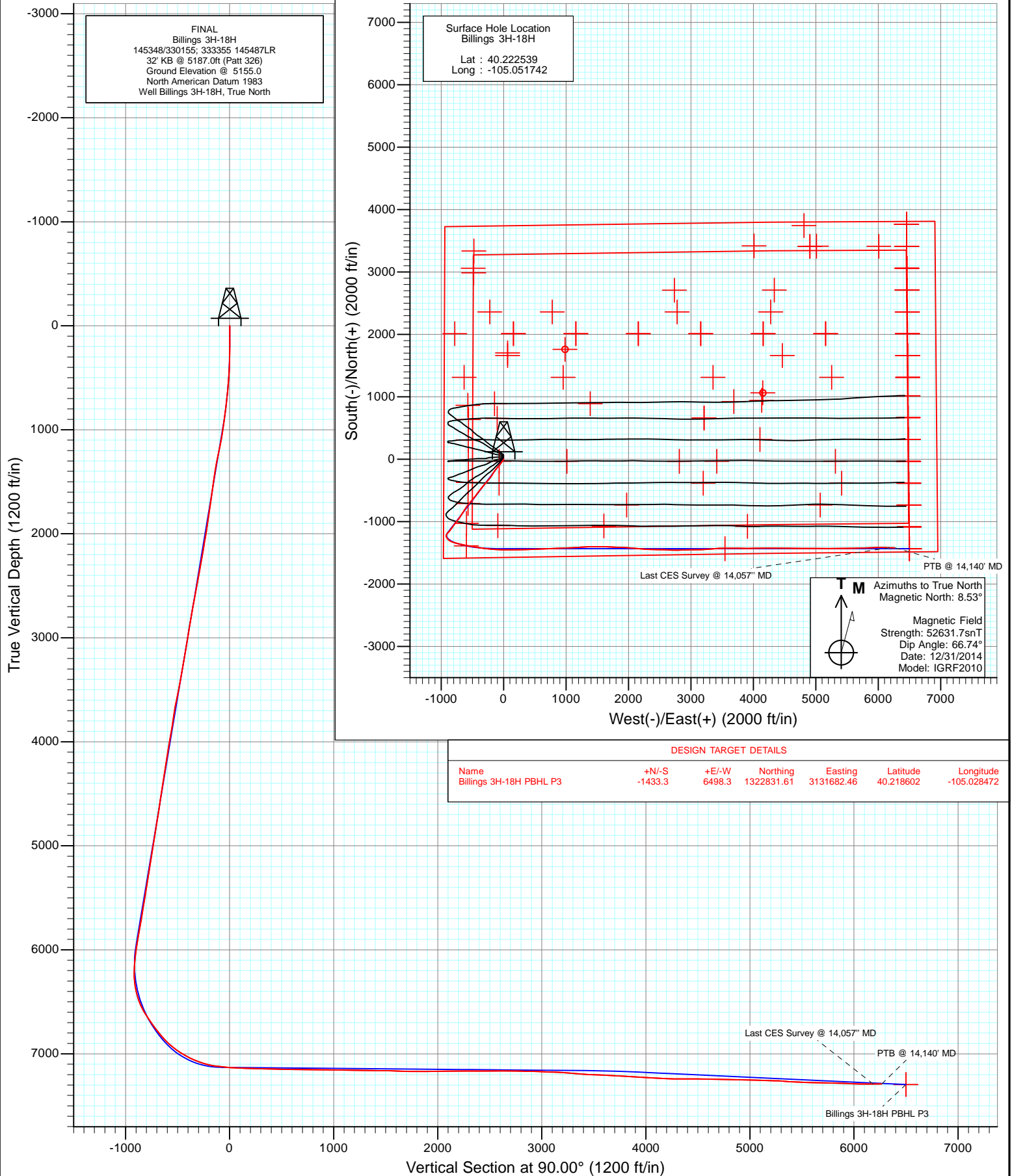




Project: DJ Wattenberg
Site: S18-T3N-R68W (Billings)
Well: Billings 3H-18H
Wellbore: HZ
Design: FINAL



HP

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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 3H-18H			
Well Position	+N/-S	0.0 ft	Northing:	1,324,232.06 ft
	+E/-W	0.0 ft	Easting:	3,125,177.01 ft
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	12/31/2014	8.52	66.74	52,632

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	12/29/2014		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
192.0	14,140.0	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	1.10	165.00	192.0	-1.8	0.5	0.5	0.57	0.57	
240.0	1.80	179.80	240.0	-3.0	0.6	0.6	1.64	1.46	
334.0	3.30	209.70	333.9	-6.8	-0.7	-0.7	2.08	1.60	
429.0	5.00	216.00	428.6	-12.5	-4.5	-4.5	1.85	1.79	
524.0	7.00	217.90	523.1	-20.4	-10.5	-10.5	2.12	2.11	
619.0	8.50	218.30	617.2	-30.5	-18.4	-18.4	1.58	1.58	
714.0	10.40	219.10	710.9	-42.7	-28.2	-28.2	2.00	2.00	
808.0	11.50	217.60	803.2	-56.7	-39.3	-39.3	1.21	1.17	
903.0	12.30	216.20	896.2	-72.4	-51.0	-51.0	0.90	0.84	
925.0	12.50	215.50	917.7	-76.2	-53.8	-53.8	1.14	0.91	
1,018.0	13.50	217.70	1,008.3	-93.0	-66.3	-66.3	1.20	1.08	
1,110.0	16.60	221.80	1,097.1	-111.3	-81.6	-81.6	3.56	3.37	

