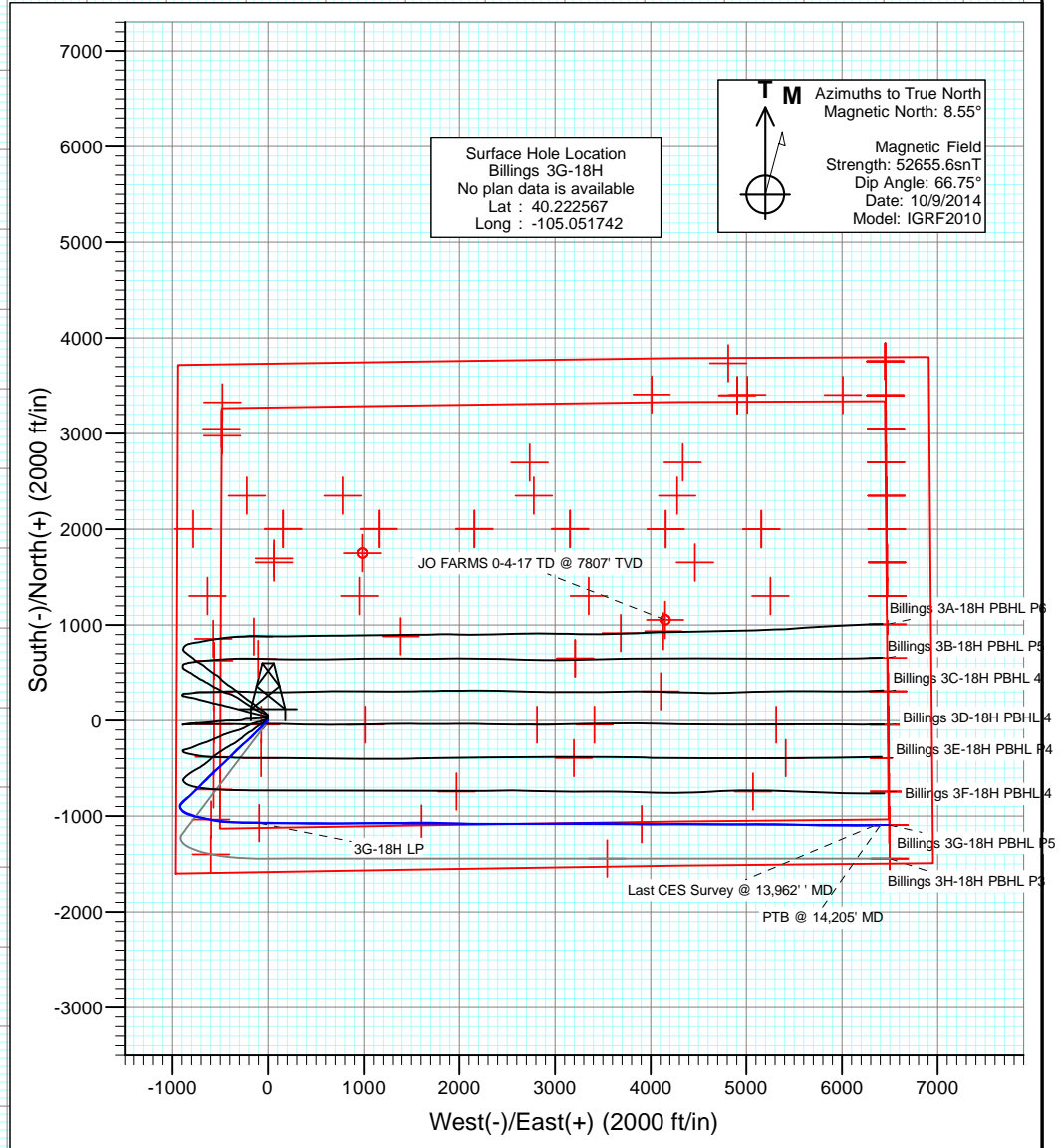
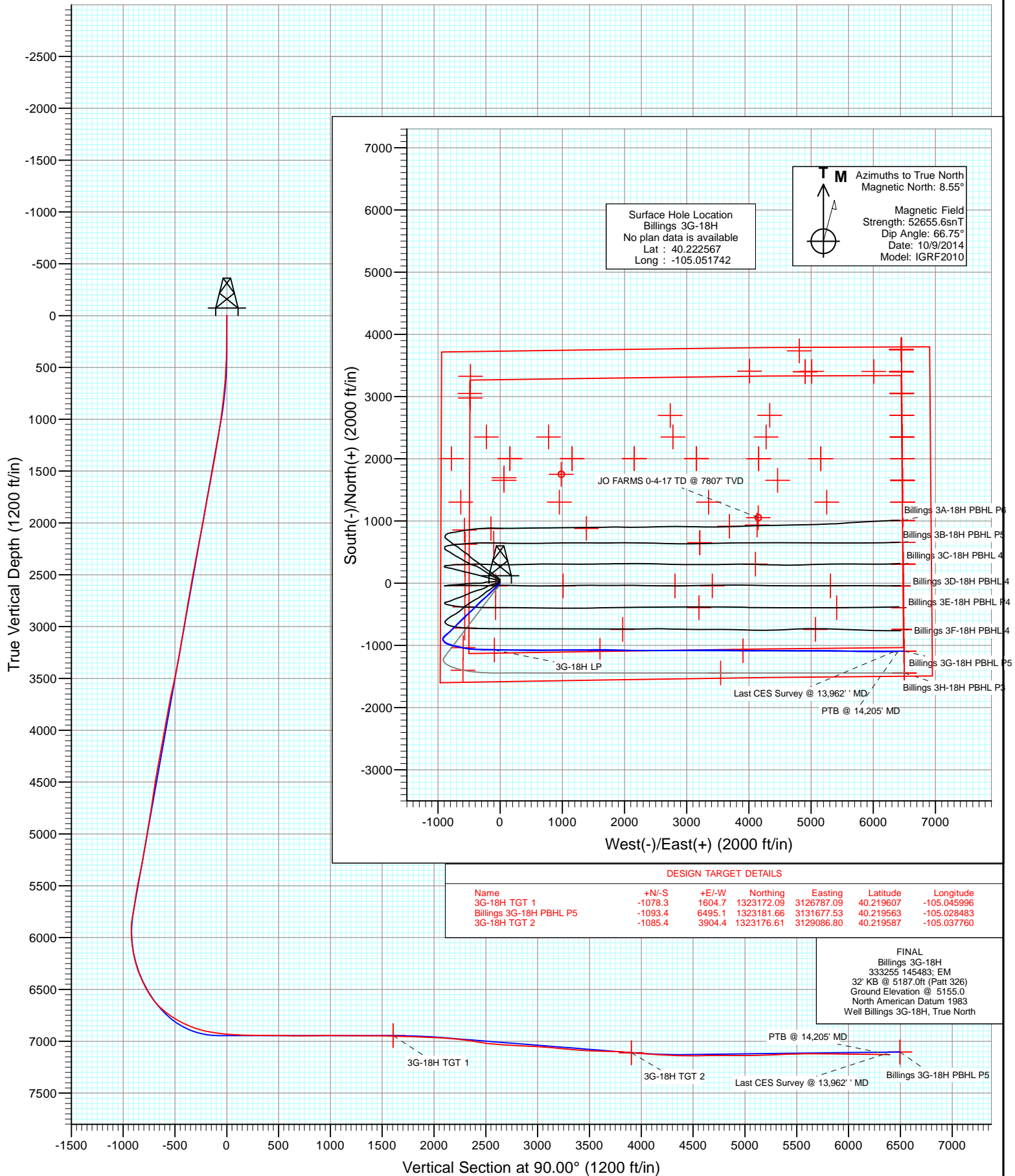




