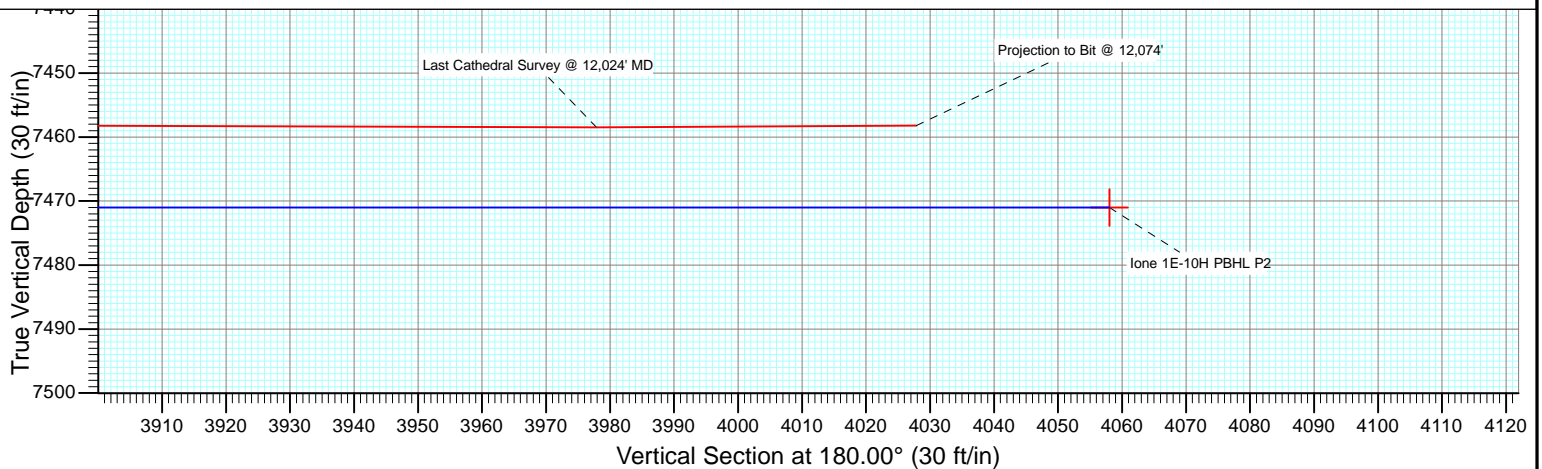
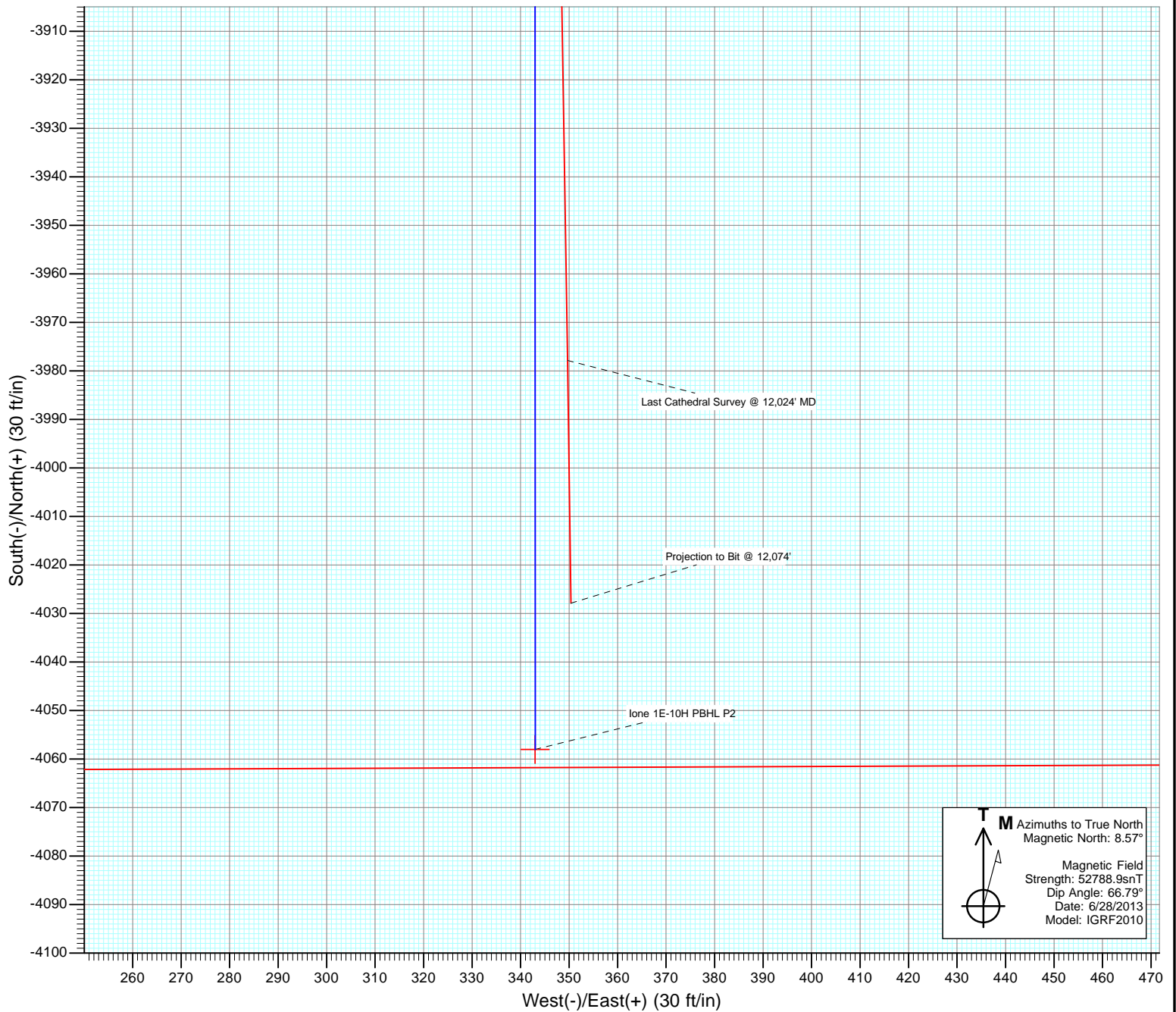




Project: DJ Wattenberg
Site: S10-T2N-R66W (lone)
Well: lone 1E-10H
Wellbore: Hz
Design: FINAL



Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1E-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 1E-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 1E-10H					
Well Position	+N/-S	0.0 ft	Northing:	1,301,209.61 ft	Latitude:	40.157830
	+E/-W	0.0 ft	Easting:	3,207,240.35 ft	Longitude:	-104.758560
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	6/28/2013	8.57	66.79	52,789

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	180.00

Survey Program	Date	7/11/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
138.0	12,074.0	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	
138.0	0.30	135.00	138.0	-0.3	0.3	0.3	0.22	0.22	
231.0	0.20	207.70	231.0	-0.6	0.4	0.6	0.33	-0.11	
324.0	0.60	20.00	324.0	-0.3	0.4	0.3	0.86	0.43	
417.0	1.40	45.00	417.0	1.0	1.4	-1.0	0.96	0.86	
510.0	2.60	40.00	509.9	3.4	3.6	-3.4	1.30	1.29	
603.0	3.20	31.40	602.8	7.3	6.3	-7.3	0.80	0.65	
694.0	4.40	36.00	693.6	12.2	9.7	-12.2	1.36	1.32	
789.0	6.00	40.70	788.2	19.0	15.0	-19.0	1.74	1.68	
882.0	6.60	33.90	880.6	27.1	21.2	-27.1	1.03	0.65	
973.0	6.70	30.50	971.0	36.0	26.8	-36.0	0.45	0.11	
1,049.0	6.40	29.80	1,046.5	43.5	31.2	-43.5	0.41	-0.39	
1,110.0	7.90	27.70	1,107.1	50.2	34.8	-50.2	2.50	2.46	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1E-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 1E-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
1,203.0	10.00	22.50	1,198.9	63.3	40.9	-63.3	2.42	2.26	
1,296.0	9.40	20.60	1,290.6	77.8	46.6	-77.8	0.73	-0.65	
1,389.0	10.60	18.40	1,382.2	93.1	52.0	-93.1	1.35	1.29	
1,482.0	12.20	17.90	1,473.3	110.5	57.7	-110.5	1.72	1.72	
1,575.0	14.00	19.00	1,563.9	130.5	64.4	-130.5	1.95	1.94	