HP

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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	17.00	221.00	1,185.2	-131.2	-99.2	-99.2	0.50	0.43	
1,294.0	16.90	220.30	1,273.2	-151.6	-116.6	-116.6	0.25	-0.11	
1,386.0	17.10	218.20	1,361.2	-172.4	-133.7	-133.7	0.70	0.22	
1,478.0	14.90	213.10	1,449.6	-192.9	-148.5	-148.5	2.84	-2.39	
1,570.0	14.90	212.40	1,538.5	-212.8	-161.3	-161.3	0.20	0.00	
1,662.0	15.00	210.80	1,627.4	-233.1	-173.7	-173.7	0.46	0.11	
1,755.0	15.00	208.80	1,717.2	-253.9	-185.7	-185.7	0.56	0.00	
1,847.0	14.30	215.80	1,806.3	-273.6	-198.1	-198.1	2.07	-0.76	
1,940.0	14.10	215.10	1,896.4	-292.2	-211.3	-211.3	0.28	-0.22	
2,032.0	14.50	221.90	1,985.6	-309.9	-225.4	-225.4	1.88	0.43	
2,124.0	14.40	221.00	2,074.7	-327.1	-240.6	-240.6	0.27	-0.11	
2,216.0	14.20	219.80	2,163.8	-344.4	-255.4	-255.4	0.39	-0.22	
2,308.0	16.00	221.00	2,252.6	-362.7	-270.9	-270.9	1.99	1.96	
2,403.0	15.40	220.30	2,344.1	-382.2	-287.6	-287.6	0.66	-0.63	
2,497.0	15.00	220.90	2,434.8	-400.9	-303.7	-303.7	0.46	-0.43	
2,592.0	16.70	221.00	2,526.2	-420.5	-320.7	-320.7	1.79	1.79	
2,686.0	15.60	221.00	2,616.5	-440.2	-337.8	-337.8	1.17	-1.17	
2,781.0	14.60	221.20	2,708.2	-458.9	-354.1	-354.1	1.05	-1.05	
2,876.0	15.30	217.40	2,800.0	-477.8	-369.6	-369.6	1.27	0.74	
2,970.0	16.70	215.80	2,890.3	-498.6	-385.0	-385.0	1.56	1.49	
3,065.0	15.40	213.80	2,981.6	-520.2	-400.0	-400.0	1.49	-1.37	
3,159.0	16.90	219.10	3,071.9	-541.2	-415.6	-415.6	2.24	1.60	
3,254.0	15.30	217.70	3,163.2	-561.8	-432.0	-432.0	1.73	-1.68	
3,348.0	13.80	216.10	3,254.2	-580.7	-446.2	-446.2	1.65	-1.60	
3,443.0	16.80	218.70	3,345.8	-600.5	-461.4	-461.4	3.24	3.16	
3,538.0	17.20	219.70	3,436.6	-622.1	-479.0	-479.0	0.52	0.42	
3,632.0	17.70	218.70	3,526.3	-643.9	-496.8	-496.8	0.62	0.53	
3,727.0	17.50	219.50	3,616.9	-666.2	-514.9	-514.9	0.33	-0.21	
3,822.0	13.60	221.60	3,708.4	-685.6	-531.4	-531.4	4.15	-4.11	
3,916.0	12.20	218.90	3,800.0	-701.6	-545.0	-545.0	1.62	-1.49	
4,011.0	14.90	220.60	3,892.4	-718.7	-559.3	-559.3	2.87	2.84	
4,105.0	16.50	216.10	3,982.8	-738.6	-575.0	-575.0	2.14	1.70	
4,200.0	16.40	216.00	4,074.0	-760.4	-590.8	-590.8	0.11	-0.11	
4,295.0	15.30	214.80	4,165.3	-781.5	-605.9	-605.9	1.21	-1.16	
4,389.0	14.50	214.60	4,256.2	-801.4	-619.6	-619.6	0.85	-0.85	
4,484.0	16.10	212.30	4,347.8	-822.3	-633.4	-633.4	1.80	1.68	
4,578.0	16.70	211.60	4,438.0	-844.8	-647.4	-647.4	0.67	0.64	
4,673.0	16.20	212.30	4,529.1	-867.7	-661.7	-661.7	0.57	-0.53	
4,767.0	14.90	212.40	4,619.7	-889.0	-675.2	-675.2	1.38	-1.38	
4,862.0	16.50	214.50	4,711.1	-910.4	-689.4	-689.4	1.79	1.68	
4,956.0	15.50	214.80	4,801.5	-931.7	-704.1	-704.1	1.07	-1.06	
5,051.0	14.40	214.20	4,893.3	-951.9	-718.0	-718.0	1.17	-1.16	
5,146.0	15.20	217.80	4,985.1	-971.5	-732.2	-732.2	1.28	0.84	
5,240.0	14.00	218.30	5,076.1	-990.2	-746.8	-746.8	1.28	-1.28	
5,335.0	15.20	221.90	5,168.0	-1,008.5	-762.3	-762.3	1.58	1.26	
5,429.0	16.00	216.20	5,258.5	-1,028.1	-778.2	-778.2	1.84	0.85	
5,524.0	14.20	213.70	5,350.3	-1,048.4	-792.4	-792.4	2.01	-1.89	
5,618.0	14.90	216.70	5,441.2	-1,067.6	-806.0	-806.0	1.09	0.74	
5,713.0	16.60	215.60	5,532.7	-1,088.5	-821.2	-821.2	1.82	1.79	
5,807.0	15.60	215.70	5,623.0	-1,109.6	-836.4	-836.4	1.06	-1.06	
5,902.0	15.20	219.30	5,714.6	-1,129.7	-851.7	-851.7	1.09	-0.42	
5,996.0	15.30	220.10	5,805.3	-1,148.7	-867.5	-867.5	0.25	0.11	
6,091.0	13.00	220.30	5,897.4	-1,166.4	-882.5	-882.5	2.42	-2.42	