Project: DJ Wattenberg
Site: S18-T3N-R68W (Billings)
Well: Billings 3G-18H
Wellbore: Hz
Design: FINAL



FINAL
Billings 3G-18H
333255 145483; EM
32' KB @ 5187.0ft (Patt 326)
Ground Elevation @ 5155.0
North American Datum 1983
Well Billings 3G-18H, True North

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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		S18-T3N-R68W (Billings)			
Site Position:		Northing:	1,326,724.18 ft	Latitude:	40.229390
From:	Lat/Long	Easting:	3,124,452.97 ft	Longitude:	-105.054290
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.29 °

Well	Billings 3G-18H					
Well Position	+N/-S	0.0 ft	Northing:	1,324,242.26 ft	Latitude:	40.222567
	+E/-W	0.0 ft	Easting:	3,125,176.96 ft	Longitude:	-105.051742
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,155.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/9/2014	8.56	66.75	52,656

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	90.00	

Survey Program	Date	12/18/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
192.0	14,025.0	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	
192.0	0.70	306.10	192.0	0.7	-0.9	-0.9	0.36	0.36	
240.0	0.50	248.30	240.0	0.8	-1.4	-1.4	1.26	-0.42	
286.0	0.80	194.20	286.0	0.4	-1.6	-1.6	1.41	0.65	
334.0	1.00	205.30	334.0	-0.3	-1.9	-1.9	0.55	0.42	
429.0	2.50	221.40	428.9	-2.6	-3.6	-3.6	1.65	1.58	
524.0	4.70	232.00	523.7	-6.6	-8.1	-8.1	2.41	2.32	
619.0	6.50	227.00	618.3	-12.6	-15.1	-15.1	1.96	1.89	
714.0	8.00	223.00	712.5	-21.1	-23.5	-23.5	1.67	1.58	
808.0	9.20	222.60	805.5	-31.4	-33.1	-33.1	1.28	1.28	
903.0	10.20	224.90	899.1	-43.0	-44.1	-44.1	1.13	1.05	
970.0	11.10	225.80	965.0	-51.7	-52.9	-52.9	1.37	1.34	
1,110.0	11.00	223.50	1,102.4	-70.8	-71.8	-71.8	0.32	-0.07	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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
1,202.0	13.30	226.10	1,192.3	-84.5	-85.5	-85.5	2.57	2.50	
1,294.0	13.30	223.20	1,281.8	-99.5	-100.3	-100.3	0.73	0.00	
1,386.0	15.00	227.50	1,371.0	-115.3	-116.4	-116.4	2.17	1.85	
1,478.0	14.80	221.90	1,459.9	-132.1	-133.0	-133.0	1.58	-0.22	
1,570.0	14.90	220.30	1,548.9	-149.8	-148.5	-148.5	0.46	0.11	
1,662.0	14.50	229.00	1,637.9	-166.4	-164.8	-164.8	2.44	-0.43	
1,755.0	14.60	225.20	1,727.9	-182.3	-181.9	-181.9	1.03	0.11	
1,848.0	12.90	230.50	1,818.2	-197.2	-198.3	-198.3	2.27	-1.83	
1,940.0	12.70	227.20	1,907.9	-210.6	-213.6	-213.6	0.82	-0.22	
2,032.0	14.00	234.50	1,997.5	-223.9	-230.1	-230.1	2.31	1.41	
2,124.0	14.20	232.40	2,086.7	-237.3	-248.1	-248.1	0.60	0.22	
2,216.0	13.80	230.90	2,176.0	-251.1	-265.5	-265.5	0.59	-0.43	
2,308.0	13.60	230.30	2,265.3	-264.9	-282.4	-282.4	0.27	-0.22	
2,403.0	14.70	228.10	2,357.5	-280.1	-300.0	-300.0	1.29	1.16	
2,497.0	14.50	226.90	2,448.4	-296.1	-317.4	-317.4	0.39	-0.21	
2,592.0	13.80	225.60	2,540.5	-312.2	-334.2	-334.2	0.81	-0.74	
2,686.0	13.10	225.40	2,632.0	-327.5	-349.8	-349.8	0.75	-0.74	
2,781.0	14.60	222.50	2,724.2	-343.9	-365.6	-365.6	1.74	1.58	
2,875.0	13.50	220.30	2,815.4	-361.0	-380.7	-380.7	1.30	-1.17	
2,970.0	14.40	224.40	2,907.6	-377.9	-396.1	-396.1	1.41	0.95	
3,064.0	12.90	221.60	2,998.9	-394.1	-411.2	-411.2	1.74	-1.60	
3,159.0	13.60	228.40	3,091.4	-409.4	-426.6	-426.6	1.80	0.74	
3,254.0	12.40	224.50	3,184.0	-424.1	-442.1	-442.1	1.56	-1.26	
3,348.0	14.50	227.60	3,275.4	-439.2	-457.9	-457.9	2.36	2.23	
3,443.0	14.00	226.10	3,367.5	-455.2	-475.0	-475.0	0.65	-0.53	
3,537.0	16.30	229.10	3,458.2	-471.7	-493.1	-493.1	2.58	2.45	
3,632.0	16.70	228.50	3,549.3	-489.5	-513.4	-513.4	0.46	0.42	
3,727.0	16.10	228.30	3,640.4	-507.3	-533.5	-533.5	0.63	-0.63	
3,821.0	14.50	227.60	3,731.1	-523.9	-551.9	-551.9	1.71	-1.70	
3,916.0	12.70	226.10	3,823.4	-539.2	-568.2	-568.2	1.93	-1.89	
4,011.0	14.90	228.60	3,915.7	-554.5	-584.9	-584.9	2.40	2.32	
4,105.0	14.40	226.90	4,006.6	-570.5	-602.5	-602.5	0.70	-0.53	
4,200.0	13.60	226.90	4,098.8	-586.2	-619.3	-619.3	0.84	-0.84	
4,294.0	13.00	225.40	4,190.3	-601.2	-634.9	-634.9	0.74	-0.64	
4,389.0	14.90	224.10	4,282.5	-617.5	-651.0	-651.0	2.03	2.00	
4,483.0	14.70	224.20	4,373.3	-634.7	-667.7	-667.7	0.21	-0.21	
4,578.0	14.50	222.50	4,465.3	-652.1	-684.2	-684.2	0.50	-0.21	
4,673.0	13.50	221.50	4,557.5	-669.2	-699.5	-699.5	1.08	-1.05	
4,767.0	11.90	221.80	4,649.1	-684.6	-713.3	-713.3	1.70	-1.70	