1,668.0	14.60	28.70	1,654.1	151.4	73.7	-151.4	2.65	0.65	
1,761.0	14.00	26.70	1,744.2	171.8	84.4	-171.8	0.84	-0.65	
1,854.0	12.70	24.70	1,834.7	191.1	93.7	-191.1	1.48	-1.40	
1,947.0	12.70	25.30	1,925.4	209.6	102.3	-209.6	0.14	0.00	
2,042.0	14.60	26.50	2,017.7	229.8	112.1	-229.8	2.02	2.00	
2,137.0	13.40	23.40	2,109.9	250.6	121.9	-250.6	1.49	-1.26	
2,232.0	11.60	19.80	2,202.6	269.7	129.5	-269.7	2.06	-1.89	
2,327.0	12.00	21.40	2,295.6	287.9	136.3	-287.9	0.54	0.42	
2,422.0	12.40	24.10	2,388.5	306.4	144.1	-306.4	0.73	0.42	
2,517.0	13.00	26.30	2,481.1	325.3	153.0	-325.3	0.81	0.63	
2,612.0	13.50	27.90	2,573.6	344.7	162.9	-344.7	0.65	0.53	
2,706.0	14.20	27.40	2,664.9	364.6	173.3	-364.6	0.76	0.74	
2,801.0	11.80	22.90	2,757.4	383.9	182.5	-383.9	2.74	-2.53	
2,896.0	11.80	28.10	2,850.4	401.4	190.8	-401.4	1.12	0.00	
2,991.0	13.70	23.10	2,943.1	420.3	199.8	-420.3	2.31	2.00	
3,086.0	15.30	20.20	3,035.1	442.4	208.6	-442.4	1.85	1.68	
3,180.0	13.90	16.20	3,126.0	464.9	216.0	-464.9	1.83	-1.49	
3,275.0	14.20	15.80	3,218.2	487.1	222.4	-487.1	0.33	0.32	
3,370.0	12.00	14.90	3,310.7	507.9	228.1	-507.9	2.33	-2.32	
3,465.0	11.70	22.40	3,403.7	526.3	234.3	-526.3	1.65	-0.32	
3,559.0	12.30	21.80	3,495.6	544.4	241.6	-544.4	0.65	0.64	
3,653.0	11.90	24.00	3,587.5	562.6	249.3	-562.6	0.65	-0.43	
3,748.0	13.30	30.50	3,680.3	580.9	258.8	-580.9	2.10	1.47	
3,843.0	10.50	21.20	3,773.2	598.4	267.5	-598.4	3.56	-2.95	
3,938.0	11.40	23.20	3,866.5	615.1	274.3	-615.1	1.03	0.95	
4,033.0	12.70	27.40	3,959.4	633.0	282.8	-633.0	1.65	1.37	
4,128.0	10.40	15.60	4,052.5	650.6	289.9	-650.6	3.46	-2.42	
4,223.0	9.80	22.90	4,146.0	666.3	295.4	-666.3	1.49	-0.63	
4,318.0	11.20	33.50	4,239.4	681.4	303.6	-681.4	2.51	1.47	
4,413.0	9.70	27.90	4,332.9	696.2	312.5	-696.2	1.91	-1.58	
4,508.0	7.10	21.10	4,426.8	708.7	318.3	-708.7	2.93	-2.74	
