

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Grant Elmquist 2D-14H-C268
Project: DJ Wattenberg	TVD Reference: KB @ 4894.0ft
Site: S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference: KB @ 4894.0ft
Well: Grant Elmquist 2D-14H-C268	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 S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)				
Site Position:	Northing: 1,295,686.81 ft	Latitude: 40.143850		
From: Lat/Long	Easting: 3,147,060.98 ft	Longitude: -104.973980		
Position Uncertainty: 0.0 ft	Slot Radius: 13.200 in	Grid Convergence: 0.34 °		

Well Grant Elmquist 2D-14H-C268				
Well Position	+N/-S 0.0 ft	Northing: 1,295,690.75 ft	Latitude: 40.143860	
	+E/-W 0.0 ft	Easting: 3,147,114.07 ft	Longitude: -104.973790	
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 4,881.0 ft	

Wellbore Hz					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/22/2014	8.49	66.69	52,612

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 12/5/2014
From (ft)	To (ft)	Survey (Wellbore)
143.0	12,872.0	SURVEYS (Hz)
		Tool Name Geolink MWD
		Description Geolink MWD

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	
143.0	0.20	238.90	143.0	-0.1	-0.2	0.1	0.14	0.14	
234.0	0.40	242.30	234.0	-0.4	-0.6	0.4	0.22	0.22	
325.0	0.60	274.50	325.0	-0.5	-1.4	0.5	0.37	0.22	
417.0	0.60	271.40	417.0	-0.4	-2.3	0.4	0.04	0.00	
509.0	0.70	288.10	509.0	-0.2	-3.4	0.2	0.23	0.11	
601.0	2.70	307.60	600.9	1.3	-5.6	-1.3	2.23	2.17	
693.0	4.60	312.40	692.8	5.1	-10.1	-5.1	2.09	2.07	
785.0	4.80	308.10	784.4	9.9	-15.8	-9.9	0.44	0.22	
817.0	4.80	307.70	816.3	11.6	-17.9	-11.6	0.10	0.00	
902.0	4.70	307.90	901.0	15.9	-23.5	-15.9	0.12	-0.12	
996.0	4.90	309.30	994.7	20.8	-29.6	-20.8	0.25	0.21	
1,091.0	4.70	307.20	1,089.4	25.7	-35.9	-25.7	0.28	-0.21	

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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
1,186.0	3.20	320.20	1,184.1	30.1	-40.7	-30.1	1.83	-1.58	
1,278.0	3.10	318.80	1,276.0	34.0	-44.0	-34.0	0.14	-0.11	
1,369.0	3.20	317.70	1,366.9	37.7	-47.3	-37.7	0.13	0.11	
1,461.0	3.50	315.40	1,458.7	41.6	-51.0	-41.6	0.36	0.33	
1,552.0	3.40	312.80	1,549.5	45.4	-54.9	-45.4	0.20	-0.11	
1,644.0	2.70	330.30	1,641.4	49.1	-58.0	-49.1	1.26	-0.76	
1,736.0	2.90	323.80	1,733.3	52.9	-60.4	-52.9	0.41	0.22	
1,827.0	4.00	289.60	1,824.2	55.8	-64.8	-55.8	2.51	1.21	
1,919.0	2.40	294.40	1,916.0	57.7	-69.6	-57.7	1.76	-1.74	
2,011.0	2.60	328.90	2,007.9	60.3	-72.4	-60.3	1.62	0.22	
2,103.0	2.70	321.30	2,099.8	63.8	-74.8	-63.8	0.40	0.11	
2,194.0	1.40	290.00	2,190.8	65.8	-77.2	-65.8	1.84	-1.43	
2,286.0	1.90	358.40	2,282.7	67.7	-78.3	-67.7	2.07	0.54	
2,377.0	2.10	352.00	2,373.7	70.9	-78.6	-70.9	0.33	0.22	
2,469.0	1.90	353.30	2,465.6	74.1	-79.0	-74.1	0.22	-0.22	
2,561.0	1.90	342.00	2,557.6	77.0	-79.6	-77.0	0.41	0.00	
2,652.0	1.80	335.60	2,648.5	79.8	-80.7	-79.8	0.25	-0.11	
2,744.0	3.10	343.70	2,740.4	83.5	-82.0	-83.5	1.46	1.41	
2,835.0	2.90	336.50	2,831.3	87.9	-83.6	-87.9	0.47	-0.22	
2,927.0	2.80	333.50	2,923.2	92.1	-85.5	-92.1	0.20	-0.11	
3,019.0	2.60	323.60	3,015.1	95.8	-87.8	-95.8	0.55	-0.22	
3,114.0	4.50	312.80	3,109.9	100.0	-91.8	-100.0	2.11	2.00	
3,208.0	4.20	309.20	3,203.6	104.7	-97.2	-104.7	0.43	-0.32	
3,303.0	4.10	305.10	3,298.4	108.9	-102.6	-108.9	0.33	-0.11	
3,397.0	3.70	301.20	3,392.2	112.4	-108.0	-112.4	0.51	-0.43	
3,492.0	3.50	294.70	3,487.0	115.2	-113.2	-115.2	0.48	-0.21	
3,586.0	2.80	297.70	3,580.8	117.4	-117.9	-117.4	0.76	-0.74	
3,681.0	2.40	292.10	3,675.8	119.3	-121.8	-119.3	0.50	-0.42	
3,776.0	2.00	285.40	3,770.7	120.5	-125.2	-120.5	0.50	-0.42	
3,870.0	1.80	285.80	3,864.6	121.3	-128.2	-121.3	0.21	-0.21	
3,965.0	2.90	299.80	3,959.5	122.9	-131.7	-122.9	1.30	1.16	
4,059.0	3.30	312.50	4,053.4	125.9	-135.8	-125.9	0.84	0.43	
4,154.0	3.60	305.50	4,148.2	129.5	-140.2	-129.5	0.54	0.32	
4,248.0	3.50	301.70	4,242.1	132.7	-145.1	-132.7	0.27	-0.11	
4,343.0	3.60	300.30	4,336.9	135.7	-150.1	-135.7	0.14	0.11	
4,437.0	2.80	330.30	4,430.7	139.2	-153.8	-139.2	1.94	-0.85	
4,532.0	2.90	327.00	4,525.6	143.2	-156.3	-143.2	0.20	0.11	
4,626.0	2.80	331.50	4,619.5	147.3	-158.7	-147.3	0.26	-0.11	
4,721.0	2.50	336.70	4,714.4	151.2	-160.6	-151.2	0.40	-0.32	
4,815.0	2.60	335.80	4,808.3	155.0	-162.3	-155.0	0.11	0.11	
4,910.0	2.30	337.00	4,903.2	158.8	-163.9	-158.8	0.32	-0.32	
5,005.0	2.20	334.00	4,998.1	162.1	-165.4	-162.1	0.16	-0.11	
5,100.0	2.20	327.50	5,093.1	165.3	-167.2	-165.3	0.26	0.00	
5,195.0	2.00	326.50	5,188.0	168.2	-169.1	-168.2	0.21	-0.21	
5,289.0	2.00	323.80	5,282.0	170.9	-171.0	-170.9	0.10	0.00	
5,384.0	2.30	308.10	5,376.9	173.4	-173.5	-173.4	0.69	0.32	
5,478.0	2.30	309.40	5,470.8	175.8	-176.4	-175.8	0.06	0.00	
5,573.0	1.90	307.40	5,565.8	178.0	-179.1	-178.0	0.43	-0.42	
5,667.0	1.80	299.80	5,659.7	179.7	-181.7	-179.7	0.28	-0.11	
5,762.0	3.20	305.40	5,754.6	181.9	-185.1	-181.9	1.49	1.47	
5,856.0	2.70	302.00	5,848.5	184.6	-189.1	-184.6	0.56	-0.53	
5,951.0	2.30	294.30	5,943.4	186.6	-192.8	-186.6	0.55	-0.42	
6,045.0	2.00	295.30	6,037.3	188.1	-196.0	-188.1	0.32	-0.32	