HP

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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
6,138.0	12.60	220.50	5,943.2	-1,174.3	-889.2	-889.2	0.86	-0.85	
6,185.0	12.40	223.00	5,989.1	-1,181.9	-896.0	-896.0	1.23	-0.43	
6,232.0	12.00	220.20	6,035.0	-1,189.4	-902.6	-902.6	1.52	-0.85	
6,280.0	13.10	212.60	6,081.9	-1,197.8	-908.8	-908.8	4.13	2.29	
6,327.0	13.60	204.50	6,127.6	-1,207.3	-913.9	-913.9	4.12	1.06	
6,375.0	13.50	191.80	6,174.3	-1,217.9	-917.4	-917.4	6.19	-0.21	
6,422.0	14.10	179.70	6,220.0	-1,229.0	-918.5	-918.5	6.26	1.28	
6,469.0	14.80	165.90	6,265.5	-1,240.5	-917.0	-917.0	7.46	1.49	
6,516.0	15.60	155.00	6,310.8	-1,252.1	-912.9	-912.9	6.30	1.70	
6,564.0	17.10	147.90	6,356.9	-1,263.9	-906.4	-906.4	5.20	3.12	
6,611.0	19.30	141.20	6,401.6	-1,275.8	-897.9	-897.9	6.45	4.68	
6,658.0	21.70	134.20	6,445.6	-1,287.9	-886.8	-886.8	7.29	5.11	
6,705.0	24.10	127.40	6,488.9	-1,299.8	-872.9	-872.9	7.59	5.11	
6,753.0	27.60	118.50	6,532.1	-1,311.1	-855.3	-855.3	10.87	7.29	
6,800.0	31.00	111.90	6,573.1	-1,320.8	-834.5	-834.5	9.97	7.23	
6,847.0	32.90	109.40	6,613.0	-1,329.6	-811.2	-811.2	4.93	4.04	
6,894.0	34.10	106.40	6,652.2	-1,337.5	-786.6	-786.6	4.35	2.55	
6,942.0	35.60	103.60	6,691.5	-1,344.6	-760.1	-760.1	4.57	3.12	
6,989.0	37.20	104.10	6,729.4	-1,351.3	-733.0	-733.0	3.46	3.40	
7,036.0	38.40	103.00	6,766.5	-1,358.0	-705.0	-705.0	2.93	2.55	
7,083.0	39.60	103.50	6,803.0	-1,364.8	-676.2	-676.2	2.64	2.55	
7,131.0	41.70	102.40	6,839.5	-1,371.8	-645.7	-645.7	4.62	4.37	
7,178.0	44.30	101.40	6,873.8	-1,378.4	-614.4	-614.4	5.72	5.53	
7,225.0	48.00	100.70	6,906.4	-1,384.9	-581.1	-581.1	7.95	7.87	
7,272.0	51.70	100.00	6,936.7	-1,391.4	-545.8	-545.8	7.95	7.87	
7,320.0	55.40	99.80	6,965.2	-1,398.0	-507.7	-507.7	7.72	7.71	
7,367.0	58.30	99.60	6,990.9	-1,404.6	-469.0	-469.0	6.18	6.17	
7,414.0	60.70	99.00	7,014.7	-1,411.2	-429.0	-429.0	5.22	5.11	
7,461.0	63.10	98.80	7,036.9	-1,417.6	-388.0	-388.0	5.12	5.11	
7,509.0	66.50	97.70	7,057.3	-1,423.8	-345.1	-345.1	7.38	7.08	
7,556.0	70.20	96.60	7,074.7	-1,429.2	-301.7	-301.7	8.17	7.87	
7,603.0	72.60	96.20	7,089.6	-1,434.2	-257.5	-257.5	5.17	5.11	
7,650.0	76.20	95.50	7,102.3	-1,438.8	-212.4	-212.4	7.79	7.66	
7,698.0	79.60	94.80	7,112.3	-1,443.0	-165.7	-165.7	7.23	7.08	
7,720.0	81.50	94.00	7,116.0	-1,444.7	-144.1	-144.1	9.35	8.64	
7,835.0	85.50	91.30	7,129.0	-1,450.0	-30.0	-30.0	4.19	3.48	
7,927.0	87.20	89.70	7,134.8	-1,450.8	61.8	61.8	2.54	1.85	
8,020.0	88.10	89.70	7,138.6	-1,450.3	154.8	154.8	0.97	0.97	
8,113.0	87.80	88.70	7,142.0	-1,449.0	247.7	247.7	1.12	-0.32	
8,204.0	89.60	89.00	7,144.0	-1,447.1	338.6	338.6	2.01	1.98	
8,296.0	88.40	88.20	7,145.6	-1,444.9	430.6	430.6	1.57	-1.30	
8,389.0	88.50	86.40	7,148.2	-1,440.5	523.5	523.5	1.94	0.11	
8,481.0	89.50	87.40	7,149.8	-1,435.5	615.3	615.3	1.54	1.09	
8,575.0	89.40	89.40	7,150.7	-1,432.9	709.3	709.3	2.13	-0.11	
8,670.0	89.00	88.20	7,152.0	-1,430.9	804.2	804.2	1.33	-0.42	
8,764.0	89.40	86.90	7,153.3	-1,426.9	898.1	898.1	1.45	0.43	
8,859.0	89.50	88.90	7,154.2	-1,423.4	993.1	993.1	2.11	0.11	
8,953.0	88.00	85.00	7,156.3	-1,418.4	1,086.9	1,086.9	4.44	-1.60	
9,048.0	89.30	86.00	7,158.5	-1,411.0	1,181.6	1,181.6	1.73	1.37	
9,142.0	89.00	87.00	7,159.9	-1,405.2	1,275.4	1,275.4	1.11	-0.32	
9,237.0	89.80	88.90	7,160.9	-1,401.8	1,370.3	1,370.3	2.17	0.84	
9,331.0	89.70	90.50	7,161.3	-1,401.4	1,464.3	1,464.3	1.71	-0.11	
9,426.0	88.00	89.10	7,163.2	-1,401.0	1,559.3	1,559.3	2.32	-1.79	