4,603.0	7.80	34.10	4,521.0	719.6	324.1	-719.6	1.92	0.74	
4,698.0	6.00	27.50	4,615.3	729.3	330.0	-729.3	2.07	-1.89	
4,793.0	3.80	32.70	4,710.0	736.3	334.0	-736.3	2.36	-2.32	
4,888.0	2.40	83.20	4,804.9	739.2	337.6	-739.2	3.09	-1.47	
4,983.0	0.70	84.90	4,899.8	739.5	340.2	-739.5	1.79	-1.79	
5,078.0	0.20	61.20	4,994.8	739.7	340.9	-739.7	0.55	-0.53	
5,173.0	1.10	335.30	5,089.8	740.6	340.7	-740.6	1.16	0.95	
5,268.0	0.70	20.10	5,184.8	741.9	340.5	-741.9	0.82	-0.42	
5,363.0	1.40	150.60	5,279.8	741.5	341.3	-741.5	2.03	0.74	
5,458.0	1.30	152.50	5,374.8	739.5	342.3	-739.5	0.12	-0.11	
5,552.0	1.50	163.40	5,468.7	737.4	343.2	-737.4	0.35	0.21	
5,647.0	1.60	155.60	5,563.7	735.0	344.1	-735.0	0.25	0.11	
5,742.0	1.50	166.60	5,658.7	732.6	344.9	-732.6	0.33	-0.11	
5,837.0	1.40	152.00	5,753.6	730.3	345.8	-730.3	0.40	-0.11	
5,932.0	0.70	200.30	5,848.6	728.8	346.1	-728.8	1.13	-0.74	
6,027.0	1.00	191.00	5,943.6	727.4	345.7	-727.4	0.35	0.32	
6,122.0	0.90	225.90	6,038.6	726.1	345.0	-726.1	0.61	-0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1E-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 1E-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
6,216.0	1.30	93.00	6,132.6	725.5	345.6	-725.5	2.15	0.43	
6,311.0	0.20	29.00	6,227.6	725.6	346.7	-725.6	1.29	-1.16	
6,406.0	0.20	251.90	6,322.6	725.7	346.7	-725.7	0.39	0.00	
6,501.0	0.60	218.20	6,417.6	725.2	346.2	-725.2	0.47	0.42	
6,596.0	1.10	115.00	6,512.6	724.5	346.7	-724.5	1.44	0.53	
6,691.0	0.90	308.10	6,607.6	724.5	346.9	-724.5	2.09	-0.21	
6,786.0	0.90	277.30	6,702.6	725.1	345.6	-725.1	0.50	0.00	
6,881.0	0.60	295.60	6,797.6	725.4	344.4	-725.4	0.40	-0.32	
6,944.0	0.90	275.10	6,860.5	725.6	343.6	-725.6	0.63	0.48	
6,976.0	1.80	223.90	6,892.5	725.2	343.0	-725.2	4.44	2.81	
7,008.0	4.80	201.10	6,924.5	723.6	342.2	-723.6	10.05	9.37	
7,039.0	7.60	196.50	6,955.3	720.5	341.2	-720.5	9.16	9.03	