4,862.0	12.60	226.40	4,742.0	-699.1	-727.3	-727.3	1.26	0.74	
4,957.0	11.60	224.70	4,834.9	-713.0	-741.5	-741.5	1.12	-1.05	
5,051.0	12.90	226.90	4,926.7	-726.9	-755.8	-755.8	1.47	1.38	
5,146.0	14.60	225.50	5,019.0	-742.5	-772.1	-772.1	1.82	1.79	
5,240.0	13.20	224.70	5,110.3	-758.4	-788.1	-788.1	1.50	-1.49	
5,335.0	13.10	225.40	5,202.8	-773.7	-803.4	-803.4	0.20	-0.11	
5,429.0	14.00	229.00	5,294.1	-788.7	-819.6	-819.6	1.31	0.96	
5,524.0	15.30	234.20	5,386.1	-803.5	-838.4	-838.4	1.95	1.37	
5,618.0	13.20	231.20	5,477.2	-817.5	-856.8	-856.8	2.37	-2.23	
5,713.0	11.60	231.20	5,569.9	-830.3	-872.7	-872.7	1.68	-1.68	
5,807.0	12.50	225.70	5,661.9	-843.3	-887.4	-887.4	1.55	0.96	
5,854.0	12.10	224.20	5,707.8	-850.4	-894.5	-894.5	1.09	-0.85	
5,902.0	14.20	223.20	5,754.5	-858.3	-902.0	-902.0	4.40	4.37	
5,949.0	15.30	219.10	5,800.0	-867.3	-909.9	-909.9	3.23	2.34	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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
5,997.0	15.50	208.10	5,846.3	-877.9	-916.9	-916.9	6.09	0.42	
6,044.0	14.50	194.70	5,891.7	-889.1	-921.3	-921.3	7.66	-2.13	
6,091.0	14.30	176.60	5,937.2	-900.6	-922.5	-922.5	9.55	-0.43	
6,138.0	12.40	164.70	5,983.0	-911.3	-920.8	-920.8	7.09	-4.04	
6,186.0	11.40	149.20	6,029.9	-920.3	-917.0	-917.0	6.95	-2.08	
6,233.0	12.80	144.70	6,075.9	-928.6	-911.6	-911.6	3.59	2.98	
6,280.0	15.00	141.70	6,121.5	-937.6	-904.8	-904.8	4.92	4.68	
6,327.0	15.60	137.60	6,166.9	-947.0	-896.8	-896.8	2.63	1.28	
6,375.0	16.80	129.50	6,213.0	-956.2	-887.1	-887.1	5.32	2.50	
6,422.0	18.60	124.30	6,257.7	-964.8	-875.7	-875.7	5.09	3.83	
6,470.0	21.10	117.30	6,302.9	-973.0	-861.7	-861.7	7.18	5.21	
6,517.0	22.70	110.90	6,346.5	-980.2	-845.7	-845.7	6.11	3.40	
6,564.0	25.10	106.90	6,389.5	-986.3	-827.7	-827.7	6.16	5.11	
6,611.0	26.80	106.30	6,431.7	-992.2	-808.0	-808.0	3.66	3.62	
6,659.0	29.10	105.70	6,474.1	-998.4	-786.3	-786.3	4.83	4.79	
6,706.0	30.90	104.70	6,514.8	-1,004.5	-763.6	-763.6	3.97	3.83	
6,753.0	33.30	103.60	6,554.6	-1,010.6	-739.4	-739.4	5.26	5.11	
6,800.0	36.40	101.90	6,593.2	-1,016.5	-713.2	-713.2	6.91	6.60	
6,847.0	41.50	102.10	6,629.7	-1,022.7	-684.3	-684.3	10.85	10.85	
6,894.0	45.50	101.70	6,663.8	-1,029.3	-652.7	-652.7	8.53	8.51	
6,942.0	49.70	101.60	6,696.2	-1,036.5	-618.0	-618.0	8.75	8.75	
6,989.0	53.20	102.10	6,725.5	-1,044.0	-582.0	-582.0	7.49	7.45	
7,036.0	56.80	100.30	6,752.4	-1,051.5	-544.3	-544.3	8.28	7.66	
7,083.0	59.20	97.70	6,777.3	-1,057.7	-504.9	-504.9	6.93	5.11	
7,131.0	60.20	94.60	6,801.6	-1,062.2	-463.7	-463.7	5.95	2.08	
7,178.0	61.70	93.10	6,824.4	-1,064.9	-422.7	-422.7	4.24	3.19	
7,226.0	66.80	91.60	6,845.2	-1,066.7	-379.5	-379.5	10.99	10.62	
7,273.0	69.90	90.50	6,862.6	-1,067.5	-335.9	-335.9	6.95	6.60	
7,320.0	72.20	89.00	6,877.8	-1,067.3	-291.4	-291.4	5.75	4.89	
7,367.0	74.30	89.70	6,891.4	-1,066.8	-246.4	-246.4	4.69	4.47	
7,415.0	77.70	90.40	6,903.0	-1,066.8	-199.8	-199.8	7.22	7.08	
7,462.0	80.80	90.20	6,911.8	-1,067.0	-153.7	-153.7	6.61	6.60	
7,490.0	81.90	90.40	6,916.0	-1,067.2	-126.0	-126.0	3.99	3.93	
7,558.0	82.80	91.10	6,925.0	-1,068.1	-58.6	-58.6	1.67	1.32	
7,650.0	85.80	91.10	6,934.2	-1,069.8	32.9	32.9	3.26	3.26	
7,742.0	88.00	91.80	6,939.1	-1,072.2	124.7	124.7	2.51	2.39	
7,835.0	89.00	91.30	6,941.6	-1,074.7	217.7	217.7	1.20	1.08	
7,927.0	89.70	91.90	6,942.6	-1,077.2	309.6	309.6	1.00	0.76	
8,020.0	89.10	90.40	6,943.6	-1,079.1	402.6	402.6	1.74	-0.65	
8,113.0	89.10	89.90	6,945.0	-1,079.3	495.6	495.6	0.54	0.00	
8,204.0	88.90	89.70	6,946.6	-1,079.0	586.6	586.6	0.31	-0.22	
8,296.0	90.10	89.80	6,947.4	-1,078.6	678.6	678.6	1.31	1.30	
8,389.0	90.60	89.50	6,946.9	-1,078.1	771.6	771.6	0.63	0.54	
8,481.0	90.80	88.90	6,945.7	-1,076.8	863.6	863.6	0.69	0.22	
8,575.0	91.10	88.30	6,944.2	-1,074.5	957.5	957.5	0.71	0.32	
8,670.0	89.40	89.70	6,943.8	-1,072.8	1,052.5	1,052.5	2.32	-1.79	
8,764.0	88.20	88.70	6,945.7	-1,071.5	1,146.5	1,146.5	1.66	-1.28	
8,858.0	90.20	89.70	6,947.0	-1,070.2	1,240.4	1,240.4	2.38	2.13	
8,953.0	90.20	90.10	6,946.7	-1,070.0	1,335.4	1,335.4	0.42	0.00	
9,047.0	90.10	90.60	6,946.5	-1,070.6	1,429.4	1,429.4	0.54	-0.11	
9,142.0	88.40	87.80	6,947.7	-1,069.3	1,524.4	1,524.4	3.45	-1.79	
9,237.0	88.30	90.20	6,950.5	-1,067.6	1,619.3	1,619.3	2.53	-0.11	
9,331.0	88.20	91.60	6,953.3	-1,069.1	1,713.3	1,713.3	1.49	-0.11	