HP

Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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
9,520.0	88.50	93.30	7,166.1	-1,403.0	1,653.2	1,653.2	4.50	0.53	
9,615.0	89.50	92.60	7,167.7	-1,407.9	1,748.0	1,748.0	1.28	1.05	
9,709.0	88.30	90.60	7,169.5	-1,410.5	1,842.0	1,842.0	2.48	-1.28	
9,804.0	91.10	93.60	7,170.0	-1,414.0	1,936.9	1,936.9	4.32	2.95	
9,898.0	91.10	94.90	7,168.2	-1,420.9	2,030.6	2,030.6	1.38	0.00	
9,993.0	92.10	95.10	7,165.6	-1,429.2	2,125.2	2,125.2	1.07	1.05	
10,087.0	88.90	95.40	7,164.8	-1,437.8	2,218.8	2,218.8	3.42	-3.40	
10,182.0	90.10	91.50	7,165.6	-1,443.5	2,313.6	2,313.6	4.29	1.26	
10,276.0	90.70	91.80	7,164.9	-1,446.2	2,407.6	2,407.6	0.71	0.64	
10,371.0	88.70	90.80	7,165.4	-1,448.4	2,502.5	2,502.5	2.35	-2.11	
10,465.0	90.70	92.50	7,165.9	-1,451.1	2,596.5	2,596.5	2.79	2.13	
10,560.0	90.60	93.00	7,164.9	-1,455.7	2,691.4	2,691.4	0.54	-0.11	
10,654.0	88.00	87.50	7,166.0	-1,456.1	2,785.3	2,785.3	6.47	-2.77	
10,749.0	89.70	88.90	7,167.9	-1,453.1	2,880.3	2,880.3	2.32	1.79	
10,843.0	87.30	88.60	7,170.4	-1,451.0	2,974.2	2,974.2	2.57	-2.55	
10,937.0	87.60	89.40	7,174.5	-1,449.4	3,068.1	3,068.1	0.91	0.32	
11,032.0	88.20	89.50	7,178.0	-1,448.5	3,163.0	3,163.0	0.64	0.63	
11,127.0	85.20	84.90	7,183.5	-1,443.9	3,257.7	3,257.7	5.77	-3.16	
11,221.0	84.50	83.90	7,191.9	-1,434.7	3,350.9	3,350.9	1.30	-0.74	
11,316.0	87.10	87.30	7,198.9	-1,427.5	3,445.3	3,445.3	4.50	2.74	
11,410.0	88.30	89.60	7,202.7	-1,424.9	3,539.2	3,539.2	2.76	1.28	
11,505.0	86.70	90.00	7,206.8	-1,424.6	3,634.1	3,634.1	1.74	-1.68	
11,599.0	87.50	89.90	7,211.6	-1,424.5	3,728.0	3,728.0	0.86	0.85	
11,694.0	86.50	91.90	7,216.5	-1,426.0	3,822.9	3,822.9	2.35	-1.05	
11,789.0	86.50	90.90	7,222.3	-1,428.3	3,917.7	3,917.7	1.05	0.00	
11,883.0	86.60	89.50	7,228.0	-1,428.6	4,011.5	4,011.5	1.49	0.11	
11,977.0	86.70	88.30	7,233.5	-1,426.8	4,105.3	4,105.3	1.28	0.11	
12,072.0	87.30	88.00	7,238.5	-1,423.8	4,200.1	4,200.1	0.71	0.63	
12,166.0	89.60	90.30	7,241.0	-1,422.4	4,294.1	4,294.1	3.46	2.45	
12,261.0	90.70	90.50	7,240.8	-1,423.1	4,389.1	4,389.1	1.18	1.16	
12,355.0	88.90	91.20	7,241.1	-1,424.5	4,483.1	4,483.1	2.05	-1.91	
12,450.0	89.60	91.40	7,242.3	-1,426.6	4,578.0	4,578.0	0.77	0.74	
12,544.0	87.80	90.40	7,244.5	-1,428.1	4,672.0	4,672.0	2.19	-1.91	
12,639.0	88.50	90.20	7,247.5	-1,428.6	4,766.9	4,766.9	0.77	0.74	
12,733.0	89.40	90.50	7,249.3	-1,429.2	4,860.9	4,860.9	1.01	0.96	
12,828.0	88.30	90.40	7,251.2	-1,429.9	4,955.9	4,955.9	1.16	-1.16	
12,922.0	89.40	91.10	7,253.0	-1,431.1	5,049.8	5,049.8	1.39	1.17	
13,017.0	87.70	89.60	7,255.4	-1,431.7	5,144.8	5,144.8	2.39	-1.79	
13,111.0	88.60	89.50	7,258.5	-1,431.0	5,238.7	5,238.7	0.96	0.96	
13,206.0	85.50	88.90	7,263.4	-1,429.6	5,333.6	5,333.6	3.32	-3.26	
13,301.0	86.50	89.10	7,270.0	-1,428.0	5,428.3	5,428.3	1.07	1.05	
13,395.0	87.80	89.20	7,274.7	-1,426.6	5,522.2	5,522.2	1.39	1.38	
13,490.0	88.70	89.40	7,277.6	-1,425.4	5,617.2	5,617.2	0.97	0.95	
13,584.0	89.50	88.90	7,279.1	-1,424.0	5,711.1	5,711.1	1.00	0.85	
13,679.0	88.90	86.80	7,280.4	-1,420.5	5,806.1	5,806.1	2.30	-0.63	
13,773.0	86.90	87.30	7,283.8	-1,415.6	5,899.9	5,899.9	2.19	-2.13	
13,868.0	88.00	89.60	7,288.0	-1,413.1	5,994.7	5,994.7	2.68	1.16	
13,962.0	89.10	91.50	7,290.4	-1,414.0	6,088.7	6,088.7	2.33	1.17	
14,057.0	90.50	91.90	7,290.8	-1,416.8	6,183.6	6,183.6	1.53	1.47	Last CES Survey @ 14,057" MD
14,140.0	91.60	91.90	7,289.2	-1,419.6	6,266.6	6,266.6	1.33	1.33	PTB @ 14,140' MD

HP Survey Report

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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									
Billings 3H-18H PBHL 2	0.00	0.00	7,330.0	-1,433.3	6,498.3	1,322,831.61	3,131,682.46	40.218602	-105.028472
- survey misses target center by 235.7ft at 14140.0ft MD (7289.2 TVD, -1419.6 N, 6266.6 E)									
- Point									
Billings 3H-18H PBHL	0.00	0.00	7,359.0	-1,434.0	6,498.8	1,322,830.88	3,131,683.03	40.218600	-105.028470
- survey misses target center by 242.9ft at 14140.0ft MD (7289.2 TVD, -1419.6 N, 6266.6 E)									
- Point									
Billings 3H-18H PBHL P:	0.00	0.00	7,295.0	-1,433.3	6,498.3	1,322,831.61	3,131,682.46	40.218602	-105.028472
- survey misses target center by 232.2ft at 14140.0ft MD (7289.2 TVD, -1419.6 N, 6266.6 E)									
- Point									
3H-18H TGT	0.00	0.00	7,162.0	-1,433.2	3,544.4	1,322,816.79	3,128,728.61	40.218604	-105.039050
- survey misses target center by 41.6ft at 11413.4ft MD (7202.8 TVD, -1424.9 N, 3542.6 E)									
- Point									
Billings 3H-18H 45°	0.00	0.00	6,998.0	-1,388.0	-597.1	1,322,841.07	3,124,586.93	40.218729	-105.053880
- survey misses target center by 80.0ft at 7272.0ft MD (6936.7 TVD, -1391.4 N, -545.8 E)									
- Point									

Survey Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
14,057.0	7,290.8	-1,416.8	6,183.6	Last CES Survey @ 14,057" MD	
14,140.0	7,289.2	-1,419.6	6,266.6	PTB @ 14,140' MD	

Checked By: _____ Approved By: _____ Date: _____

EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S18-T3N-R68W (Billings)