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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
6,140.0	3.10	312.70	6,132.2	190.5	-199.4	-190.5	1.40	1.16	
6,235.0	2.50	309.60	6,227.1	193.6	-202.8	-193.6	0.65	-0.63	
6,329.0	2.20	309.60	6,321.0	196.0	-205.8	-196.0	0.32	-0.32	
6,376.0	1.90	302.90	6,368.0	197.0	-207.2	-197.0	0.82	-0.64	
6,408.0	2.00	289.70	6,400.0	197.5	-208.1	-197.5	1.43	0.31	
6,447.0	2.40	248.60	6,439.0	197.4	-209.5	-197.4	4.07	1.03	
6,494.0	5.30	238.20	6,485.9	195.9	-212.3	-195.9	6.32	6.17	
6,542.0	6.80	225.80	6,533.6	192.8	-216.2	-192.8	4.13	3.12	
6,589.0	8.30	205.10	6,580.2	187.8	-219.7	-187.8	6.56	3.19	
6,637.0	11.60	189.40	6,627.5	179.9	-221.9	-179.9	8.84	6.87	
6,684.0	13.70	185.10	6,673.3	169.7	-223.2	-169.7	4.89	4.47	
6,731.0	15.70	181.60	6,718.8	157.8	-223.8	-157.8	4.65	4.26	
6,778.0	18.20	182.70	6,763.7	144.1	-224.4	-144.1	5.36	5.32	
6,826.0	20.70	184.80	6,809.0	128.1	-225.4	-128.1	5.41	5.21	
6,873.0	23.10	186.20	6,852.6	110.7	-227.1	-110.7	5.23	5.11	
6,920.0	25.30	185.70	6,895.5	91.5	-229.1	-91.5	4.70	4.68	
6,967.0	27.60	185.00	6,937.6	70.7	-231.1	-70.7	4.94	4.89	
7,015.0	29.20	184.70	6,979.8	47.9	-233.0	-47.9	3.35	3.33	
7,062.0	31.20	182.60	7,020.4	24.3	-234.5	-24.3	4.81	4.26	
7,110.0	34.50	181.70	7,060.7	-1.7	-235.5	1.7	6.95	6.87	
7,157.0	37.90	182.70	7,098.6	-29.4	-236.5	29.4	7.34	7.23	
7,204.0	40.40	183.70	7,135.1	-59.0	-238.2	59.0	5.49	5.32	
7,251.0	41.40	183.90	7,170.6	-89.7	-240.2	89.7	2.15	2.13	
7,299.0	43.10	184.50	7,206.1	-121.9	-242.6	121.9	3.64	3.54	
7,346.0	48.00	183.30	7,239.0	-155.4	-244.9	155.4	10.58	10.43	
7,394.0	52.30	181.60	7,269.8	-192.2	-246.4	192.2	9.36	8.96	
7,441.0	55.20	180.80	7,297.6	-230.1	-247.2	230.1	6.32	6.17	
7,488.0	56.90	181.30	7,323.8	-269.1	-247.9	269.1	3.72	3.62	
7,535.0	59.90	181.30	7,348.4	-309.1	-248.8	309.1	6.38	6.38	
7,583.0	64.70	179.80	7,370.8	-351.6	-249.2	351.6	10.38	10.00	
7,630.0	67.50	180.50	7,389.8	-394.5	-249.3	394.5	6.11	5.96	
7,677.0	69.60	181.70	7,407.0	-438.2	-250.2	438.2	5.06	4.47	
7,724.0	74.30	182.70	7,421.5	-482.9	-251.9	482.9	10.20	10.00	
7,772.0	80.60	181.30	7,432.0	-529.7	-253.5	529.7	13.43	13.12	
7,810.0	85.70	180.80	7,436.5	-567.4	-254.2	567.4	13.48	13.42	
7,923.0	89.80	178.00	7,440.9	-680.3	-253.0	680.3	4.39	3.63	
8,015.0	89.50	179.30	7,441.5	-772.2	-250.9	772.2	1.45	-0.33	
8,107.0	89.00	181.10	7,442.7	-864.2	-251.2	864.2	2.03	-0.54	
8,198.0	88.10	180.70	7,445.0	-955.2	-252.6	955.2	1.08	-0.99	
8,290.0	88.30	180.10	7,447.9	-1,047.1	-253.3	1,047.1	0.69	0.22	
8,381.0	88.20	178.60	7,450.7	-1,138.1	-252.2	1,138.1	1.65	-0.11	
8,473.0	89.00	179.10	7,452.9	-1,230.0	-250.4	1,230.0	1.03	0.87	
8,565.0	88.90	178.50	7,454.6	-1,322.0	-248.5	1,322.0	0.66	-0.11	
8,656.0	88.30	177.20	7,456.8	-1,412.9	-245.0	1,412.9	1.57	-0.66	
8,748.0	88.60	178.70	7,459.3	-1,504.8	-241.8	1,504.8	1.66	0.33	
8,840.0	89.00	180.30	7,461.2	-1,596.8	-241.0	1,596.8	1.79	0.43	
8,932.0	90.10	179.30	7,462.0	-1,688.8	-240.6	1,688.8	1.62	1.20	
9,024.0	89.40	179.90	7,462.4	-1,780.8	-240.0	1,780.8	1.00	-0.76	
9,115.0	88.70	179.00	7,463.9	-1,871.8	-239.1	1,871.8	1.25	-0.77	
9,207.0	89.20	180.10	7,465.6	-1,963.7	-238.4	1,963.7	1.31	0.54	
9,298.0	89.70	180.30	7,466.4	-2,054.7	-238.7	2,054.7	0.59	0.55	
9,389.0	89.30	180.20	7,467.2	-2,145.7	-239.1	2,145.7	0.45	-0.44	
9,481.0	89.10	180.30	7,468.5	-2,237.7	-239.5	2,237.7	0.24	-0.22	