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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
9,425.0	88.20	91.00	6,956.3	-1,071.2	1,807.2	1,807.2	0.64	0.00	
9,520.0	87.50	92.50	6,959.8	-1,074.1	1,902.1	1,902.1	1.74	-0.74	
9,614.0	87.10	91.80	6,964.3	-1,077.7	1,995.9	1,995.9	0.86	-0.43	
9,709.0	87.20	91.80	6,969.0	-1,080.6	2,090.8	2,090.8	0.11	0.11	
9,804.0	84.90	90.60	6,975.5	-1,082.6	2,185.5	2,185.5	2.73	-2.42	
9,898.0	83.30	89.80	6,985.2	-1,082.9	2,279.0	2,279.0	1.90	-1.70	
9,993.0	80.50	89.00	6,998.6	-1,082.0	2,373.0	2,373.0	3.06	-2.95	
10,087.0	81.10	89.90	7,013.6	-1,081.1	2,465.8	2,465.8	1.14	0.64	
10,182.0	84.30	90.70	7,025.7	-1,081.6	2,560.0	2,560.0	3.47	3.37	
10,276.0	86.90	89.70	7,032.9	-1,081.9	2,653.8	2,653.8	2.96	2.77	
10,371.0	86.50	89.40	7,038.4	-1,081.2	2,748.6	2,748.6	0.53	-0.42	
10,465.0	87.00	88.80	7,043.7	-1,079.7	2,842.4	2,842.4	0.83	0.53	
10,560.0	87.80	88.90	7,048.0	-1,077.8	2,937.3	2,937.3	0.85	0.84	
10,654.0	85.50	90.40	7,053.5	-1,077.2	3,031.1	3,031.1	2.92	-2.45	
10,749.0	85.10	89.70	7,061.3	-1,077.3	3,125.8	3,125.8	0.85	-0.42	
10,843.0	84.70	88.90	7,069.6	-1,076.1	3,219.4	3,219.4	0.95	-0.43	
10,937.0	85.20	88.50	7,077.9	-1,074.0	3,313.0	3,313.0	0.68	0.53	
11,032.0	86.20	88.90	7,085.0	-1,071.9	3,407.8	3,407.8	1.13	1.05	
11,127.0	86.80	89.30	7,090.8	-1,070.4	3,502.6	3,502.6	0.76	0.63	
11,221.0	87.80	92.40	7,095.3	-1,071.8	3,596.4	3,596.4	3.46	1.06	
11,316.0	89.70	93.50	7,097.3	-1,076.7	3,691.3	3,691.3	2.31	2.00	
11,410.0	86.70	92.50	7,100.3	-1,081.6	3,785.1	3,785.1	3.36	-3.19	
11,505.0	84.50	91.40	7,107.6	-1,084.8	3,879.8	3,879.8	2.59	-2.32	
11,599.0	85.90	90.00	7,115.4	-1,085.9	3,973.4	3,973.4	2.10	1.49	
11,694.0	86.20	89.70	7,122.0	-1,085.7	4,068.2	4,068.2	0.45	0.32	
11,789.0	86.40	89.60	7,128.1	-1,085.1	4,163.0	4,163.0	0.24	0.21	
11,883.0	86.30	88.90	7,134.1	-1,083.9	4,256.8	4,256.8	0.75	-0.11	
11,977.0	88.20	89.70	7,138.6	-1,082.7	4,350.7	4,350.7	2.19	2.02	
12,072.0	90.70	89.50	7,139.5	-1,082.1	4,445.7	4,445.7	2.64	2.63	
12,166.0	90.60	90.20	7,138.5	-1,081.8	4,539.6	4,539.6	0.75	-0.11	
12,261.0	90.70	91.40	7,137.4	-1,083.2	4,634.6	4,634.6	1.27	0.11	
12,355.0	90.40	91.20	7,136.5	-1,085.3	4,728.6	4,728.6	0.38	-0.32	
12,450.0	90.10	90.60	7,136.1	-1,086.8	4,823.6	4,823.6	0.71	-0.32	
12,544.0	89.20	88.60	7,136.6	-1,086.1	4,917.6	4,917.6	2.33	-0.96	
12,639.0	90.10	88.90	7,137.2	-1,084.1	5,012.6	5,012.6	1.00	0.95	
12,733.0	91.50	90.40	7,135.9	-1,083.5	5,106.5	5,106.5	2.18	1.49	
12,828.0	91.80	90.40	7,133.2	-1,084.1	5,201.5	5,201.5	0.32	0.32	
12,922.0	93.00	90.40	7,129.2	-1,084.8	5,295.4	5,295.4	1.28	1.28	
13,017.0	92.00	91.40	7,125.1	-1,086.3	5,390.3	5,390.3	1.49	-1.05	
13,111.0	91.30	91.30	7,122.4	-1,088.5	5,484.2	5,484.2	0.75	-0.74	
13,206.0	91.20	92.30	7,120.3	-1,091.5	5,579.2	5,579.2	1.06	-0.11	
13,301.0	89.40	91.90	7,119.8	-1,095.0	5,674.1	5,674.1	1.94	-1.89	
13,395.0	89.20	91.30	7,121.0	-1,097.6	5,768.1	5,768.1	0.67	-0.21	
13,490.0	89.80	89.90	7,121.8	-1,098.6	5,863.0	5,863.0	1.60	0.63	
13,584.0	89.00	90.40	7,122.8	-1,098.8	5,957.0	5,957.0	1.00	-0.85	
13,679.0	89.30	90.70	7,124.2	-1,099.7	6,052.0	6,052.0	0.45	0.32	
13,773.0	89.50	89.90	7,125.2	-1,100.2	6,146.0	6,146.0	0.88	0.21	
13,868.0	89.40	89.60	7,126.1	-1,099.8	6,241.0	6,241.0	0.33	-0.11	
13,962.0	89.10	89.60	7,127.3	-1,099.2	6,335.0	6,335.0	0.32	-0.32	Last CES Survey @ 13,962' MD
14,025.0	88.80	89.60	7,128.5	-1,098.7	6,398.0	6,398.0	0.48	-0.48	PTB @ 14,205' MD

