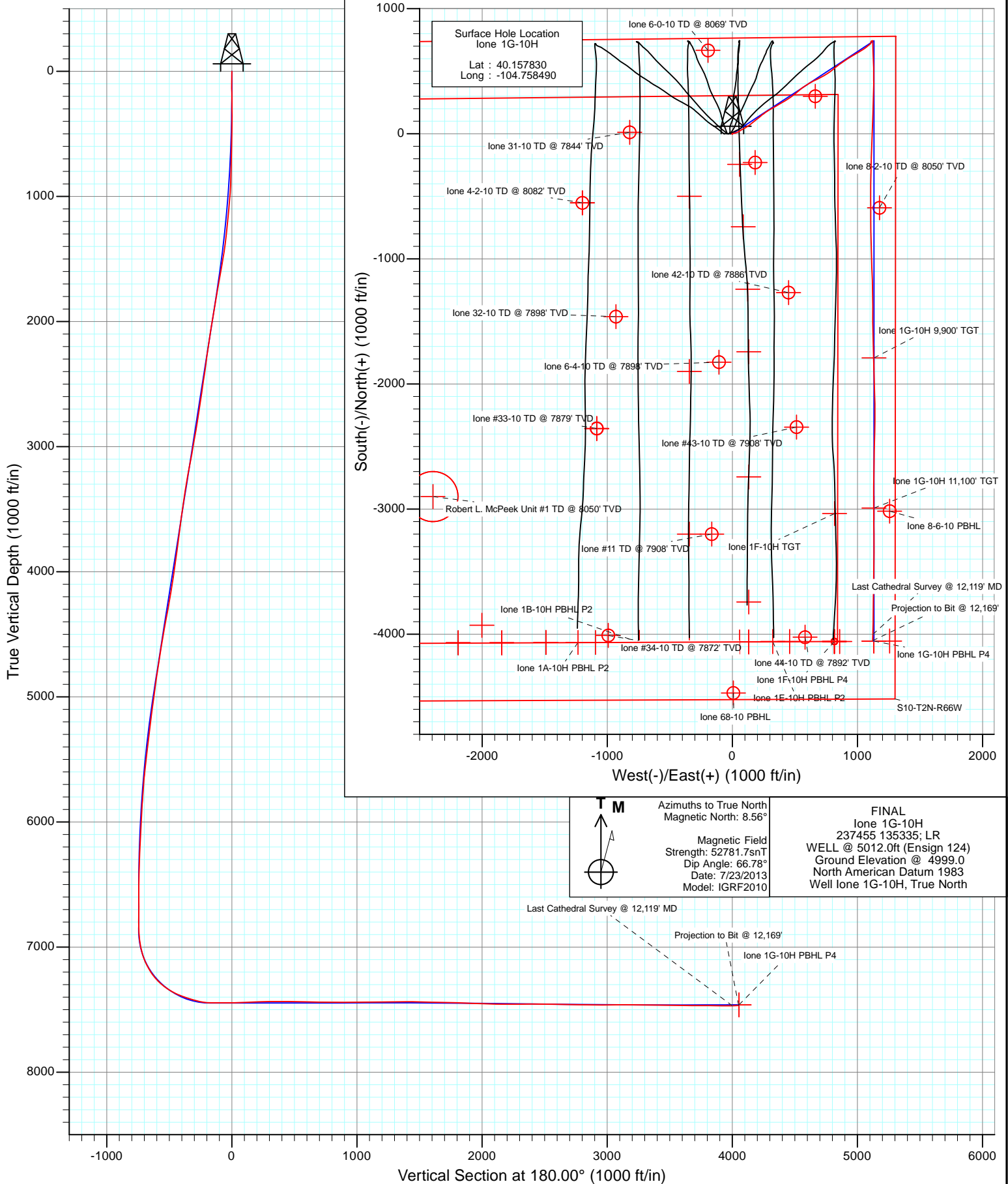


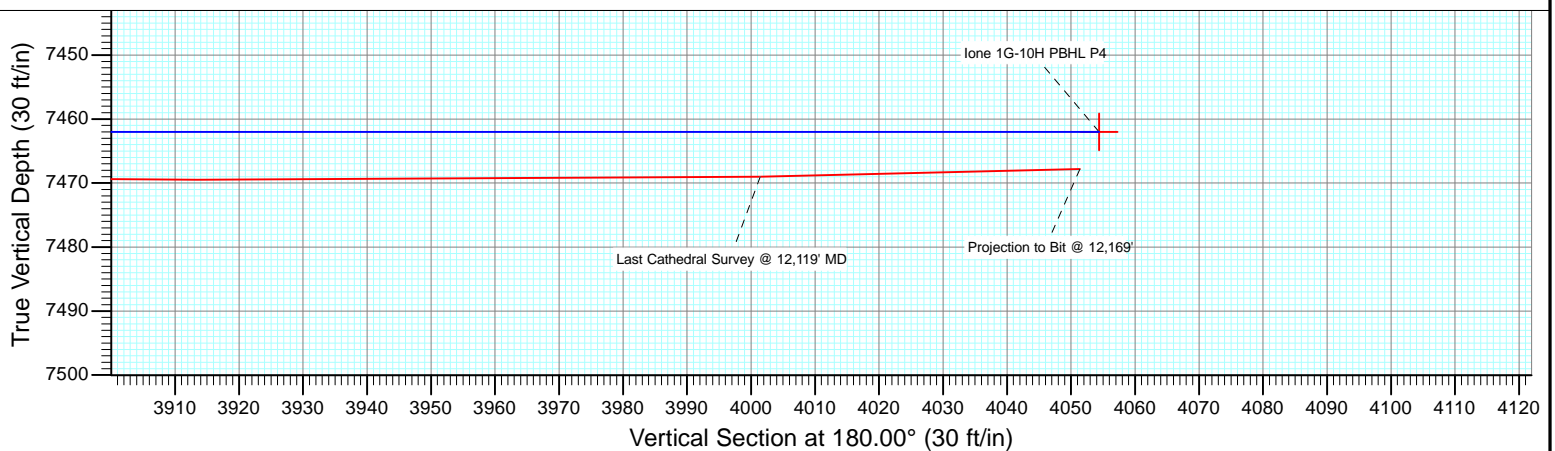
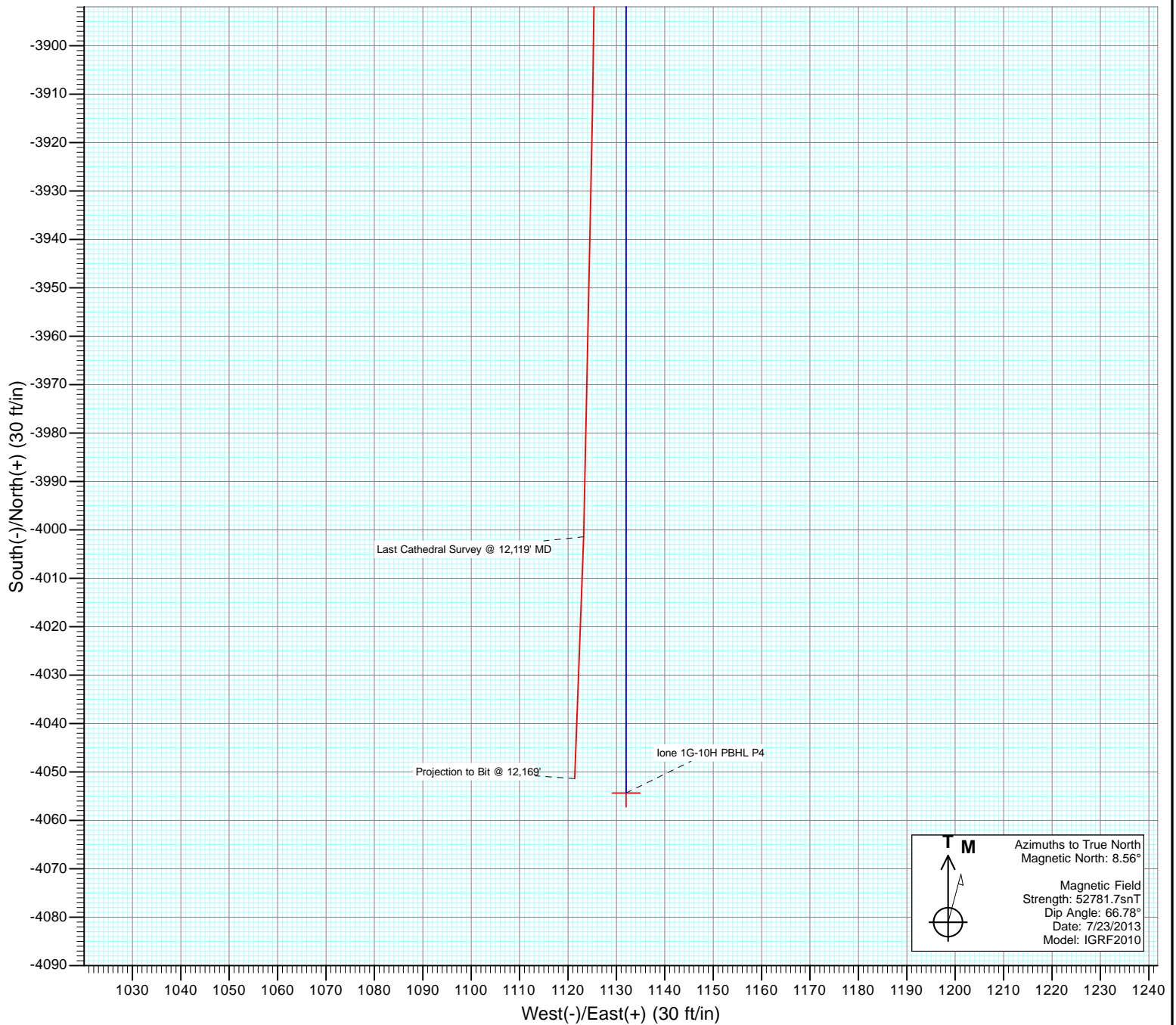


Project: DJ Wattenberg
Site: S10-T2N-R66W (Ione)
Well: Ione 1G-10H
Wellbore: Hz
Design: FINAL





Project: DJ Wattenberg
Site: S10-T2N-R66W (Ione)
Well: Ione 1G-10H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1G-10H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5012.0ft (Ensign 124)
Site:	S10-T2N-R66W (lone)	MD Reference:	WELL @ 5012.0ft (Ensign 124)
Well:	lone 1G-10H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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		S10-T2N-R66W (lone)			
Site Position:		Northing:	1,297,164.02 ft	Latitude:	40.146710
From:	Lat/Long	Easting:	3,207,875.24 ft	Longitude:	-104.756410
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.48 °

Well	lone 1G-10H					
Well Position	+N/-S	0.0 ft	Northing:	1,301,209.77 ft	Latitude:	40.157830
	+E/-W	0.0 ft	Easting:	3,207,259.92 ft	Longitude:	-104.758490
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,999.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/23/2013	8.56	66.78	52,782

Design	Hz				
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	180.00	

Survey Program	Date	8/6/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
139.0	12,169.0	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		
139.0	0.10	279.20	139.0	0.0	-0.1	0.0	0.07	0.07		
170.0	0.40	211.70	170.0	-0.1	-0.2	0.1	1.20	0.97		
263.0	1.30	215.10	263.0	-1.2	-1.0	1.2	0.97	0.97		
356.0	0.30	280.20	356.0	-2.0	-1.8	2.0	1.30	-1.08		
449.0	1.20	39.30	449.0	-1.2	-1.4	1.2	1.47	0.97		
542.0	2.60	71.90	541.9	0.2	1.2	-0.2	1.84	1.51		
635.0	4.10	68.40	634.8	2.1	6.3	-2.1	1.63	1.61		
728.0	5.30	78.20	727.4	4.2	13.6	-4.2	1.55	1.29		
821.0	6.90	76.40	819.9	6.4	23.2	-6.4	1.73	1.72		
914.0	7.80	69.20	912.2	9.9	34.5	-9.9	1.38	0.97		