7,071.0	9.30	205.70	6,987.0	716.1	339.4	-716.1	6.77	5.31	
7,102.0	9.70	213.90	7,017.5	711.7	336.9	-711.7	4.55	1.29	
7,134.0	12.10	206.80	7,049.0	706.4	333.9	-706.4	8.58	7.50	
7,166.0	15.10	198.90	7,080.1	699.5	331.0	-699.5	11.01	9.37	
7,197.0	18.60	192.40	7,109.7	690.8	328.6	-690.8	12.81	11.29	
7,229.0	21.60	191.90	7,139.8	680.1	326.3	-680.1	9.39	9.37	
7,261.0	24.40	185.90	7,169.2	667.8	324.4	-667.8	11.40	8.75	
7,292.0	27.50	180.90	7,197.1	654.2	323.7	-654.2	12.23	10.00	
7,324.0	30.90	177.80	7,225.0	638.6	323.9	-638.6	11.63	10.62	
7,356.0	34.80	177.50	7,251.9	621.3	324.6	-621.3	12.20	12.19	
7,388.0	38.30	178.30	7,277.6	602.2	325.3	-602.2	11.04	10.94	
7,419.0	42.40	177.10	7,301.2	582.2	326.1	-582.2	13.46	13.23	
7,451.0	46.20	175.60	7,324.1	559.9	327.5	-559.9	12.32	11.87	
7,483.0	50.00	174.00	7,345.5	536.2	329.7	-536.2	12.44	11.87	
7,514.0	54.20	174.10	7,364.6	511.9	332.2	-511.9	13.55	13.55	
7,546.0	58.80	175.10	7,382.2	485.3	334.7	-485.3	14.61	14.37	
7,577.0	64.00	175.80	7,397.0	458.2	336.9	-458.2	16.89	16.77	
7,609.0	67.60	176.60	7,410.2	429.1	338.8	-429.1	11.48	11.25	
7,640.0	69.60	177.00	7,421.5	400.2	340.4	-400.2	6.56	6.45	
7,672.0	72.00	177.10	7,432.0	370.1	342.0	-370.1	7.51	7.50	
7,704.0	75.40	177.50	7,441.0	339.4	343.4	-339.4	10.69	10.62	
7,735.0	79.30	177.80	7,447.8	309.2	344.7	-309.2	12.62	12.58	
7,767.0	81.90	178.40	7,453.0	277.6	345.7	-277.6	8.33	8.12	
7,799.0	82.80	178.30	7,457.2	245.9	346.6	-245.9	2.83	2.81	
7,805.0	83.60	178.60	7,458.0	240.0	346.8	-240.0	14.23	13.33	
7,859.0	87.70	180.70	7,462.0	186.1	347.1	-186.1	8.53	7.59	
7,954.0	90.10	180.40	7,463.9	91.2	346.2	-91.2	2.55	2.53	
8,048.0	90.10	179.60	7,463.7	-2.8	346.2	2.8	0.85	0.00	
8,144.0	89.50	178.60	7,464.0	-98.8	347.7	98.8	1.21	-0.62	
8,238.0	91.00	179.60	7,463.6	-192.8	349.2	192.8	1.92	1.60	
8,333.0	91.30	180.00	7,461.7	-287.8	349.5	287.8	0.53	0.32	
