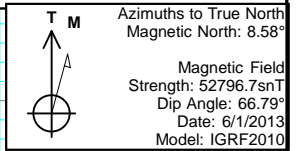
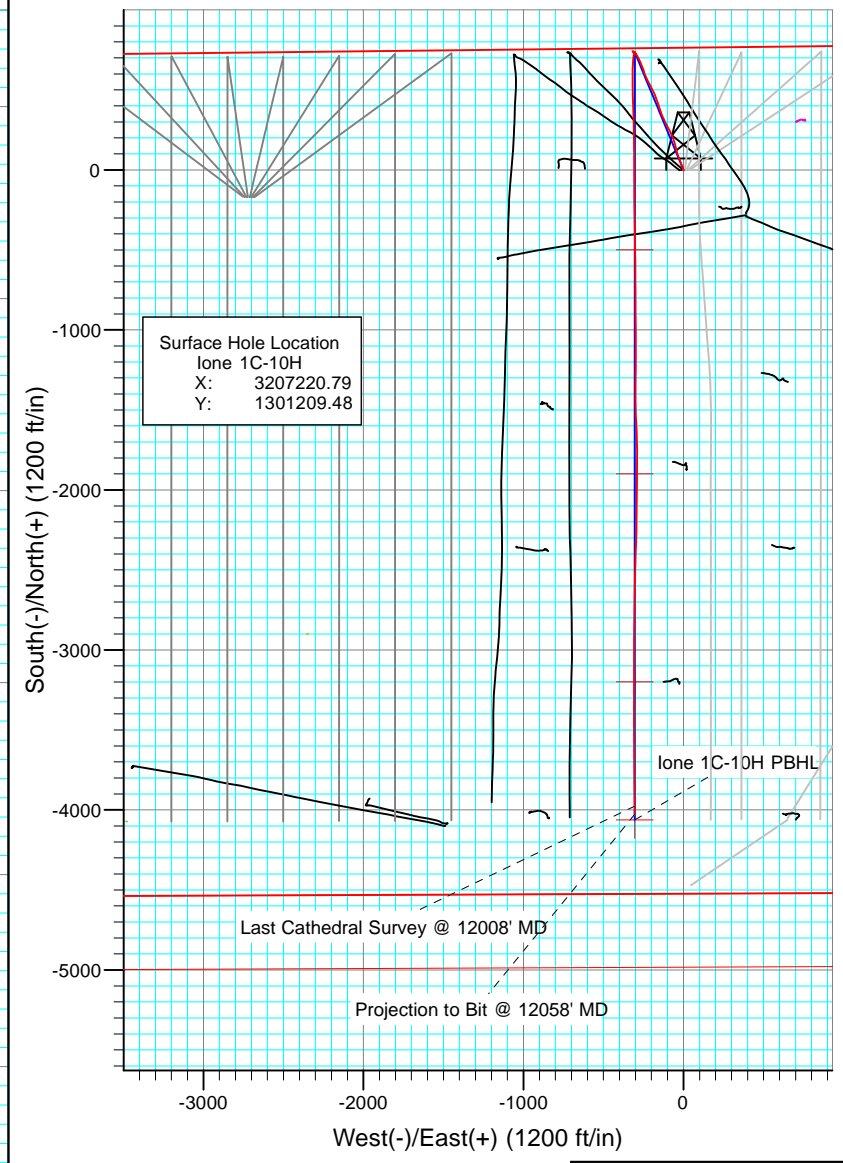
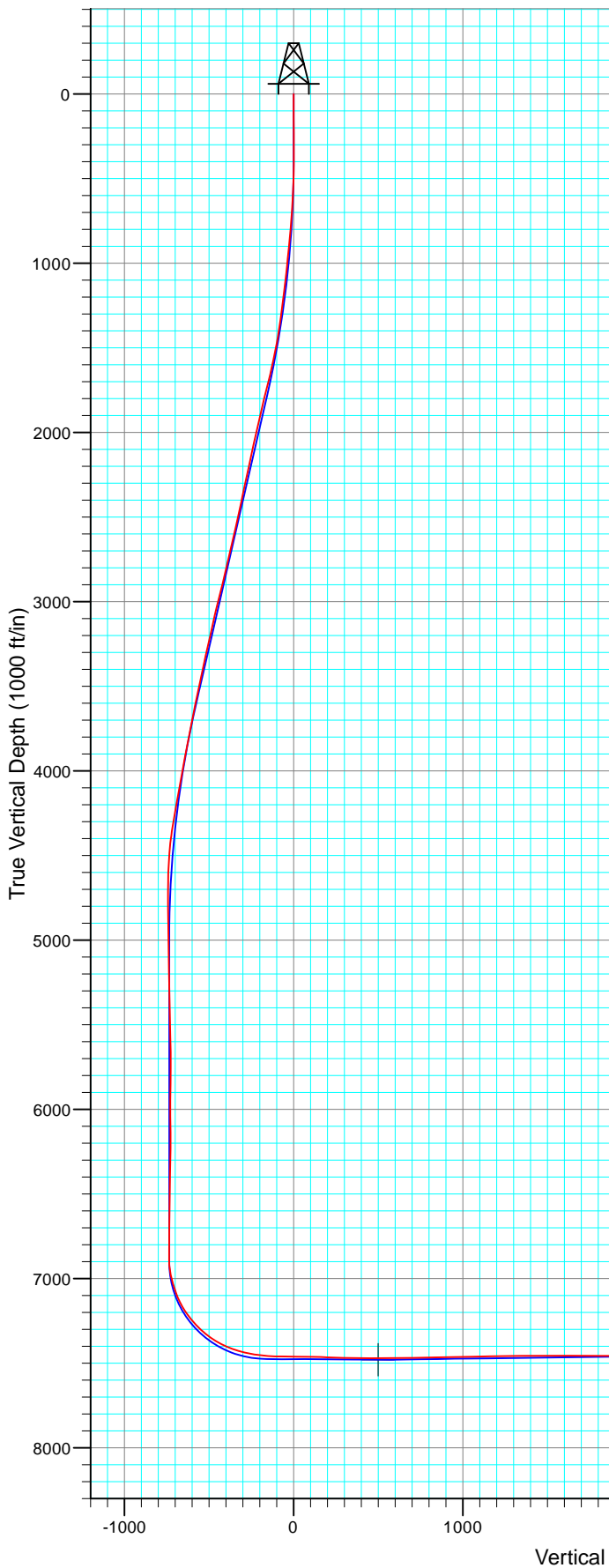




Project: DJ Wattenberg
Site: S10-T2N-R66W (Ione)
Well: Ione 1C-10H
Wellbore: Hz
Design: FINAL

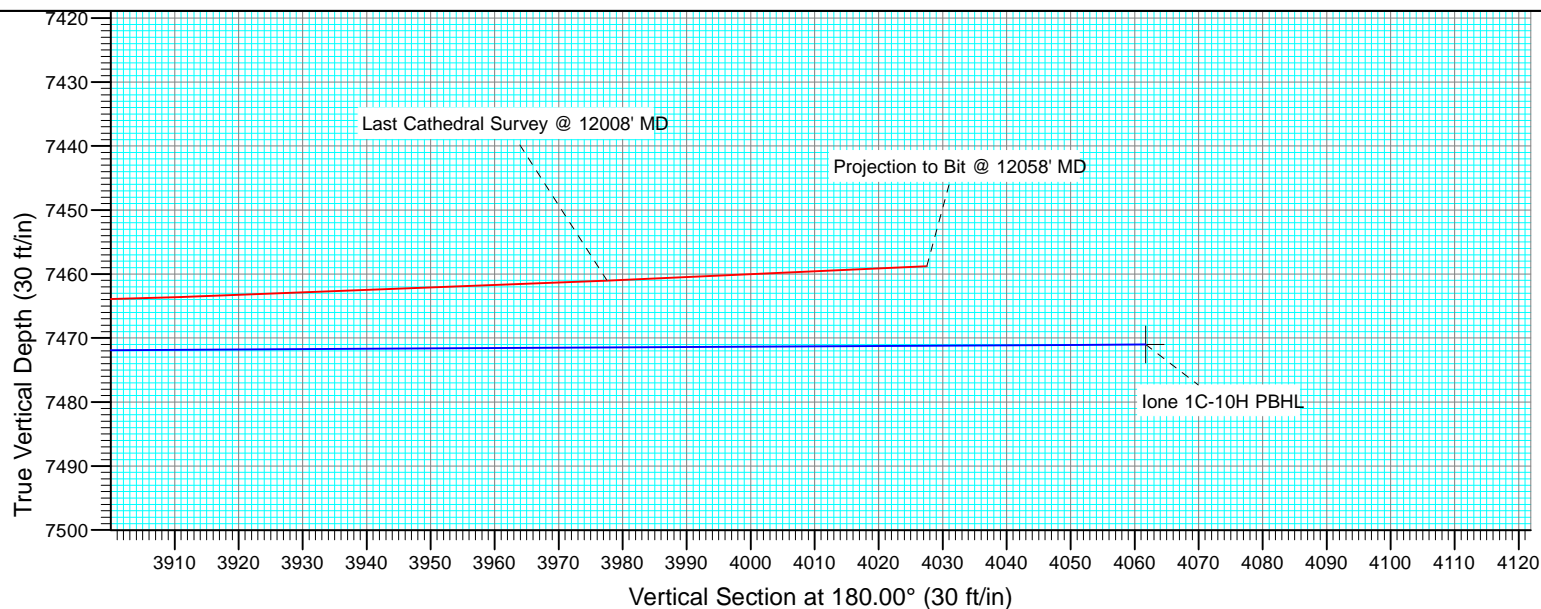
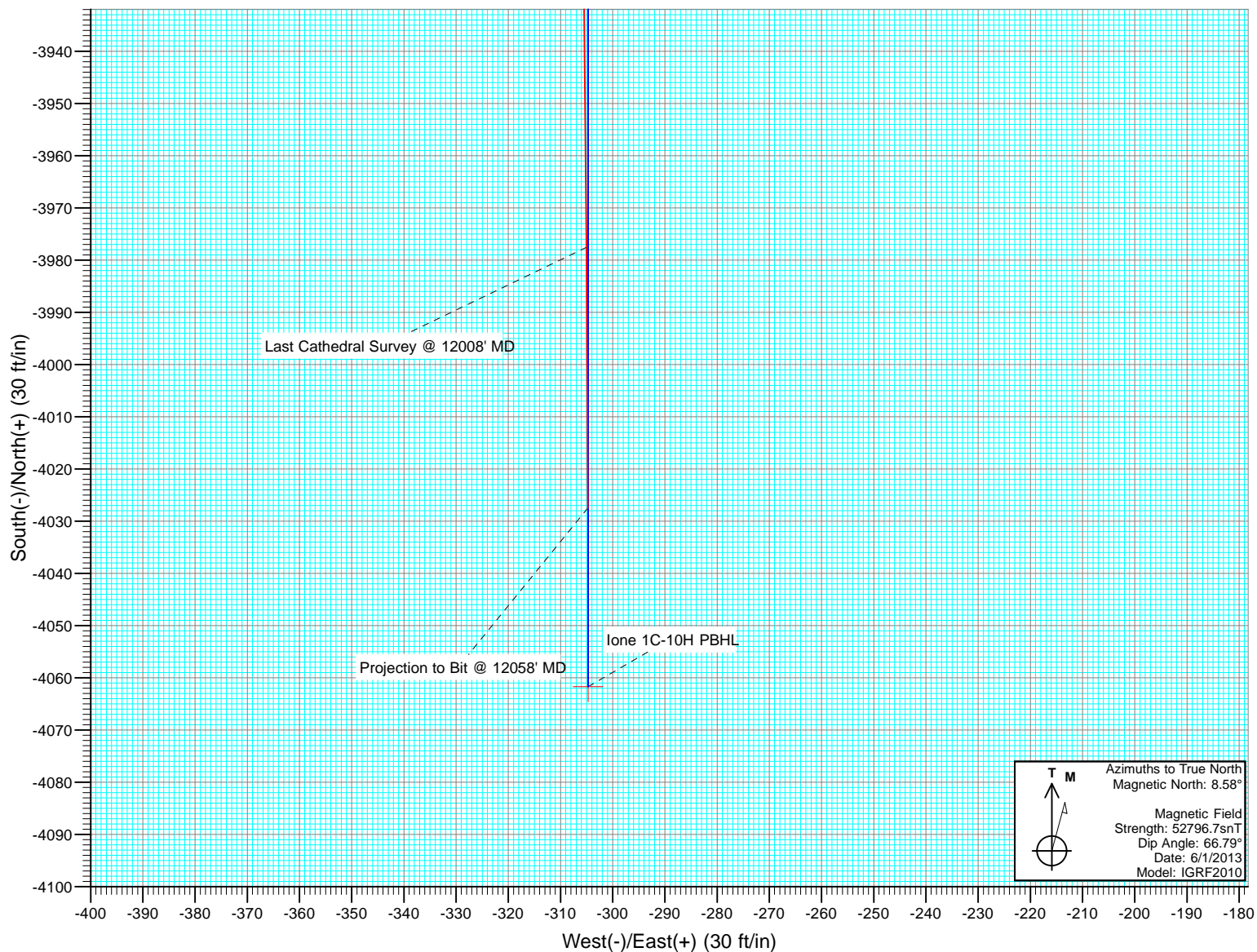


Last Cathedral Survey @ 12008' MD
Projection to Bit @ 12058' MD
Ione 1C-10H PBHL

FINAL
Ione 1C-10H
237055 135211; LR
WELL @ 5012.0ft (Ensign 124)
Ground Elevation @ 4999.0
North American Datum 1983
Well Ione 1C-10H, True North



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



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1C-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 1C-10H	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		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 1C-10H					
Well Position	+N/-S	0.0 ft	Northing:	1,301,209.48 ft	Latitude:	40.157830
	+E/-W	0.0 ft	Easting:	3,207,220.79 ft	Longitude:	-104.758630
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	6/1/2013	8.58	66.79	52,797

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	180.00	

Survey Program	Date	6/18/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
141.0	12,058.0	Survey #1 (Hz)	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		
141.0	0.40	159.20	141.0	-0.5	0.2	0.5	0.28	0.28		
234.0	0.50	127.30	234.0	-1.0	0.6	1.0	0.29	0.11		
327.0	0.40	137.80	327.0	-1.5	1.2	1.5	0.14	-0.11		
420.0	0.40	343.70	420.0	-1.4	1.3	1.4	0.84	0.00		
513.0	2.20	325.10	513.0	0.4	0.2	-0.4	1.96	1.94		