Cathedral Energy Services

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
3G-18H TGT 1	0.00	0.00	6,945.0	-1,078.3	1,604.7	1,323,172.09	3,126,787.09	40.219607	-105.045996
- survey misses target center by 11.8ft at 9222.0ft MD (6950.0 TVD, -1067.6 N, 1604.4 E)									
- Point									
3G-18H LP	0.00	0.00	6,945.0	-1,073.1	-93.1	1,323,168.70	3,125,089.28	40.219621	-105.052075
- survey misses target center by 24.9ft at 7526.5ft MD (6921.0 TVD, -1067.6 N, -89.8 E)									
- Point									
Interp @ 6670.1 (Billings)	0.00	0.00	6,794.0	-1,036.5	-594.2	1,323,202.81	3,124,588.00	40.219722	-105.053870
- survey misses target center by 63.7ft at 7017.3ft MD (6742.0 TVD, -1048.6 N, -559.5 E)									
- Point									
Billings 3G-18H PBHL 2	0.00	0.00	7,150.5	-1,093.4	6,495.1	1,323,181.66	3,131,677.53	40.219563	-105.028483
- survey misses target center by 99.7ft at 14025.0ft MD (7128.5 TVD, -1098.7 N, 6398.0 E)									
- Point									
Billings 3G-18H PBHL	0.00	0.00	7,150.5	-1,094.5	6,496.0	1,323,180.57	3,131,678.37	40.219560	-105.028480
- survey misses target center by 100.5ft at 14025.0ft MD (7128.5 TVD, -1098.7 N, 6398.0 E)									
- Point									
3G-18H TGT 2	0.00	0.00	7,110.0	-1,085.4	3,904.4	1,323,176.61	3,129,086.80	40.219587	-105.037760
- survey misses target center by 0.2ft at 11529.8ft MD (7109.9 TVD, -1085.3 N, 3904.4 E)									
- Point									
Billings 3G-18H PBHL P	0.00	0.00	7,122.5	-1,093.4	6,495.1	1,323,181.66	3,131,677.53	40.219563	-105.028483
- survey misses target center by 97.5ft at 14025.0ft MD (7128.5 TVD, -1098.7 N, 6398.0 E)									
- Point									
Billings 3G-18H PBHL P	0.00	0.00	7,103.0	-1,093.4	6,495.1	1,323,181.66	3,131,677.53	40.219563	-105.028483
- survey misses target center by 100.6ft at 14025.0ft MD (7128.5 TVD, -1098.7 N, 6398.0 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
13,962.0	7,127.3	-1,099.2	6,335.0	Last CES Survey @ 13,962' MD
14,025.0	7,128.5	-1,098.7	6,398.0	PTB @ 14,205' MD

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S18-T3N-R68W (Billings)

Billings 3G-18H

Hz

Survey: Survey #1

Survey Report - Geographic

18 December, 2014

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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	S18-T3N-R68W (Billings)				
Site Position:		Northing:	1,326,724.18 ft	Latitude:	40.229390
From:	Lat/Long	Easting:	3,124,452.97 ft	Longitude:	-105.054290
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.29 °

Well	Billings 3G-18H					
Well Position	+N/-S	0.0 ft	Northing:	1,324,242.26 ft	Latitude:	40.222567
	+E/-W	0.0 ft	Easting:	3,125,176.96 ft	Longitude:	-105.051742
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,155.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/9/2014	8.56	66.75	52,656

