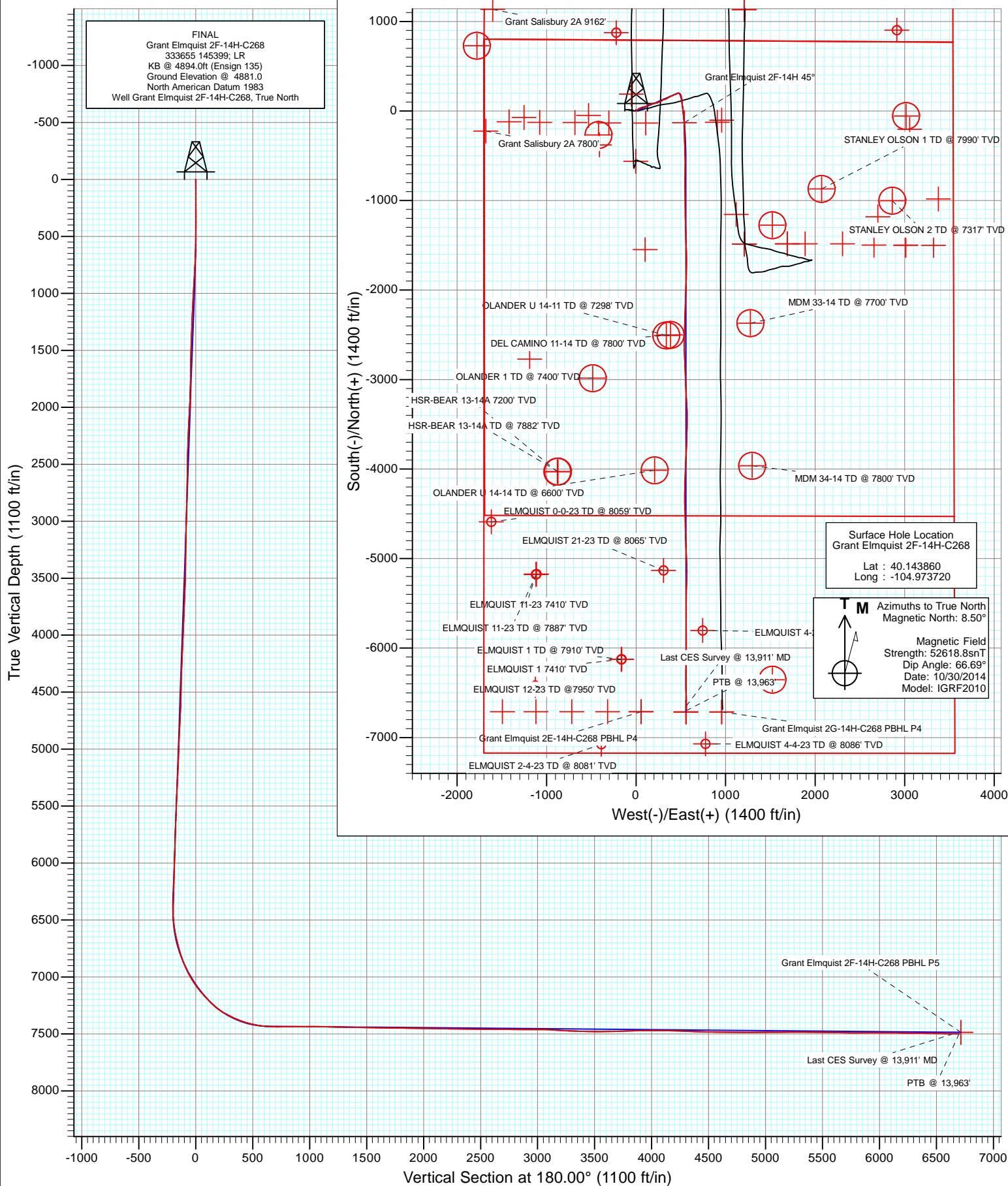




Project: DJ Wattenberg  
Site: S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)  
Well: Grant Elmquist 2F-14H-C268  
Wellbore: Hz  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	DJ Wattenberg		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 2F-14H-C268					
Well Position	+N/-S	0.0 ft	Northing:	1,295,690.86 ft	Latitude:	40.143860
	+E/-W	0.0 ft	Easting:	3,147,133.64 ft	Longitude:	-104.973720
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,881.0 ft

<b>Wellbore</b>	Hz				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/30/2014	8.50	66.69	52,619

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.00	

<b>Survey Program</b>	<b>Date</b>	11/11/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
307.0	13,963.0	SURVEYS (Hz)	Geolink MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Formations / Comments</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00		
307.0	0.80	212.30	307.0	-1.8	-1.1	1.8	0.26	0.26		
338.0	0.80	236.10	338.0	-2.1	-1.4	2.1	1.06	0.00		
417.0	1.10	56.20	417.0	-2.0	-1.3	2.0	2.41	0.38		
509.0	1.10	72.10	509.0	-1.2	0.3	1.2	0.33	0.00		
601.0	3.10	48.20	600.9	0.7	3.0	-0.7	2.33	2.17		
693.0	2.80	41.10	692.8	4.0	6.3	-4.0	0.51	-0.33		
785.0	4.80	48.30	784.6	8.3	10.7	-8.3	2.23	2.17		
804.0	4.70	43.50	803.5	9.4	11.8	-9.4	2.16	-0.53		
925.0	4.70	42.60	924.1	16.6	18.6	-16.6	0.06	0.00		
1,019.0	5.20	51.90	1,017.8	22.1	24.5	-22.1	1.00	0.53		
1,114.0	6.40	70.60	1,112.3	26.5	32.9	-26.5	2.34	1.26		
1,208.0	6.20	67.70	1,205.7	30.2	42.6	-30.2	0.40	-0.21		