606.0	3.60	328.40	605.8	4.3	-2.4	-4.3	1.52	1.51		
699.0	4.90	337.60	698.6	10.5	-5.4	-10.5	1.57	1.40		
792.0	5.00	341.00	791.2	18.0	-8.3	-18.0	0.33	0.11		
885.0	5.50	336.20	883.9	25.9	-11.4	-25.9	0.72	0.54		
973.0	6.00	342.70	971.4	34.1	-14.4	-34.1	0.93	0.57		
1,020.0	5.80	339.00	1,018.2	38.7	-16.0	-38.7	0.91	-0.43		
1,113.0	7.60	344.30	1,110.5	49.0	-19.4	-49.0	2.04	1.94		

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1C-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 1C-10H	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
1,206.0	7.30	341.10	1,202.7	60.5	-23.0	-60.5	0.55	-0.32	
1,299.0	8.10	335.00	1,294.9	72.0	-27.6	-72.0	1.23	0.86	
1,391.0	9.50	337.70	1,385.8	84.9	-33.3	-84.9	1.59	1.52	
1,485.0	10.90	345.00	1,478.3	100.7	-38.5	-100.7	2.02	1.49	
1,578.0	12.20	345.00	1,569.4	118.7	-43.3	-118.7	1.40	1.40	
1,671.0	13.50	347.60	1,660.1	138.8	-48.2	-138.8	1.53	1.40	
1,764.0	15.10	344.70	1,750.2	161.1	-53.7	-161.1	1.88	1.72	
1,857.0	14.50	341.20	1,840.1	183.8	-60.7	-183.8	1.16	-0.65	
1,949.0	13.70	337.00	1,929.4	204.7	-68.6	-204.7	1.41	-0.87	
2,045.0	13.30	335.40	2,022.7	225.2	-77.7	-225.2	0.57	-0.42	
2,140.0	13.90	334.90	2,115.1	245.5	-87.1	-245.5	0.64	0.63	
2,235.0	13.20	332.00	2,207.4	265.4	-97.0	-265.4	1.03	-0.74	
2,329.0	14.10	334.00	2,298.8	285.2	-107.1	-285.2	1.08	0.96	
2,424.0	13.10	331.50	2,391.1	305.0	-117.3	-305.0	1.22	-1.05	
2,519.0	14.10	333.40	2,483.4	324.8	-127.6	-324.8	1.15	1.05	
2,614.0	13.50	338.50	2,575.7	345.5	-136.8	-345.5	1.43	-0.63	
2,709.0	13.80	341.90	2,668.0	366.6	-144.4	-366.6	0.90	0.32	