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	90.00	

Survey Program	Date	12/18/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
192.0	14,025.0	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	1,324,242.26	3,125,176.96	40.222567	-105.051742	
192.0	0.70	306.10	192.0	0.7	-0.9	1,324,242.94	3,125,176.01	40.222569	-105.051746	
240.0	0.50	248.30	240.0	0.8	-1.4	1,324,243.03	3,125,175.58	40.222569	-105.051747	
286.0	0.80	194.20	286.0	0.4	-1.6	1,324,242.65	3,125,175.31	40.222568	-105.051748	
334.0	1.00	205.30	334.0	-0.3	-1.9	1,324,241.94	3,125,175.05	40.222566	-105.051749	
429.0	2.50	221.40	428.9	-2.6	-3.6	1,324,239.63	3,125,173.34	40.222560	-105.051755	
524.0	4.70	232.00	523.7	-6.6	-8.1	1,324,235.66	3,125,168.92	40.222549	-105.051771	
619.0	6.50	227.00	618.3	-12.6	-15.1	1,324,229.56	3,125,161.95	40.222532	-105.051796	
714.0	8.00	223.00	712.5	-21.1	-23.5	1,324,221.01	3,125,153.56	40.222509	-105.051826	
808.0	9.20	222.60	805.5	-31.4	-33.1	1,324,210.65	3,125,144.06	40.222481	-105.051861	
903.0	10.20	224.90	899.1	-43.0	-44.1	1,324,199.04	3,125,133.04	40.222449	-105.051900	
970.0	11.10	225.80	965.0	-51.7	-52.9	1,324,190.30	3,125,124.27	40.222425	-105.051932	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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
1,110.0	11.00	223.50	1,102.4	-70.8	-71.8	1,324,171.12	3,125,105.51	40.222373	-105.051999
1,202.0	13.30	226.10	1,192.3	-84.5	-85.5	1,324,157.35	3,125,091.92	40.222335	-105.052048
1,294.0	13.30	223.20	1,281.8	-99.5	-100.3	1,324,142.22	3,125,077.12	40.222294	-105.052102
1,386.0	15.00	227.50	1,371.0	-115.3	-116.4	1,324,126.38	3,125,061.18	40.222251	-105.052159
1,478.0	14.80	221.90	1,459.9	-132.1	-133.0	1,324,109.51	3,125,044.64	40.222204	-105.052219
1,570.0	14.90	220.30	1,548.9	-149.8	-148.5	1,324,091.66	3,125,029.23	40.222156	-105.052274
1,662.0	14.50	229.00	1,637.9	-166.4	-164.8	1,324,075.00	3,125,012.97	40.222110	-105.052333
1,755.0	14.60	225.20	1,727.9	-182.3	-181.9	1,324,059.02	3,124,995.95	40.222067	-105.052394
1,848.0	12.90	230.50	1,818.2	-197.2	-198.3	1,324,044.07	3,124,979.69	40.222026	-105.052452
1,940.0	12.70	227.20	1,907.9	-210.6	-213.6	1,324,030.59	3,124,964.41	40.221989	-105.052507
2,032.0	14.00	234.50	1,997.5	-223.9	-230.1	1,324,017.17	3,124,948.00	40.221952	-105.052566
2,124.0	14.20	232.40	2,086.7	-237.3	-248.1	1,324,003.73	3,124,930.07	40.221916	-105.052631
2,216.0	13.80	230.90	2,176.0	-251.1	-265.5	1,323,989.84	3,124,912.68	40.221878	-105.052693
2,308.0	13.60	230.30	2,265.3	-264.9	-282.4	1,323,975.92	3,124,895.92	40.221840	-105.052754
2,403.0	14.70	228.10	2,357.5	-280.1	-300.0	1,323,960.65	3,124,878.43	40.221798	-105.052816
2,497.0	14.50	226.90	2,448.4	-296.1	-317.4	1,323,944.56	3,124,861.04	40.221754	-105.052879
2,592.0	13.80	225.60	2,540.5	-312.2	-334.2	1,323,928.42	3,124,844.34	40.221710	-105.052939
2,686.0	13.10	225.40	2,632.0	-327.5	-349.8	1,323,913.02	3,124,828.82	40.221668	-105.052995
2,781.0	14.60	222.50	2,724.2	-343.9	-365.6	1,323,896.55	3,124,813.15	40.221623	-105.053051
2,875.0	13.50	220.30	2,815.4	-361.0	-380.7	1,323,879.37	3,124,798.14	40.221576	-105.053105
2,970.0	14.40	224.40	2,907.6	-377.9	-396.1	1,323,862.39	3,124,782.78	40.221530	-105.053161
3,064.0	12.90	221.60	2,998.9	-394.1	-411.2	1,323,846.12	3,124,767.72	40.221485	-105.053215
3,159.0	13.60	228.40	3,091.4	-409.4	-426.6	1,323,830.69	3,124,752.40	40.221443	-105.053270
3,254.0	12.40	224.50	3,184.0	-424.1	-442.1	1,323,815.92	3,124,736.98	40.221403	-105.053326
3,348.0	14.50	227.60	3,275.4	-439.2	-457.9	1,323,800.71	3,124,721.29	40.221361	-105.053382
3,443.0	14.00	226.10	3,367.5	-455.2	-475.0	1,323,784.64	3,124,704.30	40.221317	-105.053443
3,537.0	16.30	229.10	3,458.2	-471.7	-493.1	1,323,768.02	3,124,686.22	40.221272	-105.053508
3,632.0	16.70	228.50	3,549.3	-489.5	-513.4	1,323,750.14	3,124,666.01	40.221223	-105.053581
3,727.0	16.10	228.30	3,640.4	-507.3	-533.5	1,323,732.24	3,124,646.04	40.221174	-105.053653
3,821.0	14.50	227.60	3,731.1	-523.9	-551.9	1,323,715.54	3,124,627.71	40.221129	-105.053719
3,916.0	12.70	226.10	3,823.4	-539.2	-568.2	1,323,700.19	3,124,611.47	40.221087	-105.053777
4,011.0	14.90	228.60	3,915.7	-554.5	-584.9	1,323,684.79	3,124,594.86	40.221045	-105.053837
4,105.0	14.40	226.90	4,006.6	-570.5	-602.5	1,323,668.72	3,124,577.35	40.221001	-105.053900
4,200.0	13.60	226.90	4,098.8	-586.2	-619.3	1,323,652.93	3,124,560.64	40.220958	-105.053960
4,294.0	13.00	225.40	4,190.3	-601.2	-634.9	1,323,637.88	3,124,545.12	40.220917	-105.054016
4,389.0	14.90	224.10	4,282.5	-617.5	-651.0	1,323,621.52	3,124,529.10	40.220872	-105.054074
4,483.0	14.70	224.20	4,373.3	-634.7	-667.7	1,323,604.21	3,124,512.46	40.220825	-105.054133
4,578.0	14.50	222.50	4,465.3	-652.1	-684.2	1,323,586.72	3,124,496.11	40.220777	-105.054192
4,673.0	13.50	221.50	4,557.5	-669.2	-699.5	1,323,569.56	3,124,480.81	40.220730	-105.054247
4,767.0	11.90	221.80	4,649.1	-684.6	-713.3	1,323,554.05	3,124,467.16	40.220688	-105.054297
4,862.0	12.60	226.40	4,742.0	-699.1	-727.3	1,323,539.53	3,124,453.20	40.220648	-105.054347
4,957.0	11.60	224.70	4,834.9	-713.0	-741.5	1,323,525.53	3,124,439.05	40.220610	-105.054398
5,051.0	12.90	226.90	4,926.7	-726.9	-755.8	1,323,511.57	3,124,424.81	40.220572	-105.054449
5,146.0	14.60	225.50	5,019.0	-742.5	-772.1	1,323,495.85	3,124,408.60	40.220529	-105.054507
5,240.0	13.20	224.70	5,110.3	-758.4	-788.1	1,323,479.83	3,124,392.68	40.220485	-105.054565
5,335.0	13.10	225.40	5,202.8	-773.7	-803.4	1,323,464.49	3,124,377.47	40.220443	-105.054619
5,429.0	14.00	229.00	5,294.1	-788.7	-819.6	1,323,449.46	3,124,361.37	40.220402	-105.054677
5,524.0	15.30	234.20	5,386.1	-803.5	-838.4	1,323,434.50	3,124,342.61	40.220361	-105.054745
5,618.0	13.20	231.20	5,477.2	-817.5	-856.8	1,323,420.42	3,124,324.26	40.220323	-105.054811
5,713.0	11.60	231.20	5,569.9	-830.3	-872.7	1,323,407.56	3,124,308.42	40.220288	-105.054868
5,807.0	12.50	225.70	5,661.9	-843.3	-887.4	1,323,394.46	3,124,293.84	40.220252	-105.054920
5,854.0	12.10	224.20	5,707.8	-850.4	-894.5	1,323,387.34	3,124,286.80	40.220233	-105.054945
5,902.0	14.20	223.20	5,754.5	-858.3	-902.0	1,323,379.40	3,124,279.31	40.220211	-105.054972
5,949.0	15.30	219.10	5,800.0	-867.3	-909.9	1,323,370.35	3,124,271.49	40.220186	-105.055001
5,997.0	15.50	208.10	5,846.3	-877.9	-916.9	1,323,359.74	3,124,264.53	40.220157	-105.055026