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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
9,573.0	89.30	180.20	7,469.8	-2,329.7	-239.9	2,329.7	0.24	0.22	
9,665.0	89.50	180.70	7,470.8	-2,421.7	-240.6	2,421.7	0.59	0.22	
9,757.0	89.80	181.80	7,471.3	-2,513.7	-242.6	2,513.7	1.24	0.33	
9,849.0	89.10	179.30	7,472.2	-2,605.7	-243.5	2,605.7	2.82	-0.76	
9,940.0	88.60	178.10	7,474.0	-2,696.6	-241.5	2,696.6	1.43	-0.55	
10,035.0	89.80	179.30	7,475.4	-2,791.6	-239.3	2,791.6	1.79	1.26	
10,129.0	90.00	179.80	7,475.5	-2,885.6	-238.6	2,885.6	0.57	0.21	
10,224.0	90.10	180.20	7,475.4	-2,980.6	-238.6	2,980.6	0.43	0.11	
10,319.0	89.40	180.10	7,475.9	-3,075.6	-238.8	3,075.6	0.74	-0.74	
10,413.0	89.80	180.50	7,476.5	-3,169.6	-239.3	3,169.6	0.60	0.43	
10,508.0	90.10	181.20	7,476.6	-3,264.6	-240.7	3,264.6	0.80	0.32	
10,602.0	89.90	180.10	7,476.6	-3,358.6	-241.8	3,358.6	1.19	-0.21	
10,697.0	91.00	181.50	7,475.9	-3,453.5	-243.1	3,453.5	1.87	1.16	
10,792.0	91.30	182.00	7,473.9	-3,548.5	-246.0	3,548.5	0.61	0.32	
10,886.0	91.20	181.20	7,471.9	-3,642.4	-248.6	3,642.4	0.86	-0.11	
10,981.0	90.70	180.10	7,470.3	-3,737.4	-249.7	3,737.4	1.27	-0.53	
11,075.0	89.40	180.20	7,470.2	-3,831.4	-250.0	3,831.4	1.39	-1.38	
11,170.0	90.50	180.40	7,470.3	-3,926.4	-250.5	3,926.4	1.18	1.16	
11,264.0	87.30	180.20	7,472.1	-4,020.4	-251.0	4,020.4	3.41	-3.40	
11,359.0	87.30	180.90	7,476.6	-4,115.2	-251.9	4,115.2	0.74	0.00	
11,453.0	89.20	183.60	7,479.5	-4,209.1	-255.6	4,209.1	3.51	2.02	
11,548.0	89.30	183.70	7,480.7	-4,303.9	-261.6	4,303.9	0.15	0.11	
11,643.0	89.20	183.70	7,482.0	-4,398.7	-267.7	4,398.7	0.11	-0.11	
11,737.0	89.70	182.50	7,482.9	-4,492.6	-272.8	4,492.6	1.38	0.53	
11,832.0	89.80	182.40	7,483.3	-4,587.5	-276.9	4,587.5	0.15	0.11	
11,926.0	89.70	182.50	7,483.7	-4,681.4	-280.9	4,681.4	0.15	-0.11	
12,020.0	89.80	180.50	7,484.1	-4,775.4	-283.4	4,775.4	2.13	0.11	
12,115.0	89.50	179.60	7,484.7	-4,870.4	-283.4	4,870.4	1.00	-0.32	
12,210.0	89.70	181.00	7,485.3	-4,965.3	-283.9	4,965.3	1.49	0.21	
12,304.0	91.60	181.70	7,484.3	-5,059.3	-286.1	5,059.3	2.15	2.02	
12,399.0	91.70	181.20	7,481.5	-5,154.2	-288.5	5,154.2	0.54	0.11	
12,493.0	90.20	179.80	7,480.0	-5,248.2	-289.4	5,248.2	2.18	-1.60	
12,588.0	91.40	179.30	7,478.7	-5,343.2	-288.6	5,343.2	1.37	1.26	
12,683.0	89.50	179.20	7,477.9	-5,438.2	-287.4	5,438.2	2.00	-2.00	
12,777.0	90.20	178.00	7,478.2	-5,532.2	-285.1	5,532.2	1.48	0.74	
12,872.0	88.70	178.30	7,479.1	-5,627.1	-282.0	5,627.1	1.61	-1.58	
12,966.0	90.60	179.10	7,479.6	-5,721.1	-279.9	5,721.1	2.19	2.02	
13,061.0	90.00	179.60	7,479.1	-5,816.1	-278.8	5,816.1	0.82	-0.63	
13,155.0	90.00	179.80	7,479.1	-5,910.1	-278.3	5,910.1	0.21	0.00	
13,250.0	90.20	179.00	7,479.0	-6,005.1	-277.3	6,005.1	0.87	0.21	
13,344.0	89.90	180.10	7,478.9	-6,099.0	-276.6	6,099.0	1.21	-0.32	
13,439.0	89.40	181.40	7,479.5	-6,194.0	-277.8	6,194.0	1.47	-0.53	
13,533.0	89.50	180.70	7,480.4	-6,288.0	-279.5	6,288.0	0.75	0.11	
13,628.0	88.50	181.90	7,482.0	-6,383.0	-281.7	6,383.0	1.64	-1.05	
13,723.0	89.00	181.90	7,484.1	-6,477.9	-284.9	6,477.9	0.53	0.53	
13,818.0	90.10	182.40	7,484.9	-6,572.8	-288.4	6,572.8	1.27	1.16	
13,848.0	90.10	182.70	7,484.8	-6,602.8	-289.7	6,602.8	1.00	0.00	Last CES Survey @ 13,848' MD
13,900.0	90.10	182.70	7,484.7	-6,654.7	-292.2	6,654.7	0.00	0.00	PTB @ 13900' MD