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
1,300.0	5.80	63.50	1,297.2	34.1	51.3	-34.1	0.65	-0.43	
1,392.0	6.20	70.90	1,388.7	37.8	60.2	-37.8	0.95	0.43	
1,484.0	5.20	62.30	1,480.2	41.4	68.6	-41.4	1.43	-1.09	
1,575.0	5.40	86.00	1,570.9	43.6	76.5	-43.6	2.40	0.22	
1,667.0	5.10	83.10	1,662.5	44.4	84.9	-44.4	0.44	-0.33	
1,759.0	4.80	76.40	1,754.1	45.8	92.7	-45.8	0.71	-0.33	
1,850.0	4.70	69.10	1,844.8	48.0	99.8	-48.0	0.67	-0.11	
1,942.0	6.40	66.80	1,936.4	51.4	108.1	-51.4	1.86	1.85	
2,034.0	5.70	62.50	2,027.9	55.5	116.8	-55.5	0.91	-0.76	
2,126.0	4.90	57.50	2,119.5	59.8	124.2	-59.8	1.00	-0.87	
2,217.0	4.50	50.40	2,210.2	64.1	130.2	-64.1	0.78	-0.44	
2,309.0	4.90	68.20	2,301.9	67.9	136.7	-67.9	1.64	0.43	
2,400.0	4.40	62.60	2,392.6	70.9	143.4	-70.9	0.74	-0.55	
2,492.0	5.70	84.10	2,484.2	73.0	151.1	-73.0	2.47	1.41	
2,583.0	5.00	81.20	2,574.8	74.1	159.5	-74.1	0.82	-0.77	
2,675.0	4.30	74.90	2,666.5	75.6	166.8	-75.6	0.94	-0.76	
2,767.0	4.30	76.00	2,758.3	77.3	173.4	-77.3	0.09	0.00	
2,858.0	6.40	76.70	2,848.9	79.3	181.7	-79.3	2.31	2.31	
2,950.0	5.60	72.00	2,940.4	81.9	190.9	-81.9	1.02	-0.87	
3,042.0	4.50	69.10	3,032.0	84.6	198.6	-84.6	1.23	-1.20	
3,136.0	5.40	82.50	3,125.7	86.5	206.4	-86.5	1.55	0.96	
3,231.0	4.00	76.30	3,220.3	87.8	214.1	-87.8	1.57	-1.47	
3,325.0	5.00	77.90	3,314.0	89.5	221.3	-89.5	1.07	1.06	
3,420.0	5.80	89.60	3,408.6	90.4	230.1	-90.4	1.43	0.84	
3,514.0	5.10	66.20	3,502.2	92.1	238.7	-92.1	2.46	-0.74	
3,609.0	5.50	65.70	3,596.8	95.7	246.7	-95.7	0.42	0.42	
3,704.0	3.80	67.80	3,691.5	98.7	253.8	-98.7	1.80	-1.79	
3,798.0	5.20	59.80	3,785.2	102.0	260.3	-102.0	1.63	1.49	
3,893.0	6.60	65.40	3,879.7	106.5	269.0	-106.5	1.59	1.47	
3,987.0	5.80	65.00	3,973.1	110.7	278.2	-110.7	0.85	-0.85	
4,082.0	5.20	57.70	4,067.7	115.1	286.2	-115.1	0.97	-0.63	
4,176.0	4.20	49.70	4,161.4	119.6	292.4	-119.6	1.27	-1.06	
4,271.0	4.90	59.90	4,256.1	123.9	298.6	-123.9	1.12	0.74	
4,365.0	5.50	76.00	4,349.7	127.0	306.5	-127.0	1.67	0.64	
4,460.0	5.30	78.80	4,444.3	128.9	315.2	-128.9	0.35	-0.21	
4,555.0	4.70	79.00	4,538.9	130.5	323.3	-130.5	0.63	-0.63	
4,649.0	5.40	60.40	4,632.6	133.4	330.9	-133.4	1.88	0.74	
4,744.0	5.10	59.40	4,727.2	137.8	338.4	-137.8	0.33	-0.32	
4,839.0	4.90	58.60	4,821.8	142.0	345.5	-142.0	0.22	-0.21	
4,933.0	4.40	56.00	4,915.5	146.2	352.0	-146.2	0.58	-0.53	
5,028.0	5.10	61.90	5,010.2	150.2	358.7	-150.2	0.90	0.74	
5,123.0	5.30	68.90	5,104.8	153.8	366.5	-153.8	0.70	0.21	
5,217.0	6.40	64.40	5,198.3	157.6	375.3	-157.6	1.27	1.17	
5,312.0	5.10	61.20	5,292.8	161.9	383.8	-161.9	1.41	-1.37	
5,406.0	5.60	67.50	5,386.4	165.7	391.7	-165.7	0.82	0.53	
5,501.0	6.30	65.30	5,480.9	169.6	400.7	-169.6	0.77	0.74	
5,595.0	5.00	62.60	5,574.4	173.7	409.0	-173.7	1.41	-1.38	
5,690.0	3.80	62.00	5,669.1	177.0	415.5	-177.0	1.26	-1.26	
5,784.0	4.70	64.00	5,762.9	180.2	421.7	-180.2	0.97	0.96	
5,879.0	5.20	70.60	5,857.5	183.3	429.2	-183.3	0.80	0.53	
5,974.0	5.50	71.10	5,952.1	186.2	437.6	-186.2	0.32	0.32	
6,068.0	3.90	65.90	6,045.8	189.0	444.8	-189.0	1.76	-1.70	
6,163.0	4.40	67.90	6,140.5	191.7	451.1	-191.7	0.55	0.53	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
6,258.0	4.70	79.10	6,235.3	193.8	458.3	-193.8	0.99	0.32	
