1,338,030.83	3,128,941.45	40.260364	-105.038004
1,281.0	7.40	55.50	1,276.4	75.9	48.7	1,338,039.63	3,128,949.26	40.260388	-105.037976
1,373.0	7.80	49.20	1,367.6	83.4	58.3	1,338,047.11	3,128,958.83	40.260409	-105.037941
1,464.0	8.10	42.40	1,457.7	92.1	67.3	1,338,055.93	3,128,967.79	40.260433	-105.037909
1,556.0	5.60	51.00	1,549.1	99.7	75.2	1,338,063.58	3,128,975.61	40.260454	-105.037881
1,648.0	5.20	52.80	1,640.6	105.1	82.0	1,338,068.97	3,128,982.39	40.260469	-105.037857
1,739.0	5.30	51.40	1,731.3	110.2	88.5	1,338,074.11	3,128,988.93	40.260483	-105.037833
1,831.0	5.20	41.70	1,822.9	116.0	94.6	1,338,079.91	3,128,995.00	40.260498	-105.037811
1,923.0	5.40	31.80	1,914.5	122.8	99.7	1,338,086.73	3,129,000.01	40.260517	-105.037793
2,015.0	5.40	30.70	2,006.1	130.2	104.2	1,338,094.15	3,129,004.47	40.260537	-105.037777
2,106.0	5.60	23.20	2,096.7	137.9	108.1	1,338,101.94	3,129,008.36	40.260559	-105.037763
2,198.0	5.60	16.90	2,188.2	146.3	111.2	1,338,110.37	3,129,011.39	40.260582	-105.037752
2,289.0	7.40	41.70	2,278.7	155.0	116.4	1,338,119.03	3,129,016.54	40.260605	-105.037733
2,381.0	7.50	32.00	2,369.9	164.5	123.5	1,338,128.58	3,129,023.61	40.260632	-105.037708
2,476.0	7.40	22.70	2,464.1	175.4	129.1	1,338,139.51	3,129,029.20	40.260661	-105.037688
2,571.0	7.10	39.50	2,558.3	185.6	135.2	1,338,149.72	3,129,035.24	40.260689	-105.037666
2,665.0	6.90	29.10	2,651.6	195.0	141.7	1,338,159.17	3,129,041.64	40.260715	-105.037643
2,760.0	6.00	44.30	2,746.0	203.5	147.9	1,338,167.74	3,129,047.83	40.260739	-105.037620
2,854.0	5.60	34.00	2,839.6	210.8	153.9	1,338,175.09	3,129,053.79	40.260759	-105.037599
2,949.0	5.10	27.40	2,934.1	218.4	158.5	1,338,182.71	3,129,058.29	40.260780	-105.037582
3,043.0	4.10	17.90	3,027.8	225.3	161.4	1,338,189.63	3,129,061.21	40.260799	-105.037572
3,138.0	6.90	20.80	3,122.4	233.9	164.5	1,338,198.21	3,129,064.23	40.260822	-105.037561
3,233.0	6.80	49.60	3,216.7	242.9	170.8	1,338,207.23	3,129,070.50	40.260847	-105.037538
3,327.0	5.80	42.00	3,310.2	250.0	178.2	1,338,214.40	3,129,077.88	40.260866	-105.037512
3,422.0	4.90	39.90	3,404.8	256.7	184.0	1,338,221.11	3,129,083.66	40.260885	-105.037491
3,516.0	4.50	36.40	3,498.5	262.7	188.8	1,338,227.19	3,129,088.39	40.260901	-105.037474
3,611.0	4.10	31.60	3,593.2	268.6	192.8	1,338,233.10	3,129,092.35	40.260917	-105.037460
3,705.0	6.10	46.60	3,686.8	274.9	198.2	1,338,239.42	3,129,097.71	40.260935	-105.037440
3,800.0	5.70	43.10	3,781.3	281.8	205.1	1,338,246.37	3,129,104.56	40.260954	-105.037415
3,895.0	6.20	38.90	3,875.8	289.3	211.5	1,338,253.84	3,129,110.97	40.260974	-105.037392
3,990.0	5.30	31.00	3,970.3	297.0	217.0	1,338,261.62	3,129,116.41	40.260995	-105.037373
4,084.0	7.70	37.10	4,063.7	305.8	223.0	1,338,270.40	3,129,122.40	40.261019	-105.037351
4,179.0	7.30	32.80	4,157.9	315.9	230.1	1,338,280.59	3,129,129.45	40.261047	-105.037326
4,274.0	6.60	31.60	4,252.2	325.7	236.3	1,338,290.34	3,129,135.53	40.261074	-105.037304
4,368.0	5.50	26.30	4,345.7	334.3	241.1	1,338,299.01	3,129,140.32	40.261098	-105.037286
4,463.0	6.70	48.50	4,440.1	342.1	247.3	1,338,306.79	3,129,146.44	40.261119	-105.037264