972.0	8.20	67.20	969.6	12.9	42.0	-12.9	0.84	0.69		
1,018.0	8.90	56.30	1,015.1	16.2	48.0	-16.2	3.83	1.52		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1G-10H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5012.0ft (Ensign 124)
Site:	S10-T2N-R66W (lone)	MD Reference:	WELL @ 5012.0ft (Ensign 124)
Well:	lone 1G-10H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
1,111.0	11.00	59.70	1,106.7	24.6	61.7	-24.6	2.34	2.26	
1,204.0	10.70	60.50	1,198.0	33.3	76.8	-33.3	0.36	-0.32	
1,297.0	11.80	62.60	1,289.2	42.0	92.8	-42.0	1.26	1.18	
1,390.0	14.50	59.40	1,379.8	52.3	111.3	-52.3	3.01	2.90	
1,483.0	15.70	53.10	1,469.6	65.8	131.3	-65.8	2.18	1.29	
1,576.0	15.20	51.60	1,559.2	80.9	151.0	-80.9	0.69	-0.54	
1,669.0	15.90	52.90	1,648.8	96.2	170.7	-96.2	0.84	0.75	
1,762.0	15.60	49.70	1,738.3	111.9	190.4	-111.9	0.99	-0.32	
1,855.0	15.90	52.40	1,827.8	127.8	210.0	-127.8	0.85	0.32	
1,948.0	15.40	48.60	1,917.4	143.7	229.4	-143.7	1.23	-0.54	
2,042.0	15.30	56.40	2,008.0	158.8	249.1	-158.8	2.20	-0.11	
2,137.0	14.30	51.40	2,099.9	173.1	268.7	-173.1	1.71	-1.05	
2,232.0	14.90	60.10	2,191.8	186.5	288.4	-186.5	2.39	0.63	
2,327.0	15.60	62.70	2,283.5	198.5	310.4	-198.5	1.03	0.74	
2,422.0	15.70	58.00	2,375.0	211.1	332.6	-211.1	1.34	0.11	
2,517.0	17.50	59.80	2,466.0	225.1	355.9	-225.1	1.97	1.89	
2,612.0	15.10	58.90	2,557.2	238.7	378.8	-238.7	2.54	-2.53	
2,707.0	16.40	61.30	2,648.6	251.5	401.2	-251.5	1.53	1.37	
2,802.0	16.30	57.90	2,739.8	265.1	424.2	-265.1	1.01	-0.11	
2,897.0	17.50	56.60	2,830.7	280.0	447.4	-280.0	1.32	1.26	
2,992.0	16.40	54.70	2,921.5	295.6	470.3	-295.6	1.30	-1.16	
3,087.0	15.60	52.10	3,012.9	311.2	491.3	-311.2	1.13	-0.84	
3,182.0	17.20	51.80	3,104.0	327.8	512.5	-327.8	1.69	1.68	
3,277.0	15.70	47.50	3,195.1	345.1	533.0	-345.1	2.03	-1.58	
3,372.0	14.60	51.50	3,286.8	361.3	551.8	-361.3	1.60	-1.16	
3,467.0	15.30	57.30	3,378.6	375.5	571.7	-375.5	1.74	0.74	