2,804.0	13.50	344.10	2,760.3	388.0	-151.0	-388.0	0.63	-0.32	
2,899.0	14.10	340.90	2,852.6	409.6	-157.8	-409.6	1.02	0.63	
2,994.0	15.30	340.60	2,944.5	432.4	-165.8	-432.4	1.27	1.26	
3,089.0	14.50	339.00	3,036.3	455.3	-174.2	-455.3	0.95	-0.84	
3,184.0	13.30	336.50	3,128.5	476.4	-182.8	-476.4	1.41	-1.26	
3,279.0	14.80	334.50	3,220.7	497.4	-192.4	-497.4	1.66	1.58	
3,374.0	13.60	330.40	3,312.8	518.1	-203.1	-518.1	1.65	-1.26	
3,469.0	14.20	335.40	3,405.0	538.4	-213.5	-538.4	1.41	0.63	
3,564.0	12.60	331.00	3,497.4	558.0	-223.4	-558.0	2.00	-1.68	
3,659.0	12.30	331.80	3,590.2	576.0	-233.2	-576.0	0.36	-0.32	
3,753.0	12.00	340.30	3,682.1	594.0	-241.2	-594.0	1.93	-0.32	
3,848.0	13.00	346.30	3,774.8	613.7	-247.1	-613.7	1.72	1.05	
3,943.0	11.30	339.00	3,867.7	632.8	-252.9	-632.8	2.41	-1.79	
4,038.0	11.40	333.90	3,960.8	649.9	-260.4	-649.9	1.06	0.11	
4,133.0	12.00	339.10	4,053.9	667.6	-268.0	-667.6	1.28	0.63	
4,228.0	11.00	334.60	4,146.9	685.0	-275.5	-685.0	1.41	-1.05	
4,323.0	10.70	331.20	4,240.2	700.9	-283.6	-700.9	0.74	-0.32	
4,418.0	10.30	328.60	4,333.7	715.9	-292.3	-715.9	0.65	-0.42	
4,513.0	7.30	325.90	4,427.5	728.1	-300.1	-728.1	3.19	-3.16	
4,608.0	5.30	314.20	4,522.0	736.2	-306.6	-736.2	2.49	-2.11	
4,703.0	3.40	301.60	4,616.7	740.7	-312.1	-740.7	2.23	-2.00	
4,798.0	1.80	283.90	4,711.6	742.6	-316.0	-742.6	1.86	-1.68	
4,893.0	0.90	194.40	4,806.6	742.2	-317.6	-742.2	2.11	-0.95	
4,988.0	0.70	205.40	4,901.6	740.9	-318.1	-740.9	0.26	-0.21	
5,083.0	1.10	139.00	4,996.5	739.7	-317.7	-739.7	1.10	0.42	