6,352.0	5.50	66.20	6,328.9	196.3	466.2	-196.3	1.48	0.85	
6,399.0	5.60	73.00	6,375.7	197.9	470.5	-197.9	1.41	0.21	
6,447.0	6.80	91.30	6,423.4	198.5	475.5	-198.5	4.79	2.50	
6,494.0	7.80	101.80	6,470.0	197.8	481.5	-197.8	3.54	2.13	
6,541.0	8.40	124.10	6,516.5	195.3	487.4	-195.3	6.76	1.28	
6,588.0	10.00	146.70	6,563.0	189.9	492.5	-189.9	8.34	3.40	
6,636.0	12.30	152.40	6,610.0	181.9	497.2	-181.9	5.31	4.79	
6,683.0	13.60	159.40	6,655.9	172.3	501.4	-172.3	4.33	2.77	
6,731.0	14.40	166.30	6,702.4	161.2	504.8	-161.2	3.85	1.67	
6,778.0	16.10	170.20	6,747.8	149.1	507.3	-149.1	4.22	3.62	
6,825.0	17.50	170.70	6,792.8	135.7	509.6	-135.7	2.99	2.98	
6,872.0	19.60	172.80	6,837.3	120.9	511.7	-120.9	4.69	4.47	
6,920.0	22.20	179.30	6,882.2	103.9	512.8	-103.9	7.25	5.42	
6,967.0	24.50	177.00	6,925.3	85.2	513.4	-85.2	5.26	4.89	
7,014.0	27.80	171.70	6,967.5	64.7	515.5	-64.7	8.60	7.02	
7,061.0	31.30	172.20	7,008.4	41.7	518.8	-41.7	7.47	7.45	
7,109.0	33.80	173.00	7,048.8	16.1	522.1	-16.1	5.28	5.21	
7,156.0	36.40	174.60	7,087.3	-10.8	525.0	10.8	5.87	5.53	
7,204.0	39.40	174.00	7,125.2	-40.1	527.9	40.1	6.30	6.25	
7,251.0	41.80	174.90	7,160.9	-70.5	530.9	70.5	5.26	5.11	
7,298.0	43.30	174.40	7,195.5	-102.2	533.8	102.2	3.27	3.19	
7,345.0	45.80	175.20	7,229.0	-135.0	536.8	135.0	5.45	5.32	
7,393.0	49.80	178.00	7,261.2	-170.5	538.9	170.5	9.39	8.33	
7,440.0	55.00	179.30	7,289.9	-207.7	539.8	207.7	11.28	11.06	
7,487.0	59.70	180.20	7,315.2	-247.3	539.9	247.3	10.13	10.00	
7,534.0	62.80	178.80	7,337.8	-288.5	540.3	288.5	7.09	6.60	
7,582.0	65.00	178.60	7,358.9	-331.6	541.3	331.6	4.60	4.58	
7,629.0	68.00	178.10	7,377.7	-374.6	542.5	374.6	6.46	6.38	
7,676.0	72.40	177.90	7,393.6	-418.8	544.1	418.8	9.37	9.36	
7,723.0	75.60	178.10	7,406.6	-464.0	545.6	464.0	6.82	6.81	
7,771.0	77.30	179.00	7,417.8	-510.6	546.8	510.6	3.98	3.54	
7,818.0	80.40	178.40	7,426.9	-556.7	547.9	556.7	6.71	6.60	
7,851.0	83.40	180.20	7,431.5	-589.4	548.3	589.4	10.57	9.09	
7,923.0	88.70	180.90	7,436.5	-661.2	547.6	661.2	7.42	7.36	
8,015.0	90.00	180.20	7,437.5	-753.2	546.7	753.2	1.60	1.41	
8,107.0	90.30	180.20	7,437.3	-845.2	546.4	845.2	0.33	0.33	
8,199.0	90.30	179.60	7,436.8	-937.2	546.5	937.2	0.65	0.00	
8,290.0	90.50	179.50	7,436.2	-1,028.2	547.3	1,028.2	0.25	0.22	
8,382.0	88.80	178.70	7,436.7	-1,120.2	548.7	1,120.2	2.04	-1.85	
8,473.0	88.70	178.50	7,438.7	-1,211.1	550.9	1,211.1	0.25	-0.11	
8,565.0	88.80	178.80	7,440.7	-1,303.1	553.1	1,303.1	0.34	0.11	
8,656.0	89.00	178.50	7,442.5	-1,394.0	555.2	1,394.0	0.40	0.22	
8,748.0	88.90	178.20	7,444.2	-1,486.0	557.9	1,486.0	0.34	-0.11	
8,840.0	89.90	178.40	7,445.1	-1,577.9	560.6	1,577.9	1.11	1.09	
8,932.0	89.10	179.80	7,445.9	-1,669.9	562.1	1,669.9	1.75	-0.87	
9,024.0	88.60	180.90	7,447.8	-1,761.9	561.5	1,761.9	1.31	-0.54	
9,115.0	88.70	181.10	7,449.9	-1,852.8	559.9	1,852.8	0.25	0.11	
9,207.0	89.70	181.10	7,451.2	-1,944.8	558.1	1,944.8	1.09	1.09	
9,298.0	89.20	182.50	7,452.1	-2,035.8	555.3	2,035.8	1.63	-0.55	
9,389.0	89.20	182.20	7,453.4	-2,126.7	551.5	2,126.7	0.33	0.00	
9,481.0	89.80	181.80	7,454.2	-2,218.6	548.3	2,218.6	0.78	0.65	