3,561.0	15.30	57.20	3,469.3	388.9	592.6	-388.9	0.03	0.00	
3,656.0	15.20	58.50	3,560.9	402.2	613.8	-402.2	0.38	-0.11	
3,751.0	15.60	60.60	3,652.5	415.0	635.5	-415.0	0.72	0.42	
3,846.0	17.20	66.10	3,743.6	426.9	659.5	-426.9	2.35	1.68	
3,941.0	14.60	61.80	3,835.0	438.3	682.9	-438.3	3.00	-2.74	
4,036.0	16.90	62.20	3,926.4	450.4	705.6	-450.4	2.42	2.42	
4,131.0	17.40	61.20	4,017.2	463.7	730.3	-463.7	0.61	0.53	
4,226.0	15.90	58.80	4,108.2	477.3	753.9	-477.3	1.74	-1.58	
4,321.0	17.40	54.50	4,199.2	492.3	776.6	-492.3	2.04	1.58	
4,416.0	16.40	52.00	4,290.1	508.8	798.7	-508.8	1.30	-1.05	
4,511.0	16.30	49.20	4,381.3	525.7	819.4	-525.7	0.84	-0.11	
4,605.0	16.00	49.90	4,471.6	542.7	839.3	-542.7	0.38	-0.32	
4,700.0	15.40	57.60	4,563.1	557.9	859.9	-557.9	2.28	-0.63	
4,795.0	15.50	55.50	4,654.6	571.8	881.1	-571.8	0.60	0.11	
4,890.0	16.30	56.20	4,746.0	586.4	902.6	-586.4	0.87	0.84	
4,985.0	14.70	54.80	4,837.5	600.8	923.5	-600.8	1.73	-1.68	
5,080.0	14.80	60.10	4,929.4	613.8	943.9	-613.8	1.42	0.11	
5,175.0	15.70	60.20	5,021.1	626.2	965.6	-626.2	0.95	0.95	
5,270.0	12.50	56.30	5,113.2	638.3	985.3	-638.3	3.51	-3.37	
5,365.0	14.10	62.30	5,205.6	649.4	1,004.1	-649.4	2.22	1.68	
5,460.0	14.30	59.90	5,297.7	660.7	1,024.5	-660.7	0.65	0.21	
5,555.0	11.50	55.80	5,390.3	671.9	1,042.5	-671.9	3.10	-2.95	
5,650.0	11.60	53.90	5,483.4	682.8	1,058.0	-682.8	0.41	0.11	
5,745.0	9.90	53.60	5,576.7	693.3	1,072.3	-693.3	1.79	-1.79	
5,840.0	6.90	46.20	5,670.7	702.1	1,083.0	-702.1	3.35	-3.16	
5,935.0	7.40	55.90	5,765.0	709.5	1,092.2	-709.5	1.37	0.53	
6,030.0	5.50	47.00	5,859.4	716.0	1,100.6	-716.0	2.25	-2.00	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1G-10H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5012.0ft (Ensign 124)
Site:	S10-T2N-R66W (lone)	MD Reference:	WELL @ 5012.0ft (Ensign 124)
Well:	lone 1G-10H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