Billings 3H-18H

HZ

Survey: Survey #1

Survey Report - Geographic

29 December, 2014

HP

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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 3H-18H					
Well Position	+N/-S	0.0 ft	Northing:	1,324,232.06 ft	Latitude:	40.222539
	+E/-W	0.0 ft	Easting:	3,125,177.01 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	12/31/2014	8.52	66.74	52,632

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	12/29/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
192.0	14,140.0	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	1,324,232.06	3,125,177.01	40.222539	-105.051742
192.0	1.10	165.00	192.0	-1.8	0.5	1,324,230.28	3,125,177.50	40.222534	-105.051741
240.0	1.80	179.80	240.0	-3.0	0.6	1,324,229.08	3,125,177.62	40.222531	-105.051740
334.0	3.30	209.70	333.9	-6.8	-0.7	1,324,225.25	3,125,176.31	40.222520	-105.051745
429.0	5.00	216.00	428.6	-12.5	-4.5	1,324,219.50	3,125,172.55	40.222505	-105.051758
524.0	7.00	217.90	523.1	-20.4	-10.5	1,324,211.55	3,125,166.60	40.222483	-105.051780
619.0	8.50	218.30	617.2	-30.5	-18.4	1,324,201.44	3,125,158.74	40.222455	-105.051808
714.0	10.40	219.10	710.9	-42.7	-28.2	1,324,189.22	3,125,149.04	40.222422	-105.051843
808.0	11.50	217.60	803.2	-56.7	-39.3	1,324,175.16	3,125,138.05	40.222383	-105.051883
903.0	12.30	216.20	896.2	-72.4	-51.0	1,324,159.43	3,125,126.37	40.222340	-105.051925
925.0	12.50	215.50	917.7	-76.2	-53.8	1,324,155.59	3,125,123.62	40.222330	-105.051935
1,018.0	13.50	217.70	1,008.3	-93.0	-66.3	1,324,138.74	3,125,111.23	40.222284	-105.051980

HP

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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	16.60	221.80	1,097.1	-111.3	-81.6	1,324,120.36	3,125,095.99	40.222234	-105.052034
1,202.0	17.00	221.00	1,185.2	-131.2	-99.2	1,324,100.33	3,125,078.51	40.222179	-105.052097
1,294.0	16.90	220.30	1,273.2	-151.6	-116.6	1,324,079.89	3,125,061.14	40.222123	-105.052160
1,386.0	17.10	218.20	1,361.2	-172.4	-133.7	1,324,058.98	3,125,044.23	40.222066	-105.052221
1,478.0	14.90	213.10	1,449.6	-192.9	-148.5	1,324,038.36	3,125,029.51	40.222009	-105.052274
1,570.0	14.90	212.40	1,538.5	-212.8	-161.3	1,324,018.40	3,125,016.81	40.221955	-105.052320
1,662.0	15.00	210.80	1,627.4	-233.1	-173.7	1,323,998.13	3,125,004.48	40.221899	-105.052364
1,755.0	15.00	208.80	1,717.2	-253.9	-185.7	1,323,977.18	3,124,992.62	40.221842	-105.052407
1,847.0	14.30	215.80	1,806.3	-273.6	-198.1	1,323,957.47	3,124,980.34	40.221788	-105.052452
1,940.0	14.10	215.10	1,896.4	-292.2	-211.3	1,323,938.82	3,124,967.20	40.221737	-105.052499
2,032.0	14.50	221.90	1,985.6	-309.9	-225.4	1,323,921.00	3,124,953.15	40.221688	-105.052550
2,124.0	14.40	221.00	2,074.7	-327.1	-240.6	1,323,903.72	3,124,938.04	40.221641	-105.052604
2,216.0	14.20	219.80	2,163.8	-344.4	-255.4	1,323,886.34	3,124,923.40	40.221594	-105.052657
2,308.0	16.00	221.00	2,252.6	-362.7	-270.9	1,323,868.03	3,124,907.95	40.221543	-105.052712
2,403.0	15.40	220.30	2,344.1	-382.2	-287.6	1,323,848.44	3,124,891.30	40.221490	-105.052772
2,497.0	15.00	220.90	2,434.8	-400.9	-303.7	1,323,829.65	3,124,875.36	40.221439	-105.052830
2,592.0	16.70	221.00	2,526.2	-420.5	-320.7	1,323,809.96	3,124,858.46	40.221385	-105.052891
2,686.0	15.60	221.00	2,616.5	-440.2	-337.8	1,323,790.15	3,124,841.40	40.221331	-105.052952