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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
6,044.0	14.50	194.70	5,891.7	-889.1	-921.3	1,323,348.48	3,124,260.13	40.220126	-105.055042
6,091.0	14.30	176.60	5,937.2	-900.6	-922.5	1,323,336.98	3,124,259.04	40.220095	-105.055046
6,138.0	12.40	164.70	5,983.0	-911.3	-920.8	1,323,326.33	3,124,260.77	40.220065	-105.055040
6,186.0	11.40	149.20	6,029.9	-920.3	-917.0	1,323,317.30	3,124,264.61	40.220041	-105.055026
6,233.0	12.80	144.70	6,075.9	-928.6	-911.6	1,323,309.09	3,124,270.04	40.220018	-105.055007
6,280.0	15.00	141.70	6,121.5	-937.6	-904.8	1,323,300.10	3,124,276.86	40.219993	-105.054983
6,327.0	15.60	137.60	6,166.9	-947.0	-896.8	1,323,290.70	3,124,284.94	40.219967	-105.054954
6,375.0	16.80	129.50	6,213.0	-956.2	-887.1	1,323,281.57	3,124,294.69	40.219942	-105.054919
6,422.0	18.60	124.30	6,257.7	-964.8	-875.7	1,323,273.08	3,124,306.17	40.219919	-105.054878
6,470.0	21.10	117.30	6,302.9	-973.0	-861.7	1,323,264.87	3,124,320.22	40.219896	-105.054828
6,517.0	22.70	110.90	6,346.5	-980.2	-845.7	1,323,257.83	3,124,336.25	40.219876	-105.054771
6,564.0	25.10	106.90	6,389.5	-986.3	-827.7	1,323,251.79	3,124,354.29	40.219860	-105.054706
6,611.0	26.80	106.30	6,431.7	-992.2	-808.0	1,323,246.02	3,124,374.03	40.219843	-105.054636
6,659.0	29.10	105.70	6,474.1	-998.4	-786.3	1,323,239.93	3,124,395.69	40.219826	-105.054558
6,706.0	30.90	104.70	6,514.8	-1,004.5	-763.6	1,323,233.89	3,124,418.40	40.219809	-105.054477
6,753.0	33.30	103.60	6,554.6	-1,010.6	-739.4	1,323,227.92	3,124,442.64	40.219793	-105.054390
6,800.0	36.40	101.90	6,593.2	-1,016.5	-713.2	1,323,222.14	3,124,468.87	40.219777	-105.054296
6,847.0	41.50	102.10	6,629.7	-1,022.7	-684.3	1,323,216.14	3,124,497.79	40.219760	-105.054193
6,894.0	45.50	101.70	6,663.8	-1,029.3	-652.7	1,323,209.63	3,124,529.47	40.219741	-105.054080
6,942.0	49.70	101.60	6,696.2	-1,036.5	-618.0	1,323,202.65	3,124,564.22	40.219722	-105.053955
6,989.0	53.20	102.10	6,725.5	-1,044.0	-582.0	1,323,195.29	3,124,600.22	40.219701	-105.053826
7,036.0	56.80	100.30	6,752.4	-1,051.5	-544.3	1,323,188.01	3,124,638.02	40.219681	-105.053691
7,083.0	59.20	97.70	6,777.3	-1,057.7	-504.9	1,323,181.99	3,124,677.41	40.219663	-105.053550
7,131.0	60.20	94.60	6,801.6	-1,062.2	-463.7	1,323,177.77	3,124,718.63	40.219651	-105.053403
7,178.0	61.70	93.10	6,824.4	-1,064.9	-422.7	1,323,175.22	3,124,759.64	40.219644	-105.053256
7,226.0	66.80	91.60	6,845.2	-1,066.7	-379.5	1,323,173.68	3,124,802.83	40.219639	-105.053101
7,273.0	69.90	90.50	6,862.6	-1,067.5	-335.9	1,323,173.10	3,124,846.50	40.219637	-105.052945
7,320.0	72.20	89.00	6,877.8	-1,067.3	-291.4	1,323,173.52	3,124,890.95	40.219637	-105.052786
7,367.0	74.30	89.70	6,891.4	-1,066.8	-246.4	1,323,174.26	3,124,935.94	40.219639	-105.052625
7,415.0	77.70	90.40	6,903.0	-1,066.8	-199.8	1,323,174.45	3,124,982.51	40.219639	-105.052458
7,462.0	80.80	90.20	6,911.8	-1,067.0	-153.7	1,323,174.45	3,125,028.68	40.219638	-105.052293
7,490.0	81.90	90.40	6,916.0	-1,067.2	-126.0	1,323,174.44	3,125,056.36	40.219637	-105.052193
7,558.0	82.80	91.10	6,925.0	-1,068.1	-58.6	1,323,173.90	3,125,123.75	40.219635	-105.051952
7,650.0	85.80	91.10	6,934.2	-1,069.8	32.9	1,323,172.60	3,125,215.28	40.219630	-105.051624
7,742.0	88.00	91.80	6,939.1	-1,072.2	124.7	1,323,170.74	3,125,307.12	40.219624	-105.051296
7,835.0	89.00	91.30	6,941.6	-1,074.7	217.7	1,323,168.70	3,125,400.06	40.219617	-105.050963
7,927.0	89.70	91.90	6,942.6	-1,077.2	309.6	1,323,166.59	3,125,492.03	40.219610	-105.050633
8,020.0	89.10	90.40	6,943.6	-1,079.1	402.6	1,323,165.20	3,125,585.01	40.219605	-105.050301
8,113.0	89.10	89.90	6,945.0	-1,079.3	495.6	1,323,165.42	3,125,678.00	40.219604	-105.049968
8,204.0	88.90	89.70	6,946.6	-1,079.0	586.6	1,323,166.20	3,125,768.98	40.219605	-105.049642
8,296.0	90.10	89.80	6,947.4	-1,078.6	678.6	1,323,167.07	3,125,860.97	40.219606	-105.049312
8,389.0	90.60	89.50	6,946.9	-1,078.1	771.6	1,323,168.11	3,125,953.97	40.219608	-105.048979
8,481.0	90.80	88.90	6,945.7	-1,076.8	863.6	1,323,169.86	3,126,045.94	40.219611	-105.048650
8,575.0	91.10	88.30	6,944.2	-1,074.5	957.5	1,323,172.63	3,126,139.89	40.219617	-105.048313
8,670.0	89.40	89.70	6,943.8	-1,072.8	1,052.5	1,323,174.77	3,126,234.86	40.219622	-105.047973
8,764.0	88.20	88.70	6,945.7	-1,071.5	1,146.5	1,323,176.55	3,126,328.82	40.219626	-105.047637
8,858.0	90.20	89.70	6,947.0	-1,070.2	1,240.4	1,323,178.34	3,126,422.78	40.219629	-105.047300
8,953.0	90.20	90.10	6,946.7	-1,070.0	1,335.4	1,323,178.99	3,126,517.78	40.219630	-105.046960
9,047.0	90.10	90.60	6,946.5	-1,070.6	1,429.4	1,323,178.89	3,126,611.78	40.219628	-105.046623
9,142.0	88.40	87.80	6,947.7	-1,069.3	1,524.4	1,323,180.69	3,126,706.74	40.219632	-105.046283
9,237.0	88.30	90.20	6,950.5	-1,067.6	1,619.3	1,323,182.83	3,126,801.67	40.219636	-105.045943
9,331.0	88.20	91.60	6,953.3	-1,069.1	1,713.3	1,323,181.83	3,126,895.62	40.219632	-105.045607
9,425.0	88.20	91.00	6,956.3	-1,071.2	1,807.2	1,323,180.17	3,126,989.56	40.219626	-105.045271
9,520.0	87.50	92.50	6,959.8	-1,074.1	1,902.1	1,323,177.75	3,127,084.46	40.219618	-105.044931
9,614.0	87.10	91.80	6,964.3	-1,077.7	1,995.9	1,323,174.70	3,127,178.30	40.219609	-105.044595