6,125.0	3.60	30.70	5,954.1	721.7	1,105.4	-721.7	2.40	-2.00	
6,220.0	2.70	12.40	6,048.9	726.5	1,107.4	-726.5	1.41	-0.95	
6,315.0	2.40	349.30	6,143.8	730.6	1,107.5	-730.6	1.12	-0.32	
6,410.0	3.10	16.10	6,238.7	735.0	1,107.9	-735.0	1.52	0.74	
6,505.0	3.30	43.90	6,333.6	739.5	1,110.5	-739.5	1.63	0.21	
6,599.0	2.80	75.00	6,427.5	742.0	1,114.6	-742.0	1.81	-0.53	
6,694.0	1.50	61.20	6,522.4	743.2	1,117.9	-743.2	1.46	-1.37	
6,789.0	1.50	105.70	6,617.4	743.5	1,120.2	-743.5	1.20	0.00	
6,884.0	0.60	73.20	6,712.4	743.3	1,121.9	-743.3	1.10	-0.95	
6,979.0	0.60	342.20	6,807.3	743.9	1,122.2	-743.9	0.90	0.00	
7,074.0	3.70	179.20	6,902.3	741.3	1,122.1	-741.3	4.50	3.26	
7,106.0	7.10	180.10	6,934.1	738.3	1,122.1	-738.3	10.63	10.62	
7,138.0	9.50	178.30	6,965.8	733.7	1,122.2	-733.7	7.54	7.50	
7,169.0	10.70	179.30	6,996.3	728.2	1,122.3	-728.2	3.91	3.87	
7,201.0	13.20	177.00	7,027.6	721.6	1,122.5	-721.6	7.95	7.81	
7,232.0	16.60	177.00	7,057.6	713.6	1,122.9	-713.6	10.97	10.97	
7,264.0	19.30	178.00	7,088.0	703.8	1,123.4	-703.8	8.49	8.44	
7,296.0	23.30	178.30	7,117.8	692.2	1,123.7	-692.2	12.50	12.50	
7,327.0	27.10	177.50	7,145.9	679.0	1,124.2	-679.0	12.31	12.26	
7,359.0	30.00	178.90	7,174.0	663.7	1,124.7	-663.7	9.30	9.06	
7,391.0	33.90	178.70	7,201.1	646.8	1,125.1	-646.8	12.19	12.19	
7,422.0	36.70	177.60	7,226.4	628.9	1,125.6	-628.9	9.26	9.03	
7,454.0	40.70	176.90	7,251.4	608.9	1,126.6	-608.9	12.57	12.50	
7,486.0	45.20	176.80	7,274.8	587.1	1,127.8	-587.1	14.06	14.06	
7,517.0	49.50	177.80	7,295.8	564.4	1,128.9	-564.4	14.07	13.87	
7,549.0	52.80	179.30	7,315.9	539.5	1,129.5	-539.5	10.94	10.31	
7,581.0	56.40	180.30	7,334.4	513.4	1,129.6	-513.4	11.53	11.25	
7,612.0	59.60	179.80	7,350.8	487.1	1,129.6	-487.1	10.41	10.32	
7,644.0	63.10	179.70	7,366.2	459.0	1,129.7	-459.0	10.94	10.94	
7,676.0	65.90	179.50	7,380.0	430.1	1,129.9	-430.1	8.77	8.75	