5,178.0	1.30	137.20	5,091.5	738.2	-316.4	-738.2	0.21	0.21	
5,273.0	1.50	143.10	5,186.5	736.5	-314.9	-736.5	0.26	0.21	
5,368.0	1.50	140.00	5,281.5	734.5	-313.4	-734.5	0.09	0.00	
5,464.0	1.50	146.50	5,377.4	732.5	-311.9	-732.5	0.18	0.00	
5,559.0	1.50	142.80	5,472.4	730.5	-310.4	-730.5	0.10	0.00	
5,654.0	1.50	150.90	5,567.4	728.4	-309.1	-728.4	0.22	0.00	
5,748.0	1.60	148.10	5,661.3	726.2	-307.8	-726.2	0.13	0.11	
5,843.0	1.80	48.00	5,756.3	726.1	-306.0	-726.1	2.75	0.21	
5,938.0	1.40	63.50	5,851.3	727.6	-303.8	-727.6	0.62	-0.42	
6,033.0	1.30	85.00	5,946.2	728.2	-301.7	-728.2	0.54	-0.11	
6,128.0	0.10	310.90	6,041.2	728.4	-300.7	-728.4	1.44	-1.26	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1C-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 1C-10H	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
6,223.0	1.00	145.20	6,136.2	727.7	-300.3	-727.7	1.15	0.95	
6,318.0	0.90	332.40	6,231.2	727.7	-300.2	-727.7	2.00	-0.11	
6,412.0	1.10	334.10	6,325.2	729.2	-300.9	-729.2	0.22	0.21	
6,507.0	1.00	336.90	6,420.2	730.8	-301.6	-730.8	0.12	-0.11	
6,602.0	1.10	322.50	6,515.2	732.3	-302.5	-732.3	0.30	0.11	
6,697.0	0.80	317.70	6,610.2	733.5	-303.5	-733.5	0.33	-0.32	
6,793.0	0.60	324.00	6,706.2	734.4	-304.2	-734.4	0.22	-0.21	
6,888.0	0.60	314.10	6,801.2	735.1	-304.9	-735.1	0.11	0.00	
6,920.0	0.70	323.10	6,833.1	735.4	-305.1	-735.4	0.45	0.31	
6,951.0	0.50	323.80	6,864.1	735.6	-305.3	-735.6	0.65	-0.65	
6,983.0	1.30	197.30	6,896.1	735.4	-305.5	-735.4	5.15	2.50	
7,015.0	5.60	200.30	6,928.1	733.6	-306.2	-733.6	13.44	13.44	