9,573.0	89.00	182.30	7,455.1	-2,310.6	545.0	2,310.6	1.03	-0.87	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
9,665.0	89.30	181.00	7,456.5	-2,402.5	542.4	2,402.5	1.45	0.33	
9,757.0	89.50	181.80	7,457.5	-2,494.5	540.2	2,494.5	0.90	0.22	
9,849.0	89.20	180.60	7,458.5	-2,586.4	538.2	2,586.4	1.34	-0.33	
9,940.0	89.70	178.20	7,459.4	-2,677.4	539.2	2,677.4	2.69	0.55	
10,035.0	89.70	177.90	7,459.9	-2,772.4	542.4	2,772.4	0.32	0.00	
10,129.0	89.10	177.20	7,460.8	-2,866.3	546.4	2,866.3	0.98	-0.64	
10,224.0	90.70	177.60	7,461.0	-2,961.2	550.7	2,961.2	1.74	1.68	
10,319.0	88.90	178.00	7,461.3	-3,056.1	554.4	3,056.1	1.94	-1.89	
10,413.0	86.20	176.90	7,465.4	-3,149.9	558.6	3,149.9	3.10	-2.87	
10,508.0	86.80	176.50	7,471.2	-3,244.6	564.0	3,244.6	0.76	0.63	
10,603.0	88.10	178.50	7,475.4	-3,339.4	568.2	3,339.4	2.51	1.37	
10,697.0	89.70	180.20	7,477.2	-3,433.4	569.2	3,433.4	2.48	1.70	
10,792.0	89.80	180.50	7,477.6	-3,528.4	568.6	3,528.4	0.33	0.11	
10,887.0	90.10	181.50	7,477.7	-3,623.3	567.0	3,623.3	1.10	0.32	
10,981.0	91.00	182.90	7,476.8	-3,717.3	563.4	3,717.3	1.77	0.96	
11,076.0	91.60	182.30	7,474.6	-3,812.1	559.1	3,812.1	0.89	0.63	
11,170.0	92.10	183.10	7,471.6	-3,906.0	554.6	3,906.0	1.00	0.53	
11,264.0	91.20	182.40	7,468.9	-3,999.8	550.1	3,999.8	1.21	-0.96	
11,359.0	87.90	180.30	7,469.6	-4,094.8	547.9	4,094.8	4.12	-3.47	
11,454.0	88.90	182.10	7,472.3	-4,189.7	545.9	4,189.7	2.17	1.05	
11,548.0	87.30	180.90	7,475.4	-4,283.6	543.4	4,283.6	2.13	-1.70	
11,643.0	87.80	179.00	7,479.5	-4,378.6	543.5	4,378.6	2.07	0.53	
11,738.0	89.00	177.50	7,482.1	-4,473.5	546.4	4,473.5	2.02	1.26	
11,832.0	89.30	179.30	7,483.5	-4,567.4	549.1	4,567.4	1.94	0.32	
11,927.0	88.70	178.70	7,485.2	-4,662.4	550.7	4,662.4	0.89	-0.63	
12,021.0	90.10	178.90	7,486.2	-4,756.3	552.7	4,756.3	1.50	1.49	
12,116.0	89.00	177.00	7,486.9	-4,851.3	556.1	4,851.3	2.31	-1.16	
12,210.0	91.00	178.10	7,486.9	-4,945.2	560.1	4,945.2	2.43	2.13	
12,305.0	90.50	178.00	7,485.7	-5,040.1	563.3	5,040.1	0.54	-0.53	
12,400.0	90.50	178.60	7,484.8	-5,135.1	566.1	5,135.1	0.63	0.00	
12,494.0	90.30	181.90	7,484.2	-5,229.0	565.7	5,229.0	3.52	-0.21	
12,589.0	89.80	182.20	7,484.1	-5,324.0	562.3	5,324.0	0.61	-0.53	
12,683.0	88.80	181.00	7,485.2	-5,417.9	559.7	5,417.9	1.66	-1.06	
12,778.0	89.50	179.90	7,486.7	-5,512.9	559.0	5,512.9	1.37	0.74	
12,873.0	89.10	180.30	7,487.8	-5,607.9	558.8	5,607.9	0.60	-0.42	
12,967.0	88.70	179.60	7,489.6	-5,701.9	558.9	5,701.9	0.86	-0.43	
13,062.0	90.20	179.50	7,490.5	-5,796.9	559.6	5,796.9	1.58	1.58	
13,156.0	90.10	179.90	7,490.3	-5,890.9	560.1	5,890.9	0.44	-0.11	
13,251.0	90.20	180.40	7,490.0	-5,985.9	559.9	5,985.9	0.54	0.11	
13,345.0	89.70	180.40	7,490.1	-6,079.9	559.2	6,079.9	0.53	-0.53	
13,440.0	89.10	181.40	7,491.1	-6,174.9	557.7	6,174.9	1.23	-0.63	
13,534.0	88.70	180.40	7,492.9	-6,268.9	556.3	6,268.9	1.15	-0.43	
13,629.0	89.80	179.50	7,494.2	-6,363.8	556.3	6,363.8	1.50	1.16	
13,724.0	89.40	179.00	7,494.8	-6,458.8	557.6	6,458.8	0.67	-0.42	
13,818.0	88.50	179.20	7,496.5	-6,552.8	559.1	6,552.8	0.98	-0.96	
13,911.0	88.10	179.10	7,499.3	-6,645.7	560.4	6,645.7	0.44	-0.43	Last CES Survey @ 13,911' MD
13,963.0	88.10	179.10	7,501.0	-6,697.7	561.2	6,697.7	0.00	0.00	PTB @ 13,963'