Cathedral Energy Services

Survey Report

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Grant Elmquist 2D-14H-C268
Project: DJ Wattenberg	TVD Reference: KB @ 4894.0ft
Site: S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference: KB @ 4894.0ft
Well: Grant Elmquist 2D-14H-C268	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									
Grant Elmquist 2D-14H- - survey misses target center by 93.2ft at 13900.0ft MD (7484.7 TVD, -6654.7 N, -292.2 E) - Point	0.00	0.00	7,410.0	-6,710.0	-299.2	1,288,979.06	3,146,854.68	40.125440	-104.974860
Grant Elmquist 2D TGT - survey misses target center by 9.0ft at 9766.0ft MD (7471.4 TVD, -2522.7 N, -242.9 E) - Point	0.00	0.00	7,473.7	-2,522.8	-234.2	1,293,166.65	3,146,894.82	40.136935	-104.974628
Grant Elmquist 2D-14H- - survey misses target center by 56.8ft at 13900.0ft MD (7484.7 TVD, -6654.7 N, -292.2 E) - Point	0.00	0.00	7,473.7	-6,710.0	-299.2	1,288,979.06	3,146,854.68	40.125440	-104.974860
Grant Elmquist 2D-14H- - survey misses target center by 5.7ft at 7322.0ft MD (7222.6 TVD, -137.9 N, -243.8 E) - Point	0.00	0.00	7,226.6	-134.0	-244.5	1,295,555.34	3,146,870.37	40.143492	-104.974665

Survey Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
13,848.0	7,484.8	-6,602.8	-289.7	Last CES Survey @ 13,848' MD	
13,900.0	7,484.7	-6,654.7	-292.2	PTB @ 13900' MD	

Checked By: _____	Approved By: _____	Date: _____
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EnCana Oil & Gas (USA) Inc

DJ Wattenberg

S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)

Grant Elmquist 2D-14H-C268

Hz

Survey: SURVEYS

Survey Report - Geographic

05 December, 2014

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Grant Elmquist 2D-14H-C268
Project: DJ Wattenberg	TVD Reference: KB @ 4894.0ft
Site: S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference: KB @ 4894.0ft
Well: Grant Elmquist 2D-14H-C268	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 S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)				
Site Position:	Northing: 1,295,686.81 ft	Latitude: 40.143850		
From: Lat/Long	Easting: 3,147,060.98 ft	Longitude: -104.973980		
Position Uncertainty: 0.0 ft	Slot Radius: 13.200 in	Grid Convergence: 0.34 °		

Well Grant Elmquist 2D-14H-C268				
Well Position	+N/-S 0.0 ft	Northing: 1,295,690.75 ft	Latitude: 40.143860	
	+E/-W 0.0 ft	Easting: 3,147,114.07 ft	Longitude: -104.973790	
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 4,881.0 ft	

Wellbore Hz					
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	11/22/2014	(°) 8.49	(°) 66.69	(nT) 52,612

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) 0.0	(ft) 0.0	(ft) 0.0	(°) 180.00