7,046.0	9.90	196.70	6,958.8	729.6	-307.5	-729.6	13.95	13.87	
7,078.0	13.30	195.00	6,990.1	723.4	-309.2	-723.4	10.68	10.62	
7,110.0	15.80	193.60	7,021.1	715.6	-311.2	-715.6	7.89	7.81	
7,141.0	17.80	191.80	7,050.8	706.9	-313.1	-706.9	6.67	6.45	
7,173.0	19.60	189.20	7,081.1	696.8	-315.0	-696.8	6.20	5.62	
7,205.0	22.30	184.20	7,111.0	685.5	-316.3	-685.5	10.11	8.44	
7,236.0	26.30	182.30	7,139.2	672.7	-317.0	-672.7	13.15	12.90	
7,268.0	30.10	179.60	7,167.4	657.6	-317.2	-657.6	12.52	11.87	
7,299.0	34.00	178.90	7,193.7	641.2	-317.0	-641.2	12.64	12.58	
7,331.0	37.10	180.60	7,219.7	622.6	-316.9	-622.6	10.17	9.69	
7,363.0	39.80	181.50	7,244.8	602.7	-317.3	-602.7	8.62	8.44	
7,394.0	42.40	182.20	7,268.1	582.3	-318.0	-582.3	8.52	8.39	
7,426.0	45.40	181.70	7,291.2	560.1	-318.7	-560.1	9.44	9.37	
7,457.0	48.50	180.80	7,312.4	537.5	-319.2	-537.5	10.22	10.00	
7,489.0	51.20	179.10	7,333.0	513.0	-319.2	-513.0	9.36	8.44	
7,521.0	54.30	177.70	7,352.4	487.6	-318.5	-487.6	10.29	9.69	
7,552.0	59.00	176.70	7,369.4	461.7	-317.2	-461.7	15.40	15.16	
7,584.0	62.90	177.00	7,384.9	433.8	-315.7	-433.8	12.22	12.19	
7,616.0	66.40	177.60	7,398.6	404.9	-314.3	-404.9	11.07	10.94	
7,647.0	68.90	177.90	7,410.4	376.3	-313.2	-376.3	8.11	8.06	
7,679.0	71.50	178.40	7,421.3	346.2	-312.2	-346.2	8.26	8.12	
7,711.0	73.80	178.60	7,430.8	315.6	-311.4	-315.6	7.21	7.19	
7,742.0	76.50	178.90	7,438.7	285.7	-310.8	-285.7	8.76	8.71	
7,774.0	79.30	178.40	7,445.4	254.4	-310.0	-254.4	8.88	8.75	
7,806.0	81.80	179.00	7,450.7	222.9	-309.3	-222.9	8.03	7.81	
7,837.0	83.70	179.40	7,454.6	192.1	-308.9	-192.1	6.26	6.13	