8,428.0	90.30	179.50	7,460.4	-382.8	349.9	382.8	1.18	-1.05	
8,523.0	89.70	179.40	7,460.4	-477.8	350.8	477.8	0.64	-0.63	
8,668.0	89.10	179.80	7,461.9	-622.7	351.9	622.7	0.50	-0.41	
8,713.0	89.40	179.00	7,462.5	-667.7	352.3	667.7	1.90	0.67	
8,808.0	89.00	180.40	7,463.8	-762.7	352.8	762.7	1.53	-0.42	
8,904.0	89.90	181.20	7,464.8	-858.7	351.5	858.7	1.25	0.94	
8,998.0	90.20	180.50	7,464.7	-952.7	350.1	952.7	0.81	0.32	
9,094.0	90.60	180.20	7,464.0	-1,048.7	349.5	1,048.7	0.52	0.42	
9,188.0	90.50	179.30	7,463.1	-1,142.7	349.9	1,142.7	0.96	-0.11	
9,283.0	89.30	178.40	7,463.3	-1,237.7	351.8	1,237.7	1.58	-1.26	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1E-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 1E-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
9,378.0	89.70	179.10	7,464.1	-1,332.7	353.9	1,332.7	0.85	0.42	
9,473.0	88.90	179.50	7,465.3	-1,427.6	355.1	1,427.6	0.94	-0.84	
9,568.0	88.90	180.30	7,467.1	-1,522.6	355.2	1,522.6	0.84	0.00	
9,663.0	90.10	180.70	7,467.9	-1,617.6	354.4	1,617.6	1.33	1.26	
9,758.0	91.10	180.80	7,466.9	-1,712.6	353.1	1,712.6	1.06	1.05	
9,853.0	91.90	179.30	7,464.4	-1,807.6	353.1	1,807.6	1.79	0.84	
9,948.0	91.50	180.00	7,461.6	-1,902.5	353.6	1,902.5	0.85	-0.42	
10,042.0	90.60	180.70	7,459.9	-1,996.5	353.1	1,996.5	1.21	-0.96	
10,137.0	91.00	181.50	7,458.6	-2,091.5	351.2	2,091.5	0.94	0.42	
10,232.0	89.80	182.40	7,457.9	-2,186.4	348.0	2,186.4	1.58	-1.26	
10,327.0	90.70	181.10	7,457.5	-2,281.4	345.1	2,281.4	1.66	0.95	
10,422.0	89.80	180.90	7,457.1	-2,376.3	343.5	2,376.3	0.97	-0.95	
10,517.0	89.20	180.90	7,457.9	-2,471.3	342.0	2,471.3	0.63	-0.63	
10,611.0	90.60	180.40	7,458.1	-2,565.3	340.9	2,565.3	1.58	1.49	
10,706.0	89.80	180.80	7,457.7	-2,660.3	339.9	2,660.3	0.94	-0.84	
10,802.0	88.30	180.30	7,459.3	-2,756.3	339.0	2,756.3	1.65	-1.56	