Survey Program		Date 12/5/2014
From	To	Survey (Wellbore)
(ft) 143.0	(ft) 13,900.0	SURVEYS (Hz)
		Tool Name Geolink MWD
		Description 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	1,295,690.75	3,147,114.07	40.143860	-104.973790	
143.0	0.20	238.90	143.0	-0.1	-0.2	1,295,690.62	3,147,113.86	40.143860	-104.973791	
234.0	0.40	242.30	234.0	-0.4	-0.6	1,295,690.39	3,147,113.45	40.143859	-104.973793	
325.0	0.60	274.50	325.0	-0.5	-1.4	1,295,690.27	3,147,112.69	40.143859	-104.973795	
417.0	0.60	271.40	417.0	-0.4	-2.3	1,295,690.32	3,147,111.73	40.143859	-104.973799	
509.0	0.70	288.10	509.0	-0.2	-3.4	1,295,690.50	3,147,110.71	40.143859	-104.973802	
601.0	2.70	307.60	600.9	1.3	-5.6	1,295,691.98	3,147,108.45	40.143864	-104.973810	
693.0	4.60	312.40	692.8	5.1	-10.1	1,295,695.76	3,147,103.99	40.143874	-104.973826	
785.0	4.80	308.10	784.4	9.9	-15.8	1,295,700.59	3,147,098.20	40.143887	-104.973847	
817.0	4.80	307.70	816.3	11.6	-17.9	1,295,702.23	3,147,096.08	40.143892	-104.973854	
902.0	4.70	307.90	901.0	15.9	-23.5	1,295,706.51	3,147,090.50	40.143904	-104.973874	
996.0	4.90	309.30	994.7	20.8	-29.6	1,295,711.38	3,147,084.32	40.143917	-104.973896	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Grant Elmquist 2D-14H-C268
Project:	DJ Wattenberg	TVD Reference:	KB @ 4894.0ft
Site:	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference:	KB @ 4894.0ft
Well:	Grant Elmquist 2D-14H-C268	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	
1,091.0	4.70	307.20	1,089.4	25.7	-35.9	1,295,716.26	3,147,078.05	40.143931	-104.973919	
1,186.0	3.20	320.20	1,184.1	30.1	-40.7	1,295,720.63	3,147,073.23	40.143943	-104.973936	
1,278.0	3.10	318.80	1,276.0	34.0	-44.0	1,295,724.45	3,147,069.92	40.143953	-104.973947	
1,369.0	3.20	317.70	1,366.9	37.7	-47.3	1,295,728.16	3,147,066.57	40.143964	-104.973959	
1,461.0	3.50	315.40	1,458.7	41.6	-51.0	1,295,732.04	3,147,062.85	40.143974	-104.973973	
1,552.0	3.40	312.80	1,549.5	45.4	-54.9	1,295,735.83	3,147,058.89	40.143985	-104.973987	
1,644.0	2.70	330.30	1,641.4	49.1	-58.0	1,295,739.54	3,147,055.80	40.143995	-104.973998	
1,736.0	2.90	323.80	1,733.3	52.9	-60.4	1,295,743.29	3,147,053.33	40.144005	-104.974006	
1,827.0	4.00	289.60	1,824.2	55.8	-64.8	1,295,746.19	3,147,048.96	40.144013	-104.974022	
1,919.0	2.40	294.40	1,916.0	57.7	-69.6	1,295,748.03	3,147,044.17	40.144018	-104.974039	
2,011.0	2.60	328.90	2,007.9	60.3	-72.4	1,295,750.60	3,147,041.32	40.144026	-104.974049	
2,103.0	2.70	321.30	2,099.8	63.8	-74.8	1,295,754.06	3,147,038.87	40.144035	-104.974058	
2,194.0	1.40	290.00	2,190.8	65.8	-77.2	1,295,756.10	3,147,036.47	40.144041	-104.974066	
2,286.0	1.90	358.40	2,282.7	67.7	-78.3	1,295,758.00	3,147,035.36	40.144046	-104.974070	
2,377.0	2.10	352.00	2,373.7	70.9	-78.6	1,295,761.16	3,147,035.07	40.144055	-104.974071	
2,469.0	1.90	353.30	2,465.6	74.1	-79.0	1,295,764.34	3,147,034.64	40.144063	-104.974073	
2,561.0	1.90	342.00	2,557.6	77.0	-79.6	1,295,767.30	3,147,033.97	40.144071	-104.974075	
2,652.0	1.80	335.60	2,648.5	79.8	-80.7	1,295,770.03	3,147,032.90	40.144079	-104.974079	
2,744.0	3.10	343.70	2,740.4	83.5	-82.0	1,295,773.73	3,147,031.58	40.144089	-104.974084	
2,835.0	2.90	336.50	2,831.3	87.9	-83.6	1,295,778.19	3,147,029.95	40.144101	-104.974089	
2,927.0	2.80	333.50	2,923.2	92.1	-85.5	1,295,782.32	3,147,027.99	40.144113	-104.974096	
3,019.0	2.60	323.60	3,015.1	95.8	-87.8	1,295,786.00	3,147,025.73	40.144123	-104.974104	
3,114.0	4.50	312.80	3,109.9	100.0	-91.8	1,295,790.24	3,147,021.69	40.144135	-104.974119	
3,208.0	4.20	309.20	3,203.6	104.7	-97.2	1,295,794.89	3,147,016.29	40.144148	-104.974138	
3,303.0	4.10	305.10	3,298.4	108.9	-102.6	1,295,799.01	3,147,010.79	40.144159	-104.974157	
3,397.0	3.70	301.20	3,392.2	112.4	-108.0	1,295,802.48	3,147,005.43	40.144169	-104.974177	
3,492.0	3.50	294.70	3,487.0	115.2	-113.2	1,295,805.25	3,147,000.15	40.144176	-104.974195	
3,586.0	2.80	297.70	3,580.8	117.4	-117.9	1,295,807.49	3,146,995.50	40.144182	-104.974212	