4,557.0	6.40	44.40	4,533.5	349.4	255.0	1,338,314.21	3,129,154.18	40.261139	-105.037236
4,651.0	6.00	39.10	4,627.0	357.0	261.8	1,338,321.80	3,129,160.90	40.261160	-105.037212
4,746.0	4.90	32.00	4,721.6	364.3	267.1	1,338,329.12	3,129,166.15	40.261180	-105.037193
4,840.0	5.50	48.50	4,815.2	370.7	272.6	1,338,335.54	3,129,171.61	40.261198	-105.037174
4,935.0	4.20	41.80	4,909.8	376.3	278.3	1,338,341.18	3,129,177.31	40.261213	-105.037153
5,029.0	5.80	45.60	5,003.5	382.2	284.0	1,338,347.10	3,129,182.97	40.261229	-105.037133
5,124.0	5.20	49.70	5,098.0	388.3	290.7	1,338,353.28	3,129,189.65	40.261246	-105.037109
5,218.0	6.00	41.90	5,191.6	394.7	297.2	1,338,359.72	3,129,196.15	40.261264	-105.037085
5,313.0	6.40	53.50	5,286.0	401.6	304.8	1,338,366.61	3,129,203.69	40.261282	-105.037058
5,407.0	4.60	45.10	5,379.6	407.3	311.7	1,338,372.42	3,129,210.54	40.261298	-105.037033
5,502.0	6.00	28.60	5,474.2	414.4	316.8	1,338,379.50	3,129,215.58	40.261318	-105.037015
5,596.0	7.50	26.80	5,567.5	424.2	321.9	1,338,389.31	3,129,220.64	40.261344	-105.036997
5,691.0	6.00	16.90	5,661.9	434.5	326.1	1,338,399.62	3,129,224.83	40.261373	-105.036982
5,786.0	7.30	36.70	5,756.3	444.1	331.2	1,338,409.24	3,129,229.83	40.261399	-105.036964
5,880.0	5.00	23.80	5,849.7	452.6	336.4	1,338,417.80	3,129,235.01	40.261422	-105.036945
5,975.0	6.00	35.90	5,944.3	460.4	341.0	1,338,425.64	3,129,239.55	40.261444	-105.036928
6,069.0	5.60	36.90	6,037.8	468.1	346.6	1,338,433.31	3,129,245.15	40.261465	-105.036908
6,164.0	6.30	48.80	6,132.3	475.2	353.3	1,338,440.49	3,129,251.81	40.261485	-105.036884
6,258.0	6.00	48.00	6,225.7	481.9	360.9	1,338,447.21	3,129,259.31	40.261503	-105.036857

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 1A-6H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5100.0ft (Ensign 135)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	WELL @ 5100.0ft (Ensign 135)
Well:	Drieth 1A-6H-A368	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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
6,305.0	4.60	42.60	6,272.5	484.9	364.0	1,338,450.26	3,129,262.40	40.261511	-105.036846
6,353.0	4.00	30.10	6,320.4	487.8	366.1	1,338,453.14	3,129,264.52	40.261519	-105.036838
6,400.0	7.40	9.50	6,367.2	492.2	367.4	1,338,457.55	3,129,265.82	40.261531	-105.036834
6,448.0	9.50	357.30	6,414.7	499.2	367.7	1,338,464.56	3,129,266.11	40.261550	-105.036833
6,495.0	10.90	323.60	6,461.0	506.6	364.9	1,338,472.00	3,129,263.25	40.261571	-105.036843
6,542.0	11.60	311.10	6,507.1	513.3	358.7	1,338,478.65	3,129,257.01	40.261589	-105.036865
6,589.0	12.60	286.60	6,553.0	517.9	350.2	1,338,483.18	3,129,248.51	40.261602	-105.036895
6,637.0	13.80	277.30	6,599.8	520.1	339.5	1,338,485.35	3,129,237.80	40.261608	-105.036934
6,684.0	16.10	280.90	6,645.2	522.1	327.6	1,338,487.23	3,129,225.83	40.261613	-105.036976
6,731.0	17.30	274.10	6,690.2	523.8	314.2	1,338,488.90	3,129,212.45	40.261618	-105.037024
6,778.0	21.00	273.90	6,734.6	524.9	298.8	1,338,489.89	3,129,197.07	40.261621	-105.037079
6,826.0	25.70	272.50	6,778.7	525.9	279.8	1,338,490.83	3,129,178.07	40.261624	-105.037148