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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 2F-14H-C	0.00	0.00	7,486.0	-6,713.7	556.5	1,288,980.62	3,147,729.96	40.125430	-104.971730
- survey misses target center by 22.4ft at 13963.0ft MD (7501.0 TVD, -6697.7 N, 561.2 E)									
- Point									
Grant Elmquist 2F-14H-C	0.00	0.00	7,222.0	-130.7	539.0	1,295,563.41	3,147,673.41	40.143501	-104.971792
- survey misses target center by 3.3ft at 7337.1ft MD (7223.5 TVD, -129.4 N, 536.4 E)									
- Point									
Grant Elmquist 2F-14H-C	0.00	0.00	7,518.0	-6,713.7	556.5	1,288,980.62	3,147,729.96	40.125430	-104.971730
- survey misses target center by 23.8ft at 13963.0ft MD (7501.0 TVD, -6697.7 N, 561.2 E)									
- Point									
Grant Elmquist 2F-14H-C	0.00	0.00	7,410.0	-6,713.7	556.5	1,288,980.62	3,147,729.96	40.125430	-104.971730
- survey misses target center by 92.5ft at 13963.0ft MD (7501.0 TVD, -6697.7 N, 561.2 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
13,911.0	7,499.3	-6,645.7	560.4	Last CES Survey @ 13,911' MD
13,963.0	7,501.0	-6,697.7	561.2	PTB @ 13,963'