7,873.0	86.00	179.50	7,457.8	156.3	-308.5	-156.3	6.39	6.39	
7,921.0	88.50	179.90	7,460.1	108.3	-308.3	-108.3	5.27	5.21	
7,952.0	88.90	179.80	7,460.8	77.3	-308.2	-77.3	1.33	1.29	
8,047.0	89.10	180.10	7,462.5	-17.7	-308.1	17.7	0.38	0.21	
8,142.0	89.10	179.00	7,464.0	-112.6	-307.4	112.6	1.16	0.00	
8,237.0	87.90	179.00	7,466.5	-207.6	-305.7	207.6	1.26	-1.26	
8,332.0	88.80	179.90	7,469.2	-302.5	-304.8	302.5	1.34	0.95	
8,427.0	89.20	179.40	7,470.9	-397.5	-304.2	397.5	0.67	0.42	
8,522.0	89.90	178.90	7,471.6	-492.5	-302.8	492.5	0.91	0.74	
8,617.0	90.60	179.70	7,471.2	-587.5	-301.7	587.5	1.12	0.74	
8,712.0	91.10	179.80	7,469.8	-682.5	-301.2	682.5	0.54	0.53	
8,807.0	91.50	179.60	7,467.6	-777.5	-300.7	777.5	0.47	0.42	
8,902.0	90.70	179.60	7,465.8	-872.4	-300.1	872.4	0.84	-0.84	
8,997.0	91.20	178.80	7,464.2	-967.4	-298.7	967.4	0.99	0.53	
9,092.0	90.80	180.10	7,462.6	-1,062.4	-297.8	1,062.4	1.43	-0.42	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1C-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 1C-10H	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
9,187.0	91.30	180.10	7,460.8	-1,157.4	-298.0	1,157.4	0.53	0.53	
9,282.0	91.30	181.00	7,458.7	-1,252.4	-298.9	1,252.4	0.95	0.00	
9,377.0	90.20	180.60	7,457.4	-1,347.3	-300.2	1,347.3	1.23	-1.16	
9,472.0	90.60	179.40	7,456.8	-1,442.3	-300.2	1,442.3	1.33	0.42	
9,567.0	90.20	177.10	7,456.1	-1,537.3	-297.3	1,537.3	2.46	-0.42	
9,662.0	89.40	177.90	7,456.5	-1,632.2	-293.2	1,632.2	1.19	-0.84	
9,757.0	89.70	178.60	7,457.2	-1,727.1	-290.3	1,727.1	0.80	0.32	
