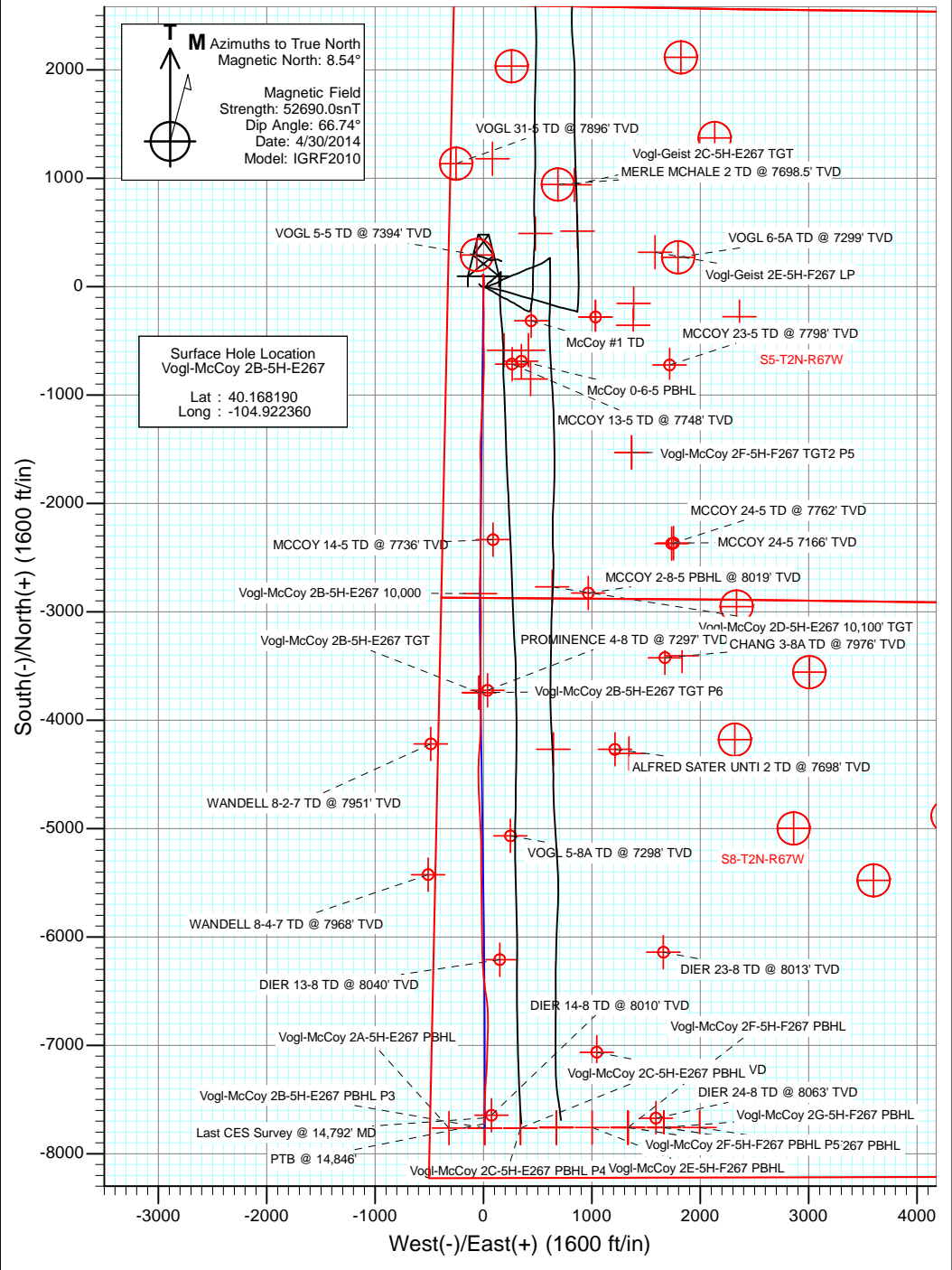
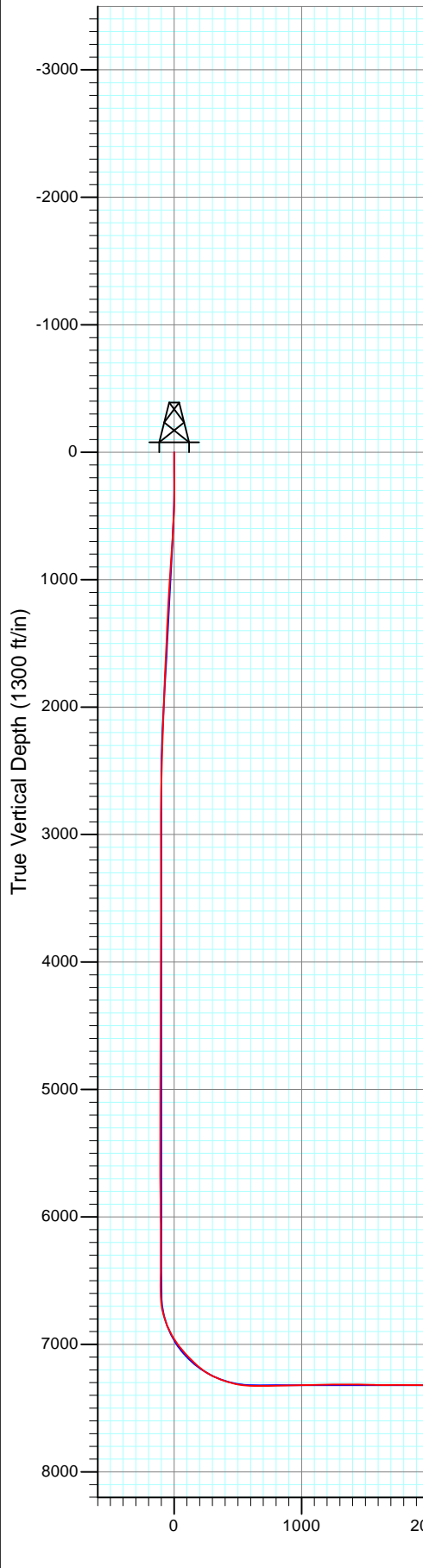