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_

# **EnCana Oil & Gas (USA) Inc**

**DJ Wattenberg**

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

**Grant Elmquist 2F-14H-C268**

**Hz**

**Survey: SURVEYS**

## **Survey Report - Geographic**

**11 November, 2014**

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	USA EDM 5000 Multi Users DB

<b>Project</b>	DJ Wattenberg		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 2F-14H-C268					
Well Position	+N/-S	0.0 ft	Northing:	1,295,690.86 ft	Latitude:	40.143860
	+E/-W	0.0 ft	Easting:	3,147,133.64 ft	Longitude:	-104.973720
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,881.0 ft

<b>Wellbore</b>	Hz				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	10/30/2014	8.50	66.69	52,619

<b>Design</b>	FINAL				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	180.00	

<b>Survey Program</b>	<b>Date</b>	11/11/2014			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
307.0	13,963.0	SURVEYS (Hz)	Geolink MWD	Geolink MWD	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Map Northing (ft)</b>	<b>Map Easting (ft)</b>	<b>Latitude</b>	<b>Longitude</b>	
0.0	0.00	0.00	0.0	0.0	0.0	1,295,690.86	3,147,133.64	40.143860	-104.973720	
307.0	0.80	212.30	307.0	-1.8	-1.1	1,295,689.04	3,147,132.51	40.143855	-104.973724	
338.0	0.80	236.10	338.0	-2.1	-1.4	1,295,688.74	3,147,132.22	40.143854	-104.973725	
417.0	1.10	56.20	417.0	-2.0	-1.3	1,295,688.85	3,147,132.39	40.143855	-104.973725	
509.0	1.10	72.10	509.0	-1.2	0.3	1,295,689.63	3,147,133.96	40.143857	-104.973719	
601.0	3.10	48.20	600.9	0.7	3.0	1,295,691.57	3,147,136.64	40.143862	-104.973710	
693.0	2.80	41.10	692.8	4.0	6.3	1,295,694.94	3,147,139.95	40.143871	-104.973698	
785.0	4.80	48.30	784.6	8.3	10.7	1,295,699.22	3,147,144.28	40.143883	-104.973682	
804.0	4.70	43.50	803.5	9.4	11.8	1,295,700.32	3,147,145.40	40.143886	-104.973678	
925.0	4.70	42.60	924.1	16.6	18.6	1,295,707.61	3,147,152.13	40.143906	-104.973654	
1,019.0	5.20	51.90	1,017.8	22.1	24.5	1,295,713.11	3,147,158.05	40.143921	-104.973632	
1,114.0	6.40	70.60	1,112.3	26.5	32.9	1,295,717.57	3,147,166.41	40.143933	-104.973602	



# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
1,208.0	6.20	67.70	1,205.7	30.2	42.6	1,295,721.30	3,147,176.03	40.143943	-104.973568
1,300.0	5.80	63.50	1,297.2	34.1	51.3	1,295,725.31	3,147,184.76	40.143954	-104.973537
1,392.0	6.20	70.90	1,388.7	37.8	60.2	1,295,729.06	3,147,193.59	40.143964	-104.973505
1,484.0	5.20	62.30	1,480.2	41.4	68.6	1,295,732.67	3,147,201.96	40.143974	-104.973475
1,575.0	5.40	86.00	1,570.9	43.6	76.5	1,295,734.94	3,147,209.87	40.143980	-104.973447
1,667.0	5.10	83.10	1,662.5	44.4	84.9	1,295,735.78	3,147,218.24	40.143982	-104.973417
1,759.0	4.80	76.40	1,754.1	45.8	92.7	1,295,737.22	3,147,226.03	40.143986	-104.973389
1,850.0	4.70	69.10	1,844.8	48.0	99.8	1,295,739.49	3,147,233.20	40.143992	-104.973363
1,942.0	6.40	66.80	1,936.4	51.4	108.1	1,295,742.90	3,147,241.42	40.144001	-104.973334
2,034.0	5.70	62.50	2,027.9	55.5	116.8	1,295,747.08	3,147,250.16	40.144012	-104.973302
2,126.0	4.90	57.50	2,119.5	59.8	124.2	1,295,751.35	3,147,257.50	40.144024	-104.973276
2,217.0	4.50	50.40	2,210.2	64.1	130.2	1,295,755.75	3,147,263.50	40.144036	-104.973254
2,309.0	4.90	68.20	2,301.9	67.9	136.7	1,295,759.55	3,147,269.91	40.144046	-104.973231
2,400.0	4.40	62.60	2,392.6	70.9	143.4	1,295,762.64	3,147,276.60	40.144055	-104.973207
2,492.0	5.70	84.10	2,484.2	73.0	151.1	1,295,764.78	3,147,284.26	40.144060	-104.973180
2,583.0	5.00	81.20	2,574.8	74.1	159.5	1,295,765.90	3,147,292.67	40.144063	-104.973150
2,675.0	4.30	74.90	2,666.5	75.6	166.8	1,295,767.45	3,147,299.95	40.144068	-104.973124
2,767.0	4.30	76.00	2,758.3	77.3	173.4	1,295,769.22	3,147,306.62	40.144072	-104.973100
2,858.0	6.40	76.70	2,848.9	79.3	181.7	1,295,771.27	3,147,314.86	40.144078	-104.973070
2,950.0	5.60	72.00	2,940.4	81.9	190.9	1,295,773.89	3,147,324.10	40.144085	-104.973037
3,042.0	4.50	69.10	3,032.0	84.6	198.6	1,295,776.61	3,147,331.72	40.144092	-104.973010
3,136.0	5.40	82.50	3,125.7	86.5	206.4	1,295,778.55	3,147,339.54	40.144097	-104.972982
3,231.0	4.00	76.30	3,220.3	87.8	214.1	1,295,779.96	3,147,347.19	40.144101	-104.972955
3,325.0	5.00	77.90	3,314.0	89.5	221.3	1,295,781.64	3,147,354.37	40.144106	-104.972929
3,420.0	5.80	89.60	3,408.6	90.4	230.1	1,295,782.59	3,147,363.21	40.144108	-104.972897
3,514.0	5.10	66.20	3,502.2	92.1	238.7	1,295,784.36	3,147,371.77	40.144113	-104.972866
3,609.0	5.50	65.70	3,596.8	95.7	246.7	1,295,787.99	3,147,379.77	40.144123	-104.972838
3,704.0	3.80	67.80	3,691.5	98.7	253.8	1,295,791.09	3,147,386.81	40.144131	-104.972813
3,798.0	5.20	59.80	3,785.2	102.0	260.3	1,295,794.45	3,147,393.36	40.144140	-104.972789
3,893.0	6.60	65.40	3,879.7	106.5	269.0	1,295,798.94	3,147,402.02	40.144152	-104.972758
3,987.0	5.80	65.00	3,973.1	110.7	278.2	1,295,803.25	3,147,411.21	40.144164	-104.972725
4,082.0	5.20	57.70	4,067.7	115.1	286.2	1,295,807.63	3,147,419.17	40.144176	-104.972696
4,176.0	4.20	49.70	4,161.4	119.6	292.4	1,295,812.17	3,147,425.37	40.144188	-104.972674
4,271.0	4.90	59.90	4,256.1	123.9	298.6	1,295,816.49	3,147,431.51	40.144200	-104.972652
4,365.0	5.50	76.00	4,349.7	127.0	306.5	1,295,819.64	3,147,439.33	40.144209	-104.972624
4,460.0	5.30	78.80	4,444.3	128.9	315.2	1,295,821.64	3,147,448.04	40.144214	-104.972593
4,555.0	4.70	79.00	4,538.9	130.5	323.3	1,295,823.29	3,147,456.16	40.144218	-104.972564
4,649.0	5.40	60.40	4,632.6	133.4	330.9	1,295,826.25	3,147,463.77	40.144226	-104.972537
4,744.0	5.10	59.40	4,727.2	137.8	338.4	1,295,830.65	3,147,471.26	40.144238	-104.972510
4,839.0	4.90	58.60	4,821.8	142.0	345.5	1,295,834.96	3,147,478.34	40.144250	-104.972484
4,933.0	4.40	56.00	4,915.5	146.2	352.0	1,295,839.11	3,147,484.73	40.144261	-104.972461
5,028.0	5.10	61.90	5,010.2	150.2	358.7	1,295,843.17	3,147,491.45	40.144272	-104.972437
5,123.0	5.30	68.90	5,104.8	153.8	366.5	1,295,846.79	3,147,499.25	40.144282	-104.972409
5,217.0	6.40	64.40	5,198.3	157.6	375.3	1,295,850.67	3,147,508.00	40.144293	-104.972378
5,312.0	5.10	61.20	5,292.8	161.9	383.8	1,295,855.04	3,147,516.45	40.144304	-104.972347
5,406.0	5.60	67.50	5,386.4	165.7	391.7	1,295,858.85	3,147,524.33	40.144315	-104.972319
5,501.0	6.30	65.30	5,480.9	169.6	400.7	1,295,862.86	3,147,533.32	40.144326	-104.972287
5,595.0	5.00	62.60	5,574.4	173.7	409.0	1,295,866.95	3,147,541.62	40.144337	-104.972257
5,690.0	3.80	62.00	5,669.1	177.0	415.5	1,295,870.37	3,147,548.05	40.144346	-104.972234
5,784.0	4.70	64.00	5,762.9	180.2	421.7	1,295,873.56	3,147,554.25	40.144355	-104.972212
5,879.0	5.20	70.60	5,857.5	183.3	429.2	1,295,876.74	3,147,561.79	40.144363	-104.972185
5,974.0	5.50	71.10	5,952.1	186.2	437.6	1,295,879.69	3,147,570.14	40.144371	-104.972155
6,068.0	3.90	65.90	6,045.8	189.0	444.8	1,295,882.50	3,147,577.30	40.144379	-104.972129
6,163.0	4.40	67.90	6,140.5	191.7	451.1	1,295,885.23	3,147,583.61	40.144386	-104.972107
6,258.0	4.70	79.10	6,235.3	193.8	458.3	1,295,887.38	3,147,590.80	40.144392	-104.972081