3,681.0	2.40	292.10	3,675.8	119.3	-121.8	1,295,809.29	3,146,991.59	40.144187	-104.974226	
3,776.0	2.00	285.40	3,770.7	120.5	-125.2	1,295,810.46	3,146,988.14	40.144191	-104.974238	
3,870.0	1.80	285.80	3,864.6	121.3	-128.2	1,295,811.28	3,146,985.14	40.144193	-104.974249	
3,965.0	2.90	299.80	3,959.5	122.9	-131.7	1,295,812.86	3,146,981.61	40.144197	-104.974262	
4,059.0	3.30	312.50	4,053.4	125.9	-135.8	1,295,815.85	3,146,977.53	40.144206	-104.974276	
4,154.0	3.60	305.50	4,148.2	129.5	-140.2	1,295,819.40	3,146,973.06	40.144216	-104.974292	
4,248.0	3.50	301.70	4,242.1	132.7	-145.1	1,295,822.59	3,146,968.20	40.144224	-104.974309	
4,343.0	3.60	300.30	4,336.9	135.7	-150.1	1,295,825.59	3,146,963.14	40.144233	-104.974327	
4,437.0	2.80	330.30	4,430.7	139.2	-153.8	1,295,829.05	3,146,959.44	40.144242	-104.974340	
4,532.0	2.90	327.00	4,525.6	143.2	-156.3	1,295,833.07	3,146,956.95	40.144253	-104.974349	
4,626.0	2.80	331.50	4,619.5	147.3	-158.7	1,295,837.07	3,146,954.54	40.144264	-104.974358	
4,721.0	2.50	336.70	4,714.4	151.2	-160.6	1,295,841.00	3,146,952.59	40.144275	-104.974365	
4,815.0	2.60	335.80	4,808.3	155.0	-162.3	1,295,844.82	3,146,950.88	40.144286	-104.974371	
4,910.0	2.30	337.00	4,903.2	158.8	-163.9	1,295,848.53	3,146,949.23	40.144296	-104.974377	
5,005.0	2.20	334.00	4,998.1	162.1	-165.4	1,295,851.91	3,146,947.67	40.144305	-104.974382	
5,100.0	2.20	327.50	5,093.1	165.3	-167.2	1,295,855.08	3,146,945.87	40.144314	-104.974388	
5,195.0	2.00	326.50	5,188.0	168.2	-169.1	1,295,857.98	3,146,943.96	40.144322	-104.974395	
5,289.0	2.00	323.80	5,282.0	170.9	-171.0	1,295,860.67	3,146,942.07	40.144329	-104.974402	
5,384.0	2.30	308.10	5,376.9	173.4	-173.5	1,295,863.16	3,146,939.57	40.144336	-104.974411	
5,478.0	2.30	309.40	5,470.8	175.8	-176.4	1,295,865.51	3,146,936.62	40.144343	-104.974421	
5,573.0	1.90	307.40	5,565.8	178.0	-179.1	1,295,867.66	3,146,933.88	40.144349	-104.974431	
5,667.0	1.80	299.80	5,659.7	179.7	-181.7	1,295,869.32	3,146,931.35	40.144353	-104.974440	
5,762.0	3.20	305.40	5,754.6	181.9	-185.1	1,295,871.58	3,146,927.88	40.144359	-104.974452	
5,856.0	2.70	302.00	5,848.5	184.6	-189.1	1,295,874.25	3,146,923.85	40.144367	-104.974467	
5,951.0	2.30	294.30	5,943.4	186.6	-192.8	1,295,876.20	3,146,920.20	40.144372	-104.974480	
6,045.0	2.00	295.30	6,037.3	188.1	-196.0	1,295,877.66	3,146,916.99	40.144376	-104.974491	
6,140.0	3.10	312.70	6,132.2	190.5	-199.4	1,295,880.09	3,146,913.59	40.144383	-104.974503	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Grant Elmquist 2D-14H-C268
Project:	DJ Wattenberg	TVD Reference:	KB @ 4894.0ft
Site:	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference:	KB @ 4894.0ft
Well:	Grant Elmquist 2D-14H-C268	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	
6,235.0	2.50	309.60	6,227.1	193.6	-202.8	1,295,883.13	3,146,910.09	40.144391	-104.974516	
6,329.0	2.20	309.60	6,321.0	196.0	-205.8	1,295,885.57	3,146,907.10	40.144398	-104.974526	
6,376.0	1.90	302.90	6,368.0	197.0	-207.2	1,295,886.56	3,146,905.75	40.144401	-104.974531	
6,408.0	2.00	289.70	6,400.0	197.5	-208.1	1,295,887.03	3,146,904.77	40.144402	-104.974535	
6,447.0	2.40	248.60	6,439.0	197.4	-209.5	1,295,886.95	3,146,903.37	40.144402	-104.974540	
6,494.0	5.30	238.20	6,485.9	195.9	-212.3	1,295,885.43	3,146,900.62	40.144398	-104.974550	
6,542.0	6.80	225.80	6,533.6	192.8	-216.2	1,295,882.26	3,146,896.72	40.144389	-104.974564	
6,589.0	8.30	205.10	6,580.2	187.8	-219.7	1,295,877.23	3,146,893.31	40.144376	-104.974576	
6,637.0	11.60	189.40	6,627.5	179.9	-221.9	1,295,869.31	3,146,891.10	40.144354	-104.974584	
6,684.0	13.70	185.10	6,673.3	169.7	-223.2	1,295,859.10	3,146,889.90	40.144326	-104.974589	
6,731.0	15.70	181.60	6,718.8	157.8	-223.8	1,295,847.19	3,146,889.29	40.144293	-104.974591	
6,778.0	18.20	182.70	6,763.7	144.1	-224.4	1,295,833.50	3,146,888.85	40.144256	-104.974593	
6,826.0	20.70	184.80	6,809.0	128.1	-225.4	1,295,817.55	3,146,887.88	40.144212	-104.974597	