7,707.0	68.60	179.20	7,391.9	401.6	1,130.2	-401.6	8.76	8.71	
7,739.0	71.00	180.00	7,403.0	371.5	1,130.4	-371.5	7.86	7.50	
7,771.0	73.30	180.20	7,412.8	341.1	1,130.4	-341.1	7.21	7.19	
7,802.0	74.30	181.20	7,421.4	311.3	1,130.0	-311.3	4.47	3.23	
7,853.0	76.90	183.00	7,434.1	261.9	1,128.2	-261.9	6.14	5.10	
7,885.0	80.90	183.10	7,440.3	230.6	1,126.5	-230.6	12.50	12.50	
7,916.0	85.00	183.10	7,444.1	199.9	1,124.8	-199.9	13.23	13.23	
7,948.0	89.50	182.90	7,445.6	168.0	1,123.2	-168.0	14.08	14.06	
7,979.0	90.90	182.40	7,445.5	137.0	1,121.7	-137.0	4.80	4.52	
8,043.0	89.80	182.10	7,445.1	73.1	1,119.2	-73.1	1.78	-1.72	
8,138.0	90.10	181.40	7,445.2	-21.9	1,116.3	21.9	0.80	0.32	
8,233.0	92.70	181.80	7,442.9	-116.8	1,113.7	116.8	2.77	2.74	
8,328.0	92.40	181.40	7,438.7	-211.7	1,111.0	211.7	0.53	-0.32	
8,423.0	91.10	181.40	7,435.8	-306.6	1,108.7	306.6	1.37	-1.37	
8,518.0	89.80	181.00	7,435.0	-401.6	1,106.7	401.6	1.43	-1.37	
8,613.0	88.60	179.90	7,436.3	-496.6	1,106.0	496.6	1.71	-1.26	
8,707.0	88.60	179.80	7,438.6	-590.6	1,106.2	590.6	0.11	0.00	
8,802.0	89.30	179.40	7,440.4	-685.5	1,106.9	685.5	0.85	0.74	
8,897.0	89.70	179.30	7,441.2	-780.5	1,108.0	780.5	0.43	0.42	
8,992.0	89.70	178.60	7,441.7	-875.5	1,109.7	875.5	0.74	0.00	
9,087.0	90.00	178.60	7,442.0	-970.5	1,112.0	970.5	0.32	0.32	
9,182.0	90.50	177.90	7,441.5	-1,065.4	1,114.9	1,065.4	0.91	0.53	
9,277.0	90.90	177.60	7,440.4	-1,160.3	1,118.7	1,160.3	0.53	0.42	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1G-10H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5012.0ft (Ensign 124)
Site:	S10-T2N-R66W (lone)	MD Reference:	WELL @ 5012.0ft (Ensign 124)
Well:	lone 1G-10H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	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
9,372.0	91.20	179.30	7,438.6	-1,255.3	1,121.2	1,255.3	1.82	0.32	