9,853.0	90.10	180.20	7,457.4	-1,823.1	-289.3	1,823.1	1.72	0.42	
9,948.0	89.90	180.80	7,457.4	-1,918.1	-290.1	1,918.1	0.67	-0.21	
10,042.0	90.30	181.30	7,457.2	-2,012.1	-291.8	2,012.1	0.68	0.43	
10,137.0	89.80	180.80	7,457.1	-2,107.1	-293.6	2,107.1	0.74	-0.53	
10,232.0	90.90	180.40	7,456.5	-2,202.1	-294.6	2,202.1	1.23	1.16	
10,327.0	90.50	181.30	7,455.4	-2,297.1	-296.0	2,297.1	1.04	-0.42	
10,422.0	90.20	182.10	7,454.8	-2,392.0	-298.8	2,392.0	0.90	-0.32	
10,517.0	88.50	181.70	7,455.9	-2,487.0	-302.0	2,487.0	1.84	-1.79	
10,611.0	88.30	180.50	7,458.5	-2,580.9	-303.8	2,580.9	1.29	-0.21	
10,706.0	89.10	180.50	7,460.7	-2,675.9	-304.6	2,675.9	0.84	0.84	
10,801.0	89.80	180.90	7,461.6	-2,770.9	-305.7	2,770.9	0.85	0.74	
10,896.0	89.60	181.00	7,462.1	-2,865.8	-307.3	2,865.8	0.24	-0.21	
10,991.0	89.20	180.90	7,463.1	-2,960.8	-308.9	2,960.8	0.43	-0.42	
11,086.0	89.60	180.80	7,464.1	-3,055.8	-310.3	3,055.8	0.43	0.42	
11,182.0	88.60	180.50	7,465.6	-3,151.8	-311.4	3,151.8	1.09	-1.04	
11,277.0	88.70	179.40	7,467.8	-3,246.8	-311.3	3,246.8	1.16	0.11	
11,372.0	89.00	179.10	7,469.7	-3,341.7	-310.1	3,341.7	0.45	0.32	
11,467.0	89.50	179.20	7,471.0	-3,436.7	-308.7	3,436.7	0.54	0.53	
11,562.0	90.20	179.70	7,471.2	-3,531.7	-307.7	3,531.7	0.91	0.74	
11,657.0	91.00	180.10	7,470.2	-3,626.7	-307.6	3,626.7	0.94	0.84	
11,751.0	91.30	179.90	7,468.3	-3,720.7	-307.6	3,720.7	0.38	0.32	
11,846.0	91.30	179.30	7,466.2	-3,815.7	-306.9	3,815.7	0.63	0.00	
11,941.0	91.80	179.20	7,463.6	-3,910.6	-305.7	3,910.6	0.54	0.53	