2,781.0	14.60	221.20	2,708.2	-458.9	-354.1	1,323,771.41	3,124,825.23	40.221279	-105.053010
2,876.0	15.30	217.40	2,800.0	-477.8	-369.6	1,323,752.37	3,124,809.83	40.221227	-105.053066
2,970.0	16.70	215.80	2,890.3	-498.6	-385.0	1,323,731.48	3,124,794.50	40.221170	-105.053121
3,065.0	15.40	213.80	2,981.6	-520.2	-400.0	1,323,709.85	3,124,779.60	40.221111	-105.053175
3,159.0	16.90	219.10	3,071.9	-541.2	-415.6	1,323,688.80	3,124,764.15	40.221053	-105.053231
3,254.0	15.30	217.70	3,163.2	-561.8	-432.0	1,323,668.08	3,124,747.88	40.220997	-105.053289
3,348.0	13.80	216.10	3,254.2	-580.7	-446.2	1,323,649.14	3,124,733.78	40.220945	-105.053340
3,443.0	16.80	218.70	3,345.8	-600.5	-461.4	1,323,629.19	3,124,718.62	40.220890	-105.053395
3,538.0	17.20	219.70	3,436.6	-622.1	-479.0	1,323,607.58	3,124,701.17	40.220831	-105.053458
3,632.0	17.70	218.70	3,526.3	-643.9	-496.8	1,323,585.64	3,124,683.47	40.220771	-105.053521
3,727.0	17.50	219.50	3,616.9	-666.2	-514.9	1,323,563.26	3,124,665.47	40.220710	-105.053586
3,822.0	13.60	221.60	3,708.4	-685.6	-531.4	1,323,543.79	3,124,649.06	40.220657	-105.053645
3,916.0	12.20	218.90	3,800.0	-701.6	-545.0	1,323,527.73	3,124,635.57	40.220613	-105.053694
4,011.0	14.90	220.60	3,892.4	-718.7	-559.3	1,323,510.57	3,124,621.40	40.220566	-105.053745
4,105.0	16.50	216.10	3,982.8	-738.6	-575.0	1,323,490.53	3,124,605.77	40.220511	-105.053801
4,200.0	16.40	216.00	4,074.0	-760.4	-590.8	1,323,468.70	3,124,590.05	40.220452	-105.053858
4,295.0	15.30	214.80	4,165.3	-781.5	-605.9	1,323,447.48	3,124,575.12	40.220394	-105.053912
4,389.0	14.50	214.60	4,256.2	-801.4	-619.6	1,323,427.54	3,124,561.46	40.220339	-105.053961
4,484.0	16.10	212.30	4,347.8	-822.3	-633.4	1,323,406.54	3,124,547.77	40.220282	-105.054011
4,578.0	16.70	211.60	4,438.0	-844.8	-647.4	1,323,383.95	3,124,533.84	40.220220	-105.054061
4,673.0	16.20	212.30	4,529.1	-867.7	-661.7	1,323,361.05	3,124,519.72	40.220157	-105.054112
4,767.0	14.90	212.40	4,619.7	-889.0	-675.2	1,323,339.70	3,124,506.35	40.220099	-105.054160
4,862.0	16.50	214.50	4,711.1	-910.4	-689.4	1,323,318.19	3,124,492.27	40.220040	-105.054211
4,956.0	15.50	214.80	4,801.5	-931.7	-704.1	1,323,296.80	3,124,477.65	40.219981	-105.054264
5,051.0	14.40	214.20	4,893.3	-951.9	-718.0	1,323,276.54	3,124,463.87	40.219926	-105.054313
5,146.0	15.20	217.80	4,985.1	-971.5	-732.2	1,323,256.85	3,124,449.69	40.219872	-105.054364
5,240.0	14.00	218.30	5,076.1	-990.2	-746.8	1,323,238.12	3,124,435.19	40.219821	-105.054417
5,335.0	15.20	221.90	5,168.0	-1,008.5	-762.3	1,323,219.75	3,124,419.84	40.219771	-105.054472
5,429.0	16.00	216.20	5,258.5	-1,028.1	-778.2	1,323,200.05	3,124,404.06	40.219717	-105.054529
5,524.0	14.20	213.70	5,350.3	-1,048.3	-792.4	1,323,179.71	3,124,389.96	40.219661	-105.054580
5,618.0	14.90	216.70	5,441.2	-1,067.6	-806.0	1,323,160.36	3,124,376.44	40.219608	-105.054628
5,713.0	16.60	215.60	5,532.7	-1,088.5	-821.2	1,323,139.46	3,124,361.34	40.219551	-105.054683
5,807.0	15.60	215.70	5,623.0	-1,109.6	-836.4	1,323,118.20	3,124,346.26	40.219493	-105.054737
5,902.0	15.20	219.30	5,714.6	-1,129.7	-851.7	1,323,098.11	3,124,331.02	40.219438	-105.054792
5,996.0	15.30	220.10	5,805.3	-1,148.7	-867.5	1,323,079.01	3,124,315.32	40.219386	-105.054849
6,091.0	13.00	220.30	5,897.4	-1,166.4	-882.5	1,323,061.19	3,124,300.42	40.219337	-105.054902
6,186.0	12.60	220.50	5,943.2	-1,174.3	-889.2	1,323,053.23	3,124,293.71	40.219315	-105.054927