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
6,352.0	5.50	66.20	6,328.9	196.3	466.2	1,295,889.97	3,147,598.68	40.144399	-104.972053
6,399.0	5.60	73.00	6,375.7	197.9	470.5	1,295,891.57	3,147,602.93	40.144403	-104.972037
6,447.0	6.80	91.30	6,423.4	198.5	475.5	1,295,892.22	3,147,608.01	40.144405	-104.972019
6,494.0	7.80	101.80	6,470.0	197.8	481.5	1,295,891.54	3,147,613.91	40.144403	-104.971998
6,541.0	8.40	124.10	6,516.5	195.3	487.4	1,295,889.00	3,147,619.90	40.144396	-104.971977
6,588.0	10.00	146.70	6,563.0	189.9	492.5	1,295,883.70	3,147,625.01	40.144381	-104.971959
6,636.0	12.30	152.40	6,610.0	181.9	497.2	1,295,875.71	3,147,629.72	40.144359	-104.971942
6,683.0	13.60	159.40	6,655.9	172.3	501.4	1,295,866.12	3,147,634.04	40.144333	-104.971927
6,731.0	14.40	166.30	6,702.4	161.2	504.8	1,295,855.06	3,147,637.50	40.144303	-104.971914
6,778.0	16.10	170.20	6,747.8	149.1	507.3	1,295,842.98	3,147,640.07	40.144269	-104.971906
6,825.0	17.50	170.70	6,792.8	135.7	509.6	1,295,829.59	3,147,642.40	40.144233	-104.971898
6,872.0	19.60	172.80	6,837.3	120.9	511.7	1,295,814.81	3,147,644.62	40.144192	-104.971890
6,920.0	22.20	179.30	6,882.2	103.9	512.8	1,295,797.76	3,147,645.84	40.144145	-104.971886
6,967.0	24.50	177.00	6,925.3	85.2	513.4	1,295,779.15	3,147,646.57	40.144094	-104.971884
7,014.0	27.80	171.70	6,967.5	64.7	515.5	1,295,758.57	3,147,648.78	40.144038	-104.971876
7,061.0	31.30	172.20	7,008.4	41.7	518.8	1,295,735.64	3,147,652.16	40.143975	-104.971865
7,109.0	33.80	173.00	7,048.8	16.1	522.1	1,295,710.06	3,147,655.63	40.143904	-104.971853
7,156.0	36.40	174.60	7,087.3	-10.8	525.0	1,295,683.21	3,147,658.70	40.143830	-104.971842
7,204.0	39.40	174.00	7,125.2	-40.1	527.9	1,295,653.89	3,147,661.80	40.143750	-104.971832
7,251.0	41.80	174.90	7,160.9	-70.5	530.9	1,295,623.47	3,147,664.94	40.143666	-104.971821
7,298.0	43.30	174.40	7,195.5	-102.2	533.8	1,295,591.84	3,147,668.09	40.143580	-104.971811
7,345.0	45.80	175.20	7,229.0	-135.0	536.8	1,295,559.03	3,147,671.27	40.143489	-104.971800
7,393.0	49.80	178.00	7,261.2	-170.5	538.9	1,295,523.56	3,147,673.56	40.143392	-104.971793
7,440.0	55.00	179.30	7,289.9	-207.7	539.8	1,295,486.35	3,147,674.64	40.143290	-104.971790
7,487.0	59.70	180.20	7,315.2	-247.3	539.9	1,295,446.79	3,147,675.04	40.143181	-104.971789
7,534.0	62.80	178.80	7,337.8	-288.5	540.3	1,295,405.60	3,147,675.65	40.143068	-104.971788
7,582.0	65.00	178.60	7,358.9	-331.6	541.3	1,295,362.51	3,147,676.89	40.142950	-104.971784
7,629.0	68.00	178.10	7,377.7	-374.6	542.5	1,295,319.44	3,147,678.39	40.142832	-104.971780
7,676.0	72.40	177.90	7,393.6	-418.8	544.1	1,295,275.27	3,147,680.19	40.142710	-104.971774
7,723.0	75.60	178.10	7,406.6	-464.0	545.6	1,295,230.13	3,147,682.04	40.142586	-104.971769
7,771.0	77.30	179.00	7,417.8	-510.6	546.8	1,295,183.49	3,147,683.49	40.142458	-104.971764
7,818.0	80.40	178.40	7,426.9	-556.7	547.9	1,295,137.40	3,147,684.81	40.142332	-104.971761
7,851.0	83.40	180.20	7,431.5	-589.4	548.3	1,295,104.73	3,147,685.40	40.142242	-104.971759
7,923.0	88.70	180.90	7,436.5	-661.2	547.6	1,295,032.93	3,147,685.14	40.142045	-104.971762
8,015.0	90.00	180.20	7,437.5	-753.2	546.7	1,294,940.93	3,147,684.80	40.141792	-104.971765
8,107.0	90.30	180.20	7,437.3	-845.2	546.4	1,294,848.93	3,147,685.03	40.141540	-104.971766
8,199.0	90.30	179.60	7,436.8	-937.2	546.5	1,294,756.94	3,147,685.73	40.141287	-104.971765
8,290.0	90.50	179.50	7,436.2	-1,028.2	547.3	1,294,665.95	3,147,686.99	40.141038	-104.971763
8,382.0	88.80	178.70	7,436.7	-1,120.2	548.7	1,294,573.98	3,147,688.98	40.140785	-104.971758
8,473.0	88.70	178.50	7,438.7	-1,211.1	550.9	1,294,483.04	3,147,691.74	40.140535	-104.971750
8,565.0	88.80	178.80	7,440.7	-1,303.1	553.1	1,294,391.10	3,147,694.45	40.140283	-104.971742
8,656.0	89.00	178.50	7,442.5	-1,394.0	555.2	1,294,300.16	3,147,697.14	40.140033	-104.971734
8,748.0	88.90	178.20	7,444.2	-1,486.0	557.9	1,294,208.23	3,147,700.33	40.139781	-104.971725
8,840.0	89.90	178.40	7,445.1	-1,577.9	560.6	1,294,116.29	3,147,703.61	40.139528	-104.971715
8,932.0	89.10	179.80	7,445.9	-1,669.9	562.1	1,294,024.32	3,147,705.60	40.139276	-104.971710
9,024.0	88.60	180.90	7,447.8	-1,761.9	561.5	1,293,932.34	3,147,705.58	40.139023	-104.971712
9,115.0	88.70	181.10	7,449.9	-1,852.8	559.9	1,293,841.37	3,147,704.53	40.138774	-104.971718
9,207.0	89.70	181.10	7,451.2	-1,944.8	558.1	1,293,749.39	3,147,703.31	40.138521	-104.971724
9,298.0	89.20	182.50	7,452.1	-2,035.8	555.3	1,293,658.43	3,147,701.00	40.138272	-104.971734
9,389.0	89.20	182.20	7,453.4	-2,126.7	551.5	1,293,567.49	3,147,697.80	40.138022	-104.971748
9,481.0	89.80	181.80	7,454.2	-2,218.6	548.3	1,293,475.53	3,147,695.14	40.137770	-104.971759
9,573.0	89.00	182.30	7,455.1	-2,310.6	545.0	1,293,383.58	3,147,692.39	40.137517	-104.971771
9,665.0	89.30	181.00	7,456.5	-2,402.5	542.4	1,293,291.62	3,147,690.29	40.137265	-104.971780
9,757.0	89.50	181.80	7,457.4	-2,494.5	540.2	1,293,199.64	3,147,688.59	40.137012	-104.971788
9,849.0	89.20	180.60	7,458.5	-2,586.4	538.2	1,293,107.66	3,147,687.21	40.136760	-104.971795