12,008.0	92.60	179.70	7,461.0	-3,977.6	-305.0	3,977.6	1.41	1.19	Last Cathedral Survey @ 12008' MD
12,058.0	92.60	179.70	7,458.8	-4,027.5	-304.8	4,027.5	0.00	0.00	Projection to Bit @ 12058' MD

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1C-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 1C-10H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	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 1C-10H 1900' VS T	0.00	0.00	7,462.0	-1,900.0	-304.5	1,299,307.00	3,206,932.15	40.152614	-104.759719
- actual wellpath misses target center by 15.4ft at 9930.0ft MD (7457.3 TVD, -1900.1 N, -289.9 E)									
- Point									
lone 1C-10H PBHL	0.00	0.00	7,471.0	-4,061.7	-304.7	1,297,145.37	3,206,950.05	40.146680	-104.759720
- actual wellpath misses target center by 36.3ft at 12058.0ft MD (7458.8 TVD, -4027.5 N, -304.8 E)									
- Point									
lone 1C-10H 500' VS TC	0.00	0.00	7,480.0	-500.0	-304.4	1,300,706.95	3,206,920.57	40.156457	-104.759719
- actual wellpath misses target center by 8.5ft at 8529.4ft MD (7471.6 TVD, -499.9 N, -302.7 E)									
- Point									
lone 1C-10H Hz 3200' V	0.00	0.00	7,475.0	-3,200.0	-304.6	1,298,007.05	3,206,942.91	40.149045	-104.759720
- actual wellpath misses target center by 10.8ft at 11230.4ft MD (7466.7 TVD, -3200.2 N, -311.6 E)									
- Point									

Design Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
12,008.0	7,461.0	-3,977.6	-305.0	Last Cathedral Survey @ 12008' MD
12,058.0	7,458.8	-4,027.5	-304.8	Projection to Bit @ 12058' MD

Checked By: _____ Approved By: _____ Date: _____