HP

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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
6,185.0	12.40	223.00	5,989.1	-1,181.9	-896.0	1,323,045.61	3,124,286.98	40.219294	-105.054951
6,232.0	12.00	220.20	6,035.0	-1,189.4	-902.6	1,323,038.15	3,124,280.42	40.219274	-105.054974
6,280.0	13.10	212.60	6,081.9	-1,197.8	-908.8	1,323,029.73	3,124,274.31	40.219251	-105.054997
6,327.0	13.60	204.50	6,127.6	-1,207.3	-913.9	1,323,020.18	3,124,269.20	40.219225	-105.055015
6,375.0	13.50	191.80	6,174.3	-1,217.9	-917.4	1,323,009.54	3,124,265.77	40.219196	-105.055027
6,422.0	14.10	179.70	6,220.0	-1,229.0	-918.5	1,322,998.44	3,124,264.73	40.219165	-105.055031
6,469.0	14.80	165.90	6,265.5	-1,240.5	-917.0	1,322,986.90	3,124,266.28	40.219134	-105.055026
6,516.0	15.60	155.00	6,310.8	-1,252.1	-912.9	1,322,975.37	3,124,270.48	40.219102	-105.055011
6,564.0	17.10	147.90	6,356.9	-1,263.9	-906.4	1,322,963.57	3,124,277.01	40.219069	-105.054988
6,611.0	19.30	141.20	6,401.6	-1,275.8	-897.9	1,322,951.70	3,124,285.61	40.219037	-105.054957
6,658.0	21.70	134.20	6,445.6	-1,287.9	-886.8	1,322,939.65	3,124,296.78	40.219003	-105.054918
6,705.0	24.10	127.40	6,488.9	-1,299.8	-872.9	1,322,927.83	3,124,310.69	40.218971	-105.054868
6,753.0	27.60	118.50	6,532.1	-1,311.1	-855.3	1,322,916.65	3,124,328.32	40.218940	-105.054805
6,800.0	31.00	111.90	6,573.1	-1,320.8	-834.5	1,322,907.04	3,124,349.18	40.218913	-105.054731
6,847.0	32.90	109.40	6,613.0	-1,329.6	-811.2	1,322,898.40	3,124,372.49	40.218889	-105.054647
6,894.0	34.10	106.40	6,652.2	-1,337.5	-786.6	1,322,890.57	3,124,397.21	40.218867	-105.054559
6,942.0	35.60	103.60	6,691.5	-1,344.6	-760.1	1,322,883.62	3,124,423.74	40.218848	-105.054464
6,989.0	37.20	104.10	6,729.4	-1,351.3	-733.0	1,322,877.07	3,124,450.85	40.218830	-105.054367
7,036.0	38.40	103.00	6,766.5	-1,358.0	-705.0	1,322,870.47	3,124,478.89	40.218811	-105.054267
7,083.0	39.60	103.50	6,803.0	-1,364.8	-676.2	1,322,863.84	3,124,507.71	40.218792	-105.054164
7,131.0	41.70	102.40	6,839.5	-1,371.8	-645.7	1,322,856.99	3,124,538.22	40.218773	-105.054055
7,178.0	44.30	101.40	6,873.8	-1,378.4	-614.4	1,322,850.55	3,124,569.62	40.218755	-105.053942
7,225.0	48.00	100.70	6,906.4	-1,384.9	-581.1	1,322,844.22	3,124,602.91	40.218737	-105.053823
7,272.0	51.70	100.00	6,936.7	-1,391.4	-545.8	1,322,837.96	3,124,638.28	40.218720	-105.053697
7,320.0	55.40	99.80	6,965.2	-1,398.0	-507.7	1,322,831.51	3,124,676.34	40.218701	-105.053560
7,367.0	58.30	99.60	6,990.9	-1,404.6	-469.0	1,322,825.08	3,124,715.16	40.218683	-105.053422
7,414.0	60.70	99.00	7,014.7	-1,411.2	-429.0	1,322,818.74	3,124,755.15	40.218665	-105.053278
7,461.0	63.10	98.80	7,036.9	-1,417.6	-388.0	1,322,812.54	3,124,796.14	40.218648	-105.053132
7,509.0	66.50	97.70	7,057.3	-1,423.8	-345.1	1,322,806.53	3,124,839.15	40.218631	-105.052978
7,556.0	70.20	96.60	7,074.7	-1,429.2	-301.7	1,322,801.32	3,124,882.51	40.218616	-105.052823
7,603.0	72.60	96.20	7,089.6	-1,434.2	-257.5	1,322,796.58	3,124,926.80	40.218602	-105.052664
7,650.0	76.20	95.50	7,102.3	-1,438.8	-212.4	1,322,792.19	3,124,971.85	40.218589	-105.052503
7,698.0	79.60	94.80	7,112.3	-1,443.0	-165.7	1,322,788.22	3,125,018.61	40.218578	-105.052336
7,720.0	81.50	94.00	7,116.0	-1,444.7	-144.1	1,322,786.66	3,125,040.25	40.218573	-105.052258
7,835.0	85.50	91.30	7,129.0	-1,450.0	-30.0	1,322,781.97	3,125,154.38	40.218559	-105.051850
7,927.0	87.20	89.70	7,134.8	-1,450.8	61.8	1,322,781.63	3,125,246.19	40.218557	-105.051521
8,020.0	88.10	89.70	7,138.6	-1,450.3	154.8	1,322,782.59	3,125,339.10	40.218558	-105.051188
8,113.0	87.80	88.70	7,142.0	-1,449.0	247.7	1,322,784.36	3,125,432.02	40.218561	-105.050855
8,204.0	89.60	89.00	7,144.0	-1,447.1	338.6	1,322,786.64	3,125,522.97	40.218566	-105.050530
8,296.0	88.40	88.20	7,145.6	-1,444.9	430.6	1,322,789.36	3,125,614.91	40.218573	-105.050200
8,389.0	88.50	86.40	7,148.2	-1,440.5	523.5	1,322,794.20	3,125,707.75	40.218585	-105.049868
8,481.0	89.50	87.40	7,149.8	-1,435.5	615.3	1,322,799.64	3,125,799.57	40.218598	-105.049539
8,575.0	89.40	89.40	7,150.7	-1,432.9	709.3	1,322,802.74	3,125,893.51	40.218605	-105.049202
8,670.0	89.00	88.20	7,152.0	-1,430.9	804.2	1,322,805.21	3,125,988.47	40.218611	-105.048862
8,764.0	89.40	86.90	7,153.3	-1,426.9	898.1	1,322,809.70	3,126,082.35	40.218622	-105.048526
8,859.0	89.50	88.90	7,154.2	-1,423.4	993.1	1,322,813.66	3,126,177.26	40.218632	-105.048186
8,953.0	88.00	85.00	7,156.3	-1,418.4	1,086.9	1,322,819.14	3,126,271.05	40.218645	-105.047850
9,048.0	89.30	86.00	7,158.5	-1,411.0	1,181.6	1,322,827.07	3,126,365.69	40.218666	-105.047511
9,142.0	89.00	87.00	7,159.9	-1,405.2	1,275.4	1,322,833.28	3,126,459.48	40.218681	-105.047175
9,237.0	89.80	88.90	7,160.9	-1,401.8	1,370.3	1,322,837.16	3,126,554.39	40.218691	-105.046835
9,331.0	89.70	90.50	7,161.3	-1,401.4	1,464.3	1,322,838.12	3,126,648.38	40.218692	-105.046499
9,426.0	88.00	89.10	7,163.2	-1,401.0	1,559.3	1,322,838.93	3,126,743.35	40.218693	-105.046159
9,520.0	88.50	93.30	7,166.1	-1,403.0	1,653.2	1,322,837.44	3,126,837.27	40.218688	-105.045822
9,615.0	89.50	92.60	7,167.7	-1,407.9	1,748.0	1,322,833.03	3,126,932.15	40.218674	-105.045483
9,709.0	88.30	90.60	7,169.5	-1,410.5	1,842.0	1,322,830.88	3,127,026.10	40.218667	-105.045146