9,467.0	90.40	179.30	7,437.3	-1,350.3	1,122.4	1,350.3	0.84	-0.84	
9,562.0	89.30	180.50	7,437.6	-1,445.3	1,122.5	1,445.3	1.71	-1.16	
9,657.0	88.00	178.90	7,439.8	-1,540.2	1,123.0	1,540.2	2.17	-1.37	
9,752.0	89.00	178.50	7,442.3	-1,635.2	1,125.2	1,635.2	1.13	1.05	
9,847.0	89.10	178.30	7,443.9	-1,730.1	1,127.9	1,730.1	0.24	0.11	
9,942.0	87.20	179.00	7,446.9	-1,825.1	1,130.1	1,825.1	2.13	-2.00	
10,037.0	87.90	178.40	7,451.0	-1,919.9	1,132.2	1,919.9	0.97	0.74	
10,132.0	88.60	178.10	7,453.9	-2,014.9	1,135.1	2,014.9	0.80	0.74	
10,227.0	88.80	178.40	7,456.0	-2,109.8	1,138.0	2,109.8	0.38	0.21	
10,322.0	89.80	179.50	7,457.2	-2,204.8	1,139.8	2,204.8	1.56	1.05	
10,417.0	89.90	180.60	7,457.5	-2,299.8	1,139.7	2,299.8	1.16	0.11	
10,512.0	90.80	181.40	7,456.9	-2,394.7	1,138.0	2,394.7	1.27	0.95	
10,607.0	89.70	181.20	7,456.5	-2,489.7	1,135.9	2,489.7	1.18	-1.16	
10,701.0	88.70	181.80	7,457.8	-2,583.7	1,133.4	2,583.7	1.24	-1.06	
10,796.0	88.60	180.70	7,460.0	-2,678.6	1,131.4	2,678.6	1.16	-0.11	
10,891.0	89.30	180.60	7,461.8	-2,773.6	1,130.3	2,773.6	0.74	0.74	
10,986.0	89.40	180.10	7,462.8	-2,868.6	1,129.7	2,868.6	0.54	0.11	
11,081.0	90.30	179.90	7,463.1	-2,963.6	1,129.7	2,963.6	0.97	0.95	
11,176.0	91.00	179.70	7,462.0	-3,058.6	1,130.0	3,058.6	0.77	0.74	
11,239.0	90.30	179.20	7,461.3	-3,121.6	1,130.6	3,121.6	1.37	-1.11	
11,303.0	88.90	179.40	7,461.7	-3,185.6	1,131.4	3,185.6	2.21	-2.19	
11,366.0	90.00	179.20	7,462.3	-3,248.6	1,132.2	3,248.6	1.77	1.75	
11,461.0	89.10	180.30	7,463.1	-3,343.5	1,132.6	3,343.5	1.50	-0.95	
11,556.0	88.70	181.10	7,464.9	-3,438.5	1,131.4	3,438.5	0.94	-0.42	
11,651.0	89.70	180.60	7,466.2	-3,533.5	1,130.0	3,533.5	1.18	1.05	
11,746.0	88.40	180.90	7,467.8	-3,628.5	1,128.8	3,628.5	1.40	-1.37	
11,841.0	90.20	180.60	7,469.0	-3,723.5	1,127.5	3,723.5	1.92	1.89	
11,936.0	89.80	180.90	7,469.0	-3,818.4	1,126.3	3,818.4	0.53	-0.42	