6,873.0	23.10	186.20	6,852.6	110.7	-227.1	1,295,800.09	3,146,886.30	40.144164	-104.974603	
6,920.0	25.30	185.70	6,895.5	91.5	-229.1	1,295,780.92	3,146,884.42	40.144111	-104.974610	
6,967.0	27.60	185.00	6,937.5	70.7	-231.1	1,295,760.07	3,146,882.59	40.144054	-104.974617	
7,015.0	29.20	184.70	6,979.8	47.9	-233.0	1,295,737.31	3,146,880.80	40.143992	-104.974624	
7,062.0	31.20	182.60	7,020.4	24.3	-234.5	1,295,713.71	3,146,879.45	40.143927	-104.974629	
7,110.0	34.50	181.70	7,060.7	-1.7	-235.5	1,295,687.69	3,146,878.63	40.143855	-104.974632	
7,157.0	37.90	182.70	7,098.6	-29.4	-236.5	1,295,659.95	3,146,877.72	40.143779	-104.974636	
7,204.0	40.40	183.70	7,135.1	-59.0	-238.2	1,295,630.32	3,146,876.24	40.143698	-104.974642	
7,251.0	41.40	183.90	7,170.6	-89.7	-240.2	1,295,599.60	3,146,874.38	40.143614	-104.974650	
7,299.0	43.10	184.50	7,206.1	-121.9	-242.6	1,295,567.40	3,146,872.20	40.143525	-104.974658	
7,346.0	48.00	183.30	7,239.0	-155.4	-244.9	1,295,533.92	3,146,870.14	40.143434	-104.974666	
7,394.0	52.30	181.60	7,269.8	-192.2	-246.4	1,295,497.11	3,146,868.80	40.143332	-104.974672	
7,441.0	55.20	180.80	7,297.6	-230.1	-247.2	1,295,459.22	3,146,868.23	40.143228	-104.974675	
7,488.0	56.90	181.30	7,323.8	-269.1	-247.9	1,295,420.23	3,146,867.75	40.143121	-104.974677	
7,535.0	59.90	181.30	7,348.4	-309.1	-248.8	1,295,380.21	3,146,867.08	40.143012	-104.974680	
7,583.0	64.70	179.80	7,370.8	-351.6	-249.2	1,295,337.73	3,146,866.93	40.142895	-104.974682	
7,630.0	67.50	180.50	7,389.8	-394.5	-249.3	1,295,294.76	3,146,867.07	40.142777	-104.974682	
7,677.0	69.60	181.70	7,407.0	-438.2	-250.2	1,295,251.02	3,146,866.49	40.142657	-104.974685	
7,724.0	74.30	182.70	7,421.5	-482.9	-251.9	1,295,206.37	3,146,865.03	40.142534	-104.974691	
7,772.0	80.60	181.30	7,432.0	-529.7	-253.5	1,295,159.57	3,146,863.68	40.142406	-104.974697	
7,810.0	85.70	180.80	7,436.5	-567.4	-254.2	1,295,121.85	3,146,863.22	40.142302	-104.974700	
7,923.0	89.80	178.00	7,440.9	-680.3	-253.0	1,295,008.99	3,146,865.07	40.141993	-104.974695	
8,015.0	89.50	179.30	7,441.5	-772.2	-250.9	1,294,917.03	3,146,867.79	40.141740	-104.974688	
8,107.0	89.00	181.10	7,442.7	-864.2	-251.2	1,294,825.05	3,146,868.01	40.141488	-104.974689	
8,198.0	88.10	180.70	7,445.0	-955.2	-252.6	1,294,734.08	3,146,867.12	40.141238	-104.974694	
8,290.0	88.30	180.10	7,447.9	-1,047.1	-253.3	1,294,642.13	3,146,867.03	40.140986	-104.974696	
8,381.0	88.20	178.60	7,450.7	-1,138.1	-252.2	1,294,551.18	3,146,868.60	40.140736	-104.974692	
8,473.0	89.00	179.10	7,452.9	-1,230.0	-250.4	1,294,459.24	3,146,870.99	40.140483	-104.974686	
8,565.0	88.90	178.50	7,454.6	-1,322.0	-248.5	1,294,367.29	3,146,873.46	40.140231	-104.974679	
8,656.0	88.30	177.20	7,456.8	-1,412.9	-245.0	1,294,276.41	3,146,877.41	40.139981	-104.974667	
8,748.0	88.60	178.70	7,459.3	-1,504.8	-241.8	1,294,184.53	3,146,881.25	40.139729	-104.974655	
8,840.0	89.00	180.30	7,461.2	-1,596.8	-241.0	1,294,092.56	3,146,882.60	40.139477	-104.974652	
8,932.0	90.10	179.30	7,462.0	-1,688.8	-240.6	1,294,000.57	3,146,883.46	40.139224	-104.974651	
9,024.0	89.40	179.90	7,462.4	-1,780.8	-240.0	1,293,908.58	3,146,884.65	40.138972	-104.974649	
9,115.0	88.70	179.00	7,463.9	-1,871.8	-239.1	1,293,817.60	3,146,886.07	40.138722	-104.974646	
9,207.0	89.20	180.10	7,465.6	-1,963.7	-238.4	1,293,725.63	3,146,887.33	40.138469	-104.974643	
9,298.0	89.70	180.30	7,466.4	-2,054.7	-238.7	1,293,634.63	3,146,887.56	40.138220	-104.974644	
9,389.0	89.30	180.20	7,467.2	-2,145.7	-239.1	1,293,543.64	3,146,887.70	40.137970	-104.974645	
9,481.0	89.10	180.30	7,468.5	-2,237.7	-239.5	1,293,451.65	3,146,887.84	40.137717	-104.974647	
9,573.0	89.30	180.20	7,469.8	-2,329.7	-239.9	1,293,359.66	3,146,887.99	40.137465	-104.974648	
9,665.0	89.50	180.70	7,470.8	-2,421.7	-240.6	1,293,267.66	3,146,887.81	40.137212	-104.974651	
9,757.0	89.80	181.80	7,471.3	-2,513.7	-242.6	1,293,175.68	3,146,886.35	40.136960	-104.974658	