6,873.0	30.20	273.90	6,820.2	527.2	257.9	1,338,491.96	3,129,156.08	40.261627	-105.037226
6,921.0	33.30	274.60	6,861.0	529.0	232.7	1,338,493.71	3,129,130.89	40.261632	-105.037317
6,968.0	37.10	275.00	6,899.4	531.3	205.7	1,338,495.84	3,129,103.88	40.261639	-105.037413
7,015.0	40.70	275.90	6,935.9	534.1	176.3	1,338,498.50	3,129,074.49	40.261646	-105.037519
7,030.0	41.90	276.00	6,947.2	535.2	166.5	1,338,499.47	3,129,064.64	40.261649	-105.037554
7,062.0	41.80	275.90	6,971.1	537.4	145.2	1,338,501.58	3,129,043.40	40.261655	-105.037630
7,110.0	47.30	273.30	7,005.3	540.0	111.7	1,338,504.06	3,129,009.83	40.261662	-105.037750
7,141.0	51.90	271.10	7,025.3	540.9	88.1	1,338,504.83	3,128,986.25	40.261665	-105.037835
7,173.0	57.60	267.90	7,043.8	540.7	62.0	1,338,504.44	3,128,960.13	40.261664	-105.037928
7,205.0	63.90	265.90	7,059.4	539.1	34.1	1,338,502.77	3,128,932.28	40.261660	-105.038028
7,236.0	70.90	266.10	7,071.3	537.2	5.6	1,338,500.63	3,128,903.76	40.261655	-105.038130
7,258.0	75.50	267.20	7,077.7	535.9	-15.4	1,338,499.29	3,128,882.75	40.261651	-105.038206
7,322.0	84.30	275.20	7,088.9	537.3	-78.3	1,338,500.34	3,128,819.86	40.261655	-105.038431
7,417.0	86.20	273.40	7,096.8	544.4	-172.7	1,338,506.95	3,128,725.43	40.261674	-105.038769
7,512.0	88.30	273.00	7,101.4	549.7	-267.4	1,338,511.75	3,128,630.66	40.261689	-105.039109
7,606.0	90.70	271.80	7,102.2	553.6	-361.4	1,338,515.20	3,128,536.74	40.261700	-105.039445
7,701.0	93.10	271.30	7,099.0	556.2	-456.3	1,338,517.27	3,128,441.82	40.261707	-105.039785
7,795.0	91.30	270.30	7,095.4	557.5	-550.2	1,338,518.09	3,128,347.90	40.261710	-105.040122
7,890.0	91.50	269.40	7,093.1	557.3	-645.1	1,338,517.35	3,128,252.93	40.261710	-105.040462
7,984.0	90.60	268.90	7,091.4	555.9	-739.1	1,338,515.47	3,128,158.97	40.261706	-105.040799
8,079.0	87.60	268.30	7,092.9	553.5	-834.1	1,338,512.65	3,128,064.03	40.261700	-105.041139
8,173.0	90.80	268.40	7,094.2	550.8	-928.0	1,338,509.46	3,127,970.11	40.261692	-105.041476
8,268.0	90.10	269.40	7,093.4	549.0	-1,023.0	1,338,507.14	3,127,875.14	40.261687	-105.041816
8,363.0	91.90	271.30	7,091.8	549.6	-1,118.0	1,338,507.22	3,127,780.16	40.261689	-105.042156
8,457.0	92.30	270.30	7,088.3	550.9	-1,211.9	1,338,508.04	3,127,686.23	40.261692	-105.042493
8,552.0	91.60	268.70	7,085.1	550.1	-1,306.8	1,338,506.72	3,127,591.30	40.261690	-105.042833
8,647.0	92.30	270.90	7,081.9	549.7	-1,401.8	1,338,505.89	3,127,496.36	40.261689	-105.043173
8,742.0	91.30	269.20	7,078.9	549.8	-1,496.7	1,338,505.48	3,127,401.41	40.261689	-105.043513
8,836.0	92.70	271.30	7,075.6	550.2	-1,590.6	1,338,505.40	3,127,307.48	40.261690	-105.043850
8,931.0	92.40	270.20	7,071.4	551.5	-1,685.5	1,338,506.15	3,127,212.58	40.261694	-105.044190
9,026.0	93.70	270.00	7,066.3	551.6	-1,780.4	1,338,505.82	3,127,117.71	40.261694	-105.044530
9,120.0	96.00	272.50	7,058.4	553.7	-1,874.0	1,338,507.37	3,127,024.08	40.261700	-105.044865
9,215.0	94.00	272.40	7,050.1	557.7	-1,968.6	1,338,510.93	3,126,929.51	40.261711	-105.045204
9,309.0	89.20	271.50	7,047.5	560.9	-2,062.5	1,338,513.63	3,126,835.61	40.261720	-105.045541