HP

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 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
9,804.0	91.10	93.60	7,170.0	-1,414.0	1,936.9	1,322,827.88	3,127,121.04	40.218657	-105.044806
9,898.0	91.10	94.90	7,168.2	-1,420.9	2,030.6	1,322,821.39	3,127,214.79	40.218638	-105.044471
9,993.0	92.10	95.10	7,165.6	-1,429.2	2,125.2	1,322,813.59	3,127,309.43	40.218615	-105.044132
10,087.0	88.90	95.40	7,164.8	-1,437.8	2,218.8	1,322,805.47	3,127,403.06	40.218592	-105.043797
10,182.0	90.10	91.50	7,165.6	-1,443.5	2,313.6	1,322,800.23	3,127,497.90	40.218576	-105.043457
10,276.0	90.70	91.80	7,164.9	-1,446.2	2,407.6	1,322,798.00	3,127,591.87	40.218569	-105.043121
10,371.0	88.70	90.80	7,165.4	-1,448.4	2,502.5	1,322,796.32	3,127,686.84	40.218563	-105.042781
10,465.0	90.70	92.50	7,165.9	-1,451.1	2,596.5	1,322,794.09	3,127,780.81	40.218555	-105.042444
10,560.0	90.60	93.00	7,164.9	-1,455.7	2,691.4	1,322,790.01	3,127,875.71	40.218543	-105.042105
10,654.0	88.00	87.50	7,166.0	-1,456.1	2,785.3	1,322,790.08	3,127,969.66	40.218542	-105.041768
10,749.0	89.70	88.90	7,167.9	-1,453.1	2,880.3	1,322,793.54	3,128,064.58	40.218550	-105.041428
10,843.0	87.30	88.60	7,170.4	-1,451.0	2,974.2	1,322,796.07	3,128,158.52	40.218555	-105.041092
10,937.0	87.60	89.40	7,174.5	-1,449.4	3,068.1	1,322,798.18	3,128,252.41	40.218560	-105.040756
11,032.0	88.20	89.50	7,178.0	-1,448.5	3,163.0	1,322,799.57	3,128,347.33	40.218562	-105.040416
11,127.0	85.20	84.90	7,183.5	-1,443.9	3,257.7	1,322,804.68	3,128,442.00	40.218575	-105.040077
11,221.0	84.50	83.90	7,191.9	-1,434.7	3,350.9	1,322,814.28	3,128,535.13	40.218600	-105.039743
11,316.0	87.10	87.30	7,198.9	-1,427.5	3,445.3	1,322,822.02	3,128,629.53	40.218620	-105.039405
11,410.0	88.30	89.60	7,202.7	-1,424.9	3,539.2	1,322,825.03	3,128,723.40	40.218627	-105.039068
11,505.0	86.70	90.00	7,206.8	-1,424.6	3,634.1	1,322,825.85	3,128,818.30	40.218628	-105.038729
11,599.0	87.50	89.90	7,211.6	-1,424.5	3,728.0	1,322,826.40	3,128,912.18	40.218628	-105.038392
11,694.0	86.50	91.90	7,216.5	-1,426.0	3,822.9	1,322,825.39	3,129,007.04	40.218624	-105.038053
11,789.0	86.50	90.90	7,222.3	-1,428.3	3,917.7	1,322,823.56	3,129,101.84	40.218617	-105.037713
11,883.0	86.60	89.50	7,228.0	-1,428.6	4,011.5	1,322,823.70	3,129,195.67	40.218616	-105.037377
11,977.0	86.70	88.30	7,233.5	-1,426.8	4,105.3	1,322,825.98	3,129,289.48	40.218621	-105.037041
12,072.0	87.30	88.00	7,238.5	-1,423.8	4,200.1	1,322,829.52	3,129,384.28	40.218630	-105.036702
12,166.0	89.60	90.30	7,241.0	-1,422.4	4,294.1	1,322,831.39	3,129,478.22	40.218633	-105.036365
12,261.0	90.70	90.50	7,240.8	-1,423.1	4,389.1	1,322,831.20	3,129,573.22	40.218632	-105.036025
12,355.0	88.90	91.20	7,241.1	-1,424.5	4,483.1	1,322,830.29	3,129,667.21	40.218628	-105.035689
12,450.0	89.60	91.40	7,242.3	-1,426.6	4,578.0	1,322,828.61	3,129,762.18	40.218622	-105.035349
12,544.0	87.80	90.40	7,244.5	-1,428.1	4,672.0	1,322,827.61	3,129,856.15	40.218618	-105.035012
12,639.0	88.50	90.20	7,247.5	-1,428.6	4,766.9	1,322,827.59	3,129,951.10	40.218616	-105.034672
12,733.0	89.40	90.50	7,249.3	-1,429.2	4,860.9	1,322,827.49	3,130,045.08	40.218615	-105.034336
12,828.0	88.30	90.40	7,251.2	-1,429.9	4,955.9	1,322,827.23	3,130,140.06	40.218612	-105.033996
12,922.0	89.40	91.10	7,253.0	-1,431.1	5,049.8	1,322,826.47	3,130,234.01	40.218609	-105.033659
13,017.0	87.70	89.60	7,255.4	-1,431.7	5,144.8	1,322,826.37	3,130,328.98	40.218607	-105.033319
13,111.0	88.60	89.50	7,258.5	-1,431.0	5,238.7	1,322,827.58	3,130,422.92	40.218609	-105.032983
13,206.0	85.50	88.90	7,263.4	-1,429.6	5,333.6	1,322,829.39	3,130,517.76	40.218613	-105.032643
13,301.0	86.50	89.10	7,270.0	-1,428.0	5,428.3	1,322,831.52	3,130,612.51	40.218617	-105.032304
13,395.0	87.80	89.20	7,274.7	-1,426.6	5,522.2	1,322,833.39	3,130,706.37	40.218621	-105.031968
13,490.0	88.70	89.40	7,277.6	-1,425.4	5,617.2	1,322,835.03	3,130,801.31	40.218624	-105.031628
13,584.0	89.50	88.90	7,279.1	-1,424.0	5,711.1	1,322,836.90	3,130,895.28	40.218628	-105.031291
13,679.0	88.90	86.80	7,280.4	-1,420.5	5,806.1	1,322,840.94	3,130,990.18	40.218638	-105.030951
13,773.0	86.90	87.30	7,283.8	-1,415.6	5,899.9	1,322,846.25	3,131,083.96	40.218651	-105.030615
13,868.0	88.00	89.60	7,288.0	-1,413.1	5,994.7	1,322,849.29	3,131,178.81	40.218658	-105.030275
13,962.0	89.10	91.50	7,290.4	-1,414.0	6,088.7	1,322,848.87	3,131,272.77	40.218655	-105.029939
14,057.0	90.50	91.90	7,290.8	-1,416.8	6,183.6	1,322,846.53	3,131,367.74	40.218648	-105.029599
Last CES Survey @ 14,057" MD									
14,140.0	91.60	91.90	7,289.2	-1,419.6	6,266.6	1,322,844.20	3,131,450.69	40.218640	-105.029302
PTB @ 14,140' MD									

HP

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Billings 3H-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 3H-18H	North Reference:	True
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM R5000 Multi Users DB

Design 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									
Billings 3H-18H PBHL P	0.00	0.00	7,295.0	-1,433.3	6,498.3	1,322,831.61	3,131,682.46	40.218602	-105.028472
- survey misses target center by 232.2ft at 14140.0ft MD (7289.2 TVD, -1419.6 N, 6266.6 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
14,057.0	7,290.8	-1,416.8	6,183.6	Last CES Survey @ 14,057" MD
14,140.0	7,289.2	-1,419.6	6,266.6	PTB @ 14,140' MD

Checked By: _____	Approved By: _____	Date: _____
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