Cathedral Energy Services

Survey Report - Geographic

Company:	EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference:	Well Grant Elmquist 2D-14H-C268
Project:	DJ Wattenberg	TVD Reference:	KB @ 4894.0ft
Site:	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference:	KB @ 4894.0ft
Well:	Grant Elmquist 2D-14H-C268	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
9,849.0	89.10	179.30	7,472.2	-2,605.7	-243.5	1,293,083.69	3,146,886.01	40.136707	-104.974661
9,940.0	88.60	178.10	7,474.0	-2,696.6	-241.5	1,292,992.75	3,146,888.62	40.136457	-104.974654
10,035.0	89.80	179.30	7,475.4	-2,791.6	-239.3	1,292,897.80	3,146,891.33	40.136197	-104.974646
10,129.0	90.00	179.80	7,475.5	-2,885.6	-238.6	1,292,803.81	3,146,892.63	40.135939	-104.974644
10,224.0	90.10	180.20	7,475.4	-2,980.6	-238.6	1,292,708.81	3,146,893.19	40.135678	-104.974644
10,319.0	89.40	180.10	7,475.9	-3,075.6	-238.8	1,292,613.81	3,146,893.51	40.135417	-104.974644
10,413.0	89.80	180.50	7,476.5	-3,169.6	-239.3	1,292,519.81	3,146,893.58	40.135159	-104.974646
10,508.0	90.10	181.20	7,476.6	-3,264.6	-240.7	1,292,424.82	3,146,892.73	40.134898	-104.974651
10,602.0	89.90	180.10	7,476.6	-3,358.6	-241.8	1,292,330.82	3,146,892.22	40.134640	-104.974655
10,697.0	91.00	181.50	7,475.9	-3,453.5	-243.1	1,292,235.83	3,146,891.46	40.134380	-104.974660
10,792.0	91.30	182.00	7,473.9	-3,548.5	-246.0	1,292,140.88	3,146,889.12	40.134119	-104.974670
10,886.0	91.20	181.20	7,471.9	-3,642.4	-248.6	1,292,046.93	3,146,887.05	40.133861	-104.974680
10,981.0	90.70	180.10	7,470.3	-3,737.4	-249.7	1,291,951.94	3,146,886.54	40.133600	-104.974683
11,075.0	89.40	180.20	7,470.2	-3,831.4	-250.0	1,291,857.94	3,146,886.85	40.133342	-104.974684
11,170.0	90.50	180.40	7,470.3	-3,926.4	-250.5	1,291,762.95	3,146,886.92	40.133082	-104.974686
11,264.0	87.30	180.20	7,472.1	-4,020.4	-251.0	1,291,668.98	3,146,886.98	40.132824	-104.974688
11,359.0	87.30	180.90	7,476.6	-4,115.2	-251.9	1,291,574.08	3,146,886.64	40.132563	-104.974691
11,453.0	89.20	183.60	7,479.5	-4,209.1	-255.6	1,291,480.19	3,146,883.50	40.132305	-104.974704
11,548.0	89.30	183.70	7,480.7	-4,303.9	-261.6	1,291,385.36	3,146,878.02	40.132045	-104.974726
11,643.0	89.20	183.70	7,482.0	-4,398.7	-267.7	1,291,290.53	3,146,872.45	40.131785	-104.974748
11,737.0	89.70	182.50	7,482.9	-4,492.6	-272.8	1,291,196.64	3,146,867.93	40.131527	-104.974766
11,832.0	89.80	182.40	7,483.3	-4,587.5	-276.9	1,291,101.71	3,146,864.43	40.131267	-104.974780
11,926.0	89.70	182.50	7,483.7	-4,681.4	-280.9	1,291,007.77	3,146,860.97	40.131009	-104.974795
12,020.0	89.80	180.50	7,484.1	-4,775.4	-283.4	1,290,913.80	3,146,859.07	40.130751	-104.974804
12,115.0	89.50	179.60	7,484.7	-4,870.4	-283.4	1,290,818.80	3,146,859.55	40.130490	-104.974804
12,210.0	89.70	181.00	7,485.3	-4,965.3	-283.9	1,290,723.81	3,146,859.61	40.130229	-104.974806
12,304.0	91.60	181.70	7,484.3	-5,059.3	-286.1	1,290,629.83	3,146,857.96	40.129972	-104.974814
12,399.0	91.70	181.20	7,481.5	-5,154.2	-288.5	1,290,534.89	3,146,856.12	40.129711	-104.974822
12,493.0	90.20	179.80	7,480.0	-5,248.2	-289.4	1,290,440.91	3,146,855.85	40.129453	-104.974825
12,588.0	91.40	179.30	7,478.7	-5,343.2	-288.6	1,290,345.93	3,146,857.16	40.129192	-104.974822
12,683.0	89.50	179.20	7,477.9	-5,438.2	-287.4	1,290,250.95	3,146,858.97	40.128931	-104.974818
12,777.0	90.20	178.00	7,478.2	-5,532.2	-285.1	1,290,157.00	3,146,861.82	40.128674	-104.974810
12,872.0	88.70	178.30	7,479.1	-5,627.1	-282.0	1,290,062.08	3,146,865.45	40.128413	-104.974799
12,966.0	90.60	179.10	7,479.6	-5,721.1	-279.9	1,289,968.12	3,146,868.14	40.128155	-104.974791
13,061.0	90.00	179.60	7,479.1	-5,816.1	-278.8	1,289,873.14	3,146,869.79	40.127894	-104.974787
13,155.0	90.00	179.80	7,479.1	-5,910.1	-278.3	1,289,779.14	3,146,870.84	40.127636	-104.974786
13,250.0	90.20	179.00	7,479.0	-6,005.1	-277.3	1,289,684.16	3,146,872.39	40.127375	-104.974782
13,344.0	89.90	180.10	7,478.9	-6,099.0	-276.6	1,289,590.17	3,146,873.69	40.127117	-104.974779
13,439.0	89.40	181.40	7,479.5	-6,194.0	-277.8	1,289,495.18	3,146,873.01	40.126857	-104.974784
13,533.0	89.50	180.70	7,480.4	-6,288.0	-279.5	1,289,401.19	3,146,871.85	40.126599	-104.974790
13,628.0	88.50	181.90	7,482.0	-6,383.0	-281.7	1,289,306.22	3,146,870.25	40.126338	-104.974798
13,723.0	89.00	181.90	7,484.1	-6,477.9	-284.9	1,289,211.28	3,146,867.67	40.126077	-104.974809
13,818.0	90.10	182.40	7,484.9	-6,572.8	-288.4	1,289,116.33	3,146,864.67	40.125817	-104.974822
13,848.0	90.10	182.70	7,484.8	-6,602.8	-289.7	1,289,086.35	3,146,863.51	40.125734	-104.974826
Last CES Survey @ 13,848' MD									
13,900.0	90.10	182.70	7,484.7	-6,654.7	-292.2	1,289,034.39	3,146,861.37	40.125592	-104.974835
PTB @ 13900' MD									

Cathedral Energy Services

Survey Report - Geographic

Company: EnCana Oil & Gas (USA) Inc	Local Co-ordinate Reference: Well Grant Elmquist 2D-14H-C268
Project: DJ Wattenberg	TVD Reference: KB @ 4894.0ft
Site: S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	MD Reference: KB @ 4894.0ft
Well: Grant Elmquist 2D-14H-C268	North Reference: True
Wellbore: Hz	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: USA EDM 5000 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									
Grant Elmquist 2D-14H-I - survey misses target center by 5.7ft at 7322.0ft MD (7222.6 TVD, -137.9 N, -243.8 E) - Point	0.00	0.00	7,226.6	-134.0	-244.5	1,295,555.34	3,146,870.37	40.143492	-104.974665
Grant Elmquist 2D TGT I - survey misses target center by 9.0ft at 9766.0ft MD (7471.4 TVD, -2522.7 N, -242.9 E) - Point	0.00	0.00	7,473.7	-2,522.8	-234.2	1,293,166.65	3,146,894.82	40.136935	-104.974628
Grant Elmquist 2D-14H-I - survey misses target center by 56.8ft at 13900.0ft MD (7484.7 TVD, -6654.7 N, -292.2 E) - Point	0.00	0.00	7,473.7	-6,710.0	-299.2	1,288,979.06	3,146,854.68	40.125440	-104.974860

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
13,848.0	7,484.8	-6,602.8	-289.7	Last CES Survey @ 13,848' MD
13,900.0	7,484.7	-6,654.7	-292.2	PTB @ 13900' MD

Checked By: _____ Approved By: _____ Date: _____