9,404.0	91.60	269.30	7,046.8	561.6	-2,157.4	1,338,513.80	3,126,740.63	40.261721	-105.045881
9,499.0	89.40	270.90	7,046.0	561.8	-2,252.4	1,338,513.47	3,126,645.64	40.261722	-105.046221
9,593.0	87.90	270.40	7,048.2	562.8	-2,346.4	1,338,514.05	3,126,551.67	40.261725	-105.046558
9,688.0	89.00	269.50	7,050.8	562.7	-2,441.4	1,338,513.47	3,126,456.71	40.261724	-105.046898
9,782.0	87.00	268.20	7,054.0	560.9	-2,535.3	1,338,511.10	3,126,362.81	40.261719	-105.047235
9,877.0	87.80	268.40	7,058.3	558.0	-2,630.1	1,338,507.79	3,126,267.96	40.261712	-105.047575
9,972.0	89.80	268.50	7,060.3	555.5	-2,725.1	1,338,504.73	3,126,173.04	40.261704	-105.047915
10,066.0	94.80	270.60	7,056.6	554.7	-2,819.0	1,338,503.50	3,126,079.16	40.261702	-105.048251
10,161.0	96.40	270.00	7,047.3	555.2	-2,913.5	1,338,503.50	3,125,984.61	40.261704	-105.048590

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Drieth 1A-6H-A368
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5100.0ft (Ensign 135)
Site:	S6-T3N-R68W (Zisch/Drieth)	MD Reference:	WELL @ 5100.0ft (Ensign 135)
Well:	Drieth 1A-6H-A368	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)	Map Northing (ft)	Map Easting (ft)	Latitude	Longitude
10,255.0	93.70	273.50	7,039.0	558.1	-3,007.1	1,338,505.88	3,125,891.03	40.261712	-105.048925
10,350.0	94.10	272.70	7,032.6	563.2	-3,101.7	1,338,510.51	3,125,796.36	40.261726	-105.049264
10,444.0	92.60	271.30	7,027.1	566.5	-3,195.5	1,338,513.30	3,125,702.57	40.261735	-105.049600
10,539.0	92.50	271.40	7,022.8	568.7	-3,290.4	1,338,515.04	3,125,607.68	40.261741	-105.049940
10,634.0	90.80	270.50	7,020.1	570.3	-3,385.3	1,338,516.12	3,125,512.73	40.261745	-105.050281
10,728.0	89.30	269.20	7,020.0	570.1	-3,479.3	1,338,515.38	3,125,418.74	40.261744	-105.050617
10,823.0	89.50	269.80	7,021.0	569.2	-3,574.3	1,338,514.06	3,125,323.75	40.261742	-105.050958
10,917.0	92.10	268.70	7,019.7	568.0	-3,668.3	1,338,512.34	3,125,229.79	40.261738	-105.051294
11,012.0	91.60	266.90	7,016.6	564.3	-3,763.2	1,338,508.20	3,125,134.93	40.261728	-105.051634
11,107.0	92.90	268.50	7,012.9	560.5	-3,858.0	1,338,503.89	3,125,040.11	40.261718	-105.051974
11,201.0	91.90	267.10	7,009.0	556.9	-3,951.8	1,338,499.80	3,124,946.28	40.261708	-105.052311
11,296.0	92.90	265.80	7,005.0	551.1	-4,046.6	1,338,493.43	3,124,851.58	40.261692	-105.052650
11,390.0	92.60	265.60	7,000.5	544.0	-4,140.2	1,338,485.90	3,124,757.99	40.261672	-105.052985
11,446.0	92.50	263.90	6,998.0	538.9	-4,195.9	1,338,480.50	3,124,702.34	40.261658	-105.053185
Last CES Survey @ 11,446' MD									
11,498.0	92.50	263.90	6,995.7	533.4	-4,247.5	1,338,474.71	3,124,650.71	40.261643	-105.053370
PTB @ 11,498'									

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									
Drieth 1A-6H PBHL P2	0.00	0.00	6,997.6	557.7	-4,269.9	1,338,498.95	3,124,628.22	40.261710	-105.053450
- actual wellpath misses target center by 33.1ft at 11498.0ft MD (6995.7 TVD, 533.4 N, -4247.5 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
11,446.0	6,998.0	538.9	-4,195.9	Last CES Survey @ 11,446' MD	
11,498.0	6,995.7	533.4	-4,247.5	PTB @ 11,498'	

Checked By: _____ Approved By: _____ Date: _____