12,031.0	89.60	180.60	7,469.5	-3,913.4	1,125.1	3,913.4	0.38	-0.21	
12,119.0	91.00	181.80	7,469.0	-4,001.4	1,123.2	4,001.4	2.10	1.59	Last Cathedral Survey @ 12,119' MD
12,169.0	91.80	182.40	7,467.8	-4,051.4	1,121.4	4,051.4	2.00	1.60	Projection to Bit @ 12,169'

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1G-10H
Project:	DJ Wattenberg	TVD Reference:	WELL @ 5012.0ft (Ensign 124)
Site:	S10-T2N-R66W (lone)	MD Reference:	WELL @ 5012.0ft (Ensign 124)
Well:	lone 1G-10H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	Hz	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
lone 1G-10H PBHL P2	0.00	0.00	7,441.0	-4,054.4	1,132.0	1,297,165.03	3,208,425.78	40.146700	-104.754441
- survey misses target center by 29.0ft at 12169.0ft MD (7467.8 TVD, -4051.4 N, 1121.4 E)									
- Point									
lone 1G-10H PBHL P4	0.00	0.00	7,462.0	-4,054.4	1,132.0	1,297,165.03	3,208,425.78	40.146700	-104.754441
- survey misses target center by 12.5ft at 12169.0ft MD (7467.8 TVD, -4051.4 N, 1121.4 E)									
- Point									
lone 1G-10H PBHL	0.00	0.00	7,441.0	-4,054.4	1,258.0	1,297,166.08	3,208,551.76	40.146700	-104.753990
- survey misses target center by 139.2ft at 12167.6ft MD (7467.8 TVD, -4050.0 N, 1121.4 E)									
- Point									
lone 1G-10H 11,100' TG	0.00	0.00	7,462.0	-2,991.8	1,132.0	1,298,227.56	3,208,416.94	40.149617	-104.754440
- survey misses target center by 2.4ft at 11109.2ft MD (7462.9 TVD, -2991.8 N, 1129.8 E)									
- Point									
lone 1G-10H 9,900' TG1	0.00	0.00	7,448.0	-1,791.8	1,132.1	1,299,427.52	3,208,406.95	40.152911	-104.754440
- survey misses target center by 3.6ft at 9908.8ft MD (7445.5 TVD, -1791.9 N, 1129.4 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
12,119.0	7,469.0	-4,001.4	1,123.2	Last Cathedral Survey @ 12,119' MD
12,169.0	7,467.8	-4,051.4	1,121.4	Projection to Bit @ 12,169'

Checked By: _____ Approved By: _____ Date: _____