10,896.0	90.40	181.50	7,460.4	-2,850.3	337.5	2,850.3	2.57	2.23	
10,991.0	90.80	181.90	7,459.4	-2,945.2	334.7	2,945.2	0.60	0.42	
11,086.0	89.80	180.90	7,458.9	-3,040.2	332.4	3,040.2	1.49	-1.05	
11,181.0	90.70	180.50	7,458.5	-3,135.2	331.2	3,135.2	1.04	0.95	
11,276.0	89.50	179.90	7,458.3	-3,230.2	330.9	3,230.2	1.41	-1.26	
11,371.0	90.50	178.90	7,458.3	-3,325.2	331.9	3,325.2	1.49	1.05	
11,466.0	89.20	177.80	7,458.6	-3,420.1	334.6	3,420.1	1.79	-1.37	
11,561.0	90.80	177.50	7,458.6	-3,515.0	338.5	3,515.0	1.71	1.68	
11,656.0	89.90	177.80	7,458.0	-3,609.9	342.4	3,609.9	1.00	-0.95	
11,751.0	89.50	179.00	7,458.5	-3,704.9	345.0	3,704.9	1.33	-0.42	
11,846.0	90.70	179.00	7,458.3	-3,799.9	346.7	3,799.9	1.26	1.26	
11,941.0	89.40	179.00	7,458.2	-3,894.9	348.4	3,894.9	1.37	-1.37	
12,024.0	90.30	179.20	7,458.5	-3,977.9	349.7	3,977.9	1.11	1.08	Last Cathedral Survey @ 12,024' MD Projection to Bit @ 12,074'
12,074.0	90.30	179.20	7,458.2	-4,027.9	350.4	4,027.9	0.00	0.00	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well lone 1E-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 1E-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 1E-10H PBHL P2	0.00	0.00	7,471.0	-4,058.0	343.0	1,297,154.59	3,207,617.27	40.146690	-104.757333
- actual wellpath misses target center by 33.6ft at 12074.0ft MD (7458.2 TVD, -4027.9 N, 350.4 E)									
- Point									
lone 1E-10H PBHL	0.00	0.00	7,471.0	-4,058.0	478.0	1,297,155.72	3,207,752.30	40.146690	-104.756850
- actual wellpath misses target center by 131.8ft at 12074.0ft MD (7458.2 TVD, -4027.9 N, 350.4 E)									
- Point									

Design Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W		
		(ft)	(ft)	Comment	
12,024.0	7,458.5	-3,977.9	349.7	Last Cathedral Survey @ 12,024' MD	
12,074.0	7,458.2	-4,027.9	350.4	Projection to Bit @ 12,074'	

Checked By: _____ Approved By: _____ Date: _____