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	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
9,709.0	87.20	91.80	6,969.0	-1,080.6	2,090.8	1,323,172.20	3,127,273.15	40.219600	-105.044255
9,804.0	84.90	90.60	6,975.5	-1,082.6	2,185.5	1,323,170.70	3,127,367.91	40.219595	-105.043916
9,898.0	83.30	89.80	6,985.2	-1,082.9	2,279.0	1,323,170.84	3,127,461.41	40.219594	-105.043581
9,993.0	80.50	89.00	6,998.6	-1,082.0	2,373.0	1,323,172.30	3,127,555.44	40.219597	-105.043244
10,087.0	81.10	89.90	7,013.6	-1,081.1	2,465.8	1,323,173.66	3,127,648.22	40.219599	-105.042912
10,182.0	84.30	90.70	7,025.7	-1,081.6	2,560.0	1,323,173.64	3,127,742.43	40.219598	-105.042575
10,276.0	86.90	89.70	7,032.9	-1,081.9	2,653.8	1,323,173.79	3,127,836.15	40.219597	-105.042239
10,371.0	86.50	89.40	7,038.4	-1,081.2	2,748.6	1,323,175.01	3,127,930.98	40.219599	-105.041900
10,465.0	87.00	88.80	7,043.7	-1,079.7	2,842.4	1,323,176.96	3,128,024.81	40.219603	-105.041564
10,560.0	87.80	88.90	7,048.0	-1,077.8	2,937.3	1,323,179.34	3,128,119.68	40.219608	-105.041224
10,654.0	85.50	90.40	7,053.5	-1,077.2	3,031.1	1,323,180.39	3,128,213.50	40.219610	-105.040888
10,749.0	85.10	89.70	7,061.3	-1,077.3	3,125.8	1,323,180.79	3,128,308.18	40.219609	-105.040549
10,843.0	84.70	88.90	7,069.6	-1,076.1	3,219.4	1,323,182.41	3,128,401.80	40.219612	-105.040213
10,937.0	85.20	88.50	7,077.9	-1,074.0	3,313.0	1,323,185.00	3,128,495.39	40.219618	-105.039878
11,032.0	86.20	88.90	7,085.0	-1,071.9	3,407.8	1,323,187.63	3,128,590.09	40.219624	-105.039539
11,127.0	86.80	89.30	7,090.8	-1,070.4	3,502.6	1,323,189.60	3,128,684.89	40.219628	-105.039200
11,221.0	87.80	92.40	7,095.3	-1,071.8	3,596.4	1,323,188.68	3,128,778.77	40.219624	-105.038863
11,316.0	89.70	93.50	7,097.3	-1,076.7	3,691.3	1,323,184.27	3,128,873.64	40.219611	-105.038524
11,410.0	86.70	92.50	7,100.3	-1,081.6	3,785.1	1,323,179.83	3,128,967.48	40.219597	-105.038188
11,505.0	84.50	91.40	7,107.6	-1,084.8	3,879.8	1,323,177.08	3,129,062.15	40.219588	-105.037849
11,599.0	85.90	90.00	7,115.4	-1,085.9	3,973.4	1,323,176.41	3,129,155.81	40.219585	-105.037513
11,694.0	86.20	89.70	7,122.0	-1,085.7	4,068.2	1,323,177.14	3,129,250.58	40.219586	-105.037174
11,789.0	86.40	89.60	7,128.1	-1,085.1	4,163.0	1,323,178.20	3,129,345.38	40.219587	-105.036835
11,883.0	86.30	88.90	7,134.1	-1,083.9	4,256.8	1,323,179.90	3,129,439.17	40.219591	-105.036499
11,977.0	88.20	89.70	7,138.6	-1,082.7	4,350.7	1,323,181.52	3,129,533.05	40.219594	-105.036163
12,072.0	90.70	89.50	7,139.5	-1,082.1	4,445.7	1,323,182.67	3,129,628.03	40.219596	-105.035822
12,166.0	90.60	90.20	7,138.4	-1,081.8	4,539.6	1,323,183.39	3,129,722.02	40.219596	-105.035486
12,261.0	90.70	91.40	7,137.4	-1,083.2	4,634.6	1,323,182.54	3,129,817.01	40.219592	-105.035146
12,355.0	90.40	91.20	7,136.5	-1,085.3	4,728.6	1,323,180.88	3,129,910.99	40.219587	-105.034809
12,450.0	90.10	90.60	7,136.1	-1,086.8	4,823.6	1,323,179.87	3,130,005.98	40.219582	-105.034469
12,544.0	89.20	88.60	7,136.6	-1,086.1	4,917.6	1,323,181.00	3,130,099.96	40.219584	-105.034132
12,639.0	90.10	88.90	7,137.2	-1,084.1	5,012.6	1,323,183.55	3,130,194.93	40.219590	-105.033792
12,733.0	91.50	90.40	7,135.9	-1,083.5	5,106.5	1,323,184.60	3,130,288.91	40.219591	-105.033456
12,828.0	91.80	90.40	7,133.2	-1,084.1	5,201.5	1,323,184.42	3,130,383.87	40.219589	-105.033116
12,922.0	93.00	90.40	7,129.2	-1,084.8	5,295.4	1,323,184.24	3,130,477.78	40.219588	-105.032779
13,017.0	92.00	91.40	7,125.1	-1,086.3	5,390.3	1,323,183.23	3,130,572.69	40.219583	-105.032440
13,111.0	91.30	91.30	7,122.4	-1,088.5	5,484.2	1,323,181.49	3,130,666.63	40.219577	-105.032103
13,206.0	91.20	92.30	7,120.3	-1,091.5	5,579.2	1,323,178.99	3,130,761.57	40.219569	-105.031763
13,301.0	89.40	91.90	7,119.8	-1,095.0	5,674.1	1,323,175.99	3,130,856.52	40.219559	-105.031423
13,395.0	89.20	91.30	7,121.0	-1,097.6	5,768.1	1,323,173.84	3,130,950.49	40.219552	-105.031087
13,490.0	89.80	89.90	7,121.8	-1,098.6	5,863.0	1,323,173.32	3,131,045.48	40.219549	-105.030747
13,584.0	89.00	90.40	7,122.8	-1,098.8	5,957.0	1,323,173.55	3,131,139.47	40.219549	-105.030410
13,679.0	89.30	90.70	7,124.2	-1,099.7	6,052.0	1,323,173.12	3,131,234.46	40.219546	-105.030070
13,773.0	89.50	89.90	7,125.2	-1,100.2	6,146.0	1,323,173.10	3,131,328.46	40.219545	-105.029733
13,868.0	89.40	89.60	7,126.1	-1,099.8	6,241.0	1,323,174.00	3,131,423.45	40.219546	-105.029393
13,962.0	89.10	89.60	7,127.3	-1,099.2	6,335.0	1,323,175.13	3,131,517.43	40.219547	-105.029057
Last CES Survey @ 13,962' MD									
14,025.0	88.80	89.60	7,128.5	-1,098.7	6,398.0	1,323,175.89	3,131,580.42	40.219549	-105.028831
PTB @ 14,205' MD									

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3G-18H
Project:	DJ Wattenberg	TVD Reference:	32' KB @ 5187.0ft (Patt 326)
Site:	S18-T3N-R68W (Billings)	MD Reference:	32' KB @ 5187.0ft (Patt 326)
Well:	Billings 3G-18H	North Reference:	True
Wellbore:	Hz	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Design 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
3G-18H TGT 1 - survey misses target center by 11.8ft at 9222.0ft MD (6950.0 TVD, -1067.6 N, 1604.4 E) - Point	0.00	0.00	6,945.0	-1,078.3	1,604.7	1,323,172.09	3,126,787.09	40.219607	-105.045996
Billings 3G-18H PBHL P - survey misses target center by 100.6ft at 14025.0ft MD (7128.5 TVD, -1098.7 N, 6398.0 E) - Point	0.00	0.00	7,103.0	-1,093.4	6,495.1	1,323,181.66	3,131,677.53	40.219563	-105.028483
3G-18H TGT 2 - survey misses target center by 0.2ft at 11529.8ft MD (7109.9 TVD, -1085.3 N, 3904.4 E) - Point	0.00	0.00	7,110.0	-1,085.4	3,904.4	1,323,176.61	3,129,086.80	40.219587	-105.037761

Survey Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
13,962.0	7,127.3	-1,099.2	6,335.0	Last CES Survey @ 13,962' MD
14,025.0	7,128.5	-1,098.7	6,398.0	PTB @ 14,205' MD

Checked By: _____ Approved By: _____ Date: _____