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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
9,940.0	89.70	178.20	7,459.4	-2,677.4	539.2	1,293,016.68	3,147,688.70	40.136510	-104.971792
10,035.0	89.70	177.90	7,459.9	-2,772.4	542.4	1,292,921.76	3,147,692.50	40.136249	-104.971780
10,129.0	89.10	177.20	7,460.8	-2,866.3	546.4	1,292,827.87	3,147,697.07	40.135992	-104.971766
10,224.0	90.70	177.60	7,461.0	-2,961.2	550.7	1,292,733.00	3,147,701.95	40.135731	-104.971751
10,319.0	88.90	178.00	7,461.3	-3,056.1	554.4	1,292,638.10	3,147,706.16	40.135471	-104.971737
10,413.0	86.20	176.90	7,465.4	-3,149.9	558.6	1,292,544.32	3,147,710.89	40.135213	-104.971723
10,508.0	86.80	176.50	7,471.2	-3,244.6	564.0	1,292,449.68	3,147,716.91	40.134953	-104.971703
10,603.0	88.10	178.50	7,475.4	-3,339.4	568.2	1,292,354.90	3,147,721.61	40.134693	-104.971688
10,697.0	89.70	180.20	7,477.2	-3,433.4	569.2	1,292,260.94	3,147,723.23	40.134435	-104.971684
10,792.0	89.80	180.50	7,477.6	-3,528.4	568.6	1,292,165.94	3,147,723.22	40.134174	-104.971687
10,887.0	90.10	181.50	7,477.7	-3,623.3	567.0	1,292,070.95	3,147,722.12	40.133913	-104.971692
10,981.0	91.00	182.90	7,476.8	-3,717.3	563.4	1,291,977.00	3,147,719.07	40.133656	-104.971705
11,076.0	91.60	182.30	7,474.6	-3,812.1	559.1	1,291,882.10	3,147,715.33	40.133395	-104.971721
11,170.0	92.10	183.10	7,471.6	-3,906.0	554.6	1,291,788.23	3,147,711.46	40.133138	-104.971737
11,264.0	91.20	182.40	7,468.9	-3,999.8	550.1	1,291,694.36	3,147,707.51	40.132880	-104.971753
11,359.0	87.90	180.30	7,469.6	-4,094.8	547.9	1,291,599.39	3,147,705.83	40.132619	-104.971761
11,454.0	88.90	182.10	7,472.3	-4,189.7	545.9	1,291,504.45	3,147,704.41	40.132359	-104.971768
11,548.0	87.30	180.90	7,475.4	-4,283.6	543.4	1,291,410.52	3,147,702.51	40.132101	-104.971777
11,643.0	87.80	179.00	7,479.5	-4,378.6	543.5	1,291,315.61	3,147,703.15	40.131840	-104.971776
11,738.0	89.00	177.50	7,482.1	-4,473.5	546.4	1,291,220.72	3,147,706.62	40.131580	-104.971766
11,832.0	89.30	179.30	7,483.5	-4,567.4	549.1	1,291,126.81	3,147,709.80	40.131322	-104.971757
11,927.0	88.70	178.70	7,485.2	-4,662.4	550.7	1,291,031.85	3,147,712.02	40.131061	-104.971751
12,021.0	90.10	178.90	7,486.2	-4,756.3	552.7	1,290,937.89	3,147,714.54	40.130803	-104.971744
12,116.0	89.00	177.00	7,486.9	-4,851.3	556.1	1,290,842.98	3,147,718.51	40.130543	-104.971732
12,210.0	91.00	178.10	7,486.9	-4,945.2	560.1	1,290,749.10	3,147,723.08	40.130285	-104.971717
12,305.0	90.50	178.00	7,485.7	-5,040.1	563.3	1,290,654.19	3,147,726.88	40.130024	-104.971706
12,400.0	90.50	178.60	7,484.8	-5,135.1	566.1	1,290,559.25	3,147,730.26	40.129764	-104.971696
12,494.0	90.30	181.90	7,484.2	-5,229.0	565.7	1,290,465.27	3,147,730.41	40.129506	-104.971697
12,589.0	89.80	182.20	7,484.1	-5,324.0	562.3	1,290,370.31	3,147,727.57	40.129245	-104.971709
12,683.0	88.80	181.00	7,485.2	-5,417.9	559.7	1,290,276.34	3,147,725.50	40.128987	-104.971719
12,778.0	89.50	179.90	7,486.7	-5,512.9	559.0	1,290,181.35	3,147,725.32	40.128726	-104.971721
12,873.0	89.10	180.30	7,487.8	-5,607.9	558.8	1,290,086.36	3,147,725.72	40.128466	-104.971722
12,967.0	88.70	179.60	7,489.6	-5,701.9	558.9	1,289,992.36	3,147,726.36	40.128207	-104.971722
13,062.0	90.20	179.50	7,490.5	-5,796.9	559.6	1,289,897.37	3,147,727.67	40.127947	-104.971719
13,156.0	90.10	179.90	7,490.3	-5,890.9	560.1	1,289,803.38	3,147,728.72	40.127689	-104.971717
13,251.0	90.20	180.40	7,490.0	-5,985.9	559.9	1,289,708.38	3,147,729.03	40.127428	-104.971718
13,345.0	89.70	180.40	7,490.1	-6,079.9	559.2	1,289,614.38	3,147,728.94	40.127170	-104.971720
13,440.0	89.10	181.40	7,491.1	-6,174.9	557.7	1,289,519.39	3,147,728.01	40.126909	-104.971726
13,534.0	88.70	180.40	7,492.9	-6,268.9	556.3	1,289,425.41	3,147,727.09	40.126651	-104.971731
13,629.0	89.80	179.50	7,494.2	-6,363.8	556.3	1,289,330.43	3,147,727.74	40.126390	-104.971731
13,724.0	89.40	179.00	7,494.8	-6,458.8	557.6	1,289,235.45	3,147,729.54	40.126130	-104.971726
13,818.0	88.50	179.20	7,496.5	-6,552.8	559.1	1,289,141.49	3,147,731.58	40.125872	-104.971721
13,911.0	88.10	179.10	7,499.3	-6,645.7	560.4	1,289,048.57	3,147,733.51	40.125617	-104.971716
Last CES Survey @ 13,911' MD									
13,963.0	88.10	179.10	7,501.0	-6,697.7	561.2	1,288,996.62	3,147,734.63	40.125474	-104.971713
PTB @ 13,963'									

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Grant Elmquist 2F-14H-C268
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Site:</b>	S14-T2N-R68W (Grant Elmquist/Salisbury/Hurt)	<b>MD Reference:</b>	KB @ 4894.0ft (Ensign 135)
<b>Well:</b>	Grant Elmquist 2F-14H-C268	<b>North Reference:</b>	True
<b>Wellbore:</b>	Hz	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	FINAL	<b>Database:</b>	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 2F-14H-C	0.00	0.00	7,486.0	-6,713.7	556.5	1,288,980.62	3,147,729.96	40.125430	-104.971730
- survey misses target center by 22.4ft at 13963.0ft MD (7501.0 TVD, -6697.7 N, 561.2 E)									
- Point									

Survey Annotations				
Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
13,911.0	7,499.3	-6,645.7	560.4	Last CES Survey @ 13,911' MD
13,963.0	7,501.0	-6,697.7	561.2	PTB @ 13,963'

Checked By: _____	Approved By: _____	Date: _____
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