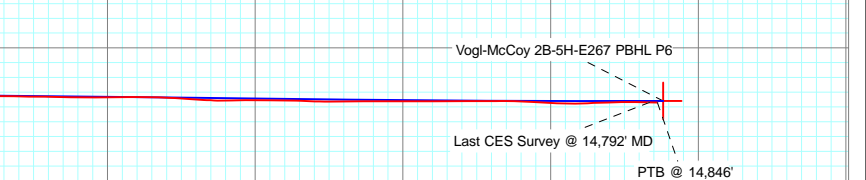


Project: DJ Wattenberg  
 Site: S5-T2N-R67W (Vogl-McCoy)  
 Well: Vogl-McCoy 2B-5H-E267  
 Wellbore: Hz  
 Design: FINAL



Surface Hole Location  
 Vogl-McCoy 2B-5H-E267  
 Lat : 40.168190  
 Long : -104.922360

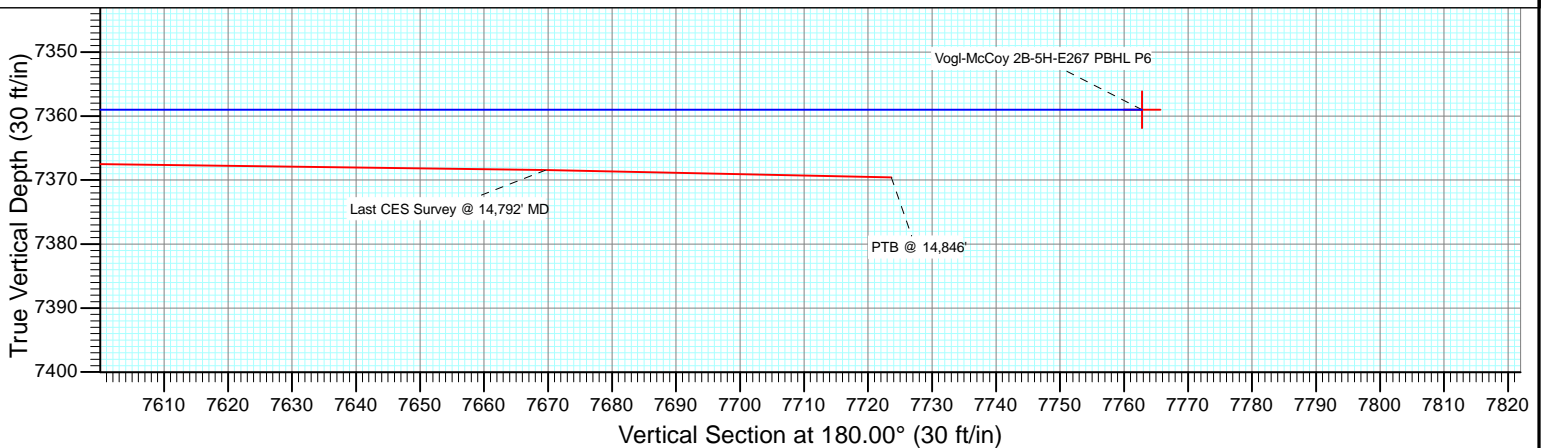
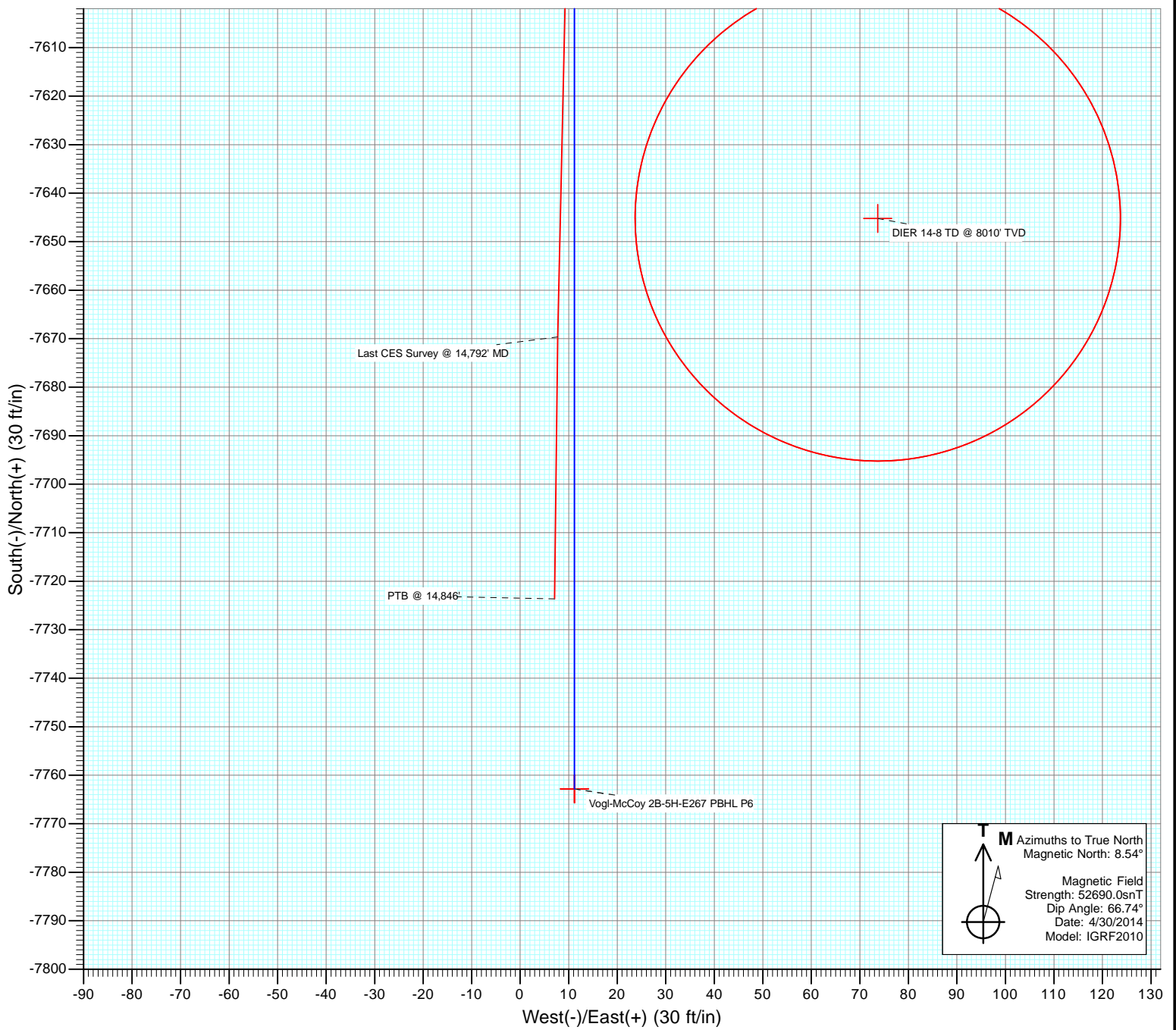
DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Vogl-McCoy 2B-5H-E267 PBHL P6	-7762.8	11.2	1296880.43	3161495.74	40.146880	-104.922320



FINAL  
 Vogl-McCoy 2B-5H-E267  
 145062/303355; LR 306955 145140; LR  
 KB @ 4865.0ft (H&P 522)  
 Ground Elevation @ 4835.0  
 North American Datum 1983  
 Well Vogl-McCoy 2B-5H-E267, True North



Project: DJ Wattenberg  
Site: S5-T2N-R67W (Vogl-McCoy)  
Well: Vogl-McCoy 2B-5H-E267  
Wellbore: Hz  
Design: FINAL



# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Vogl-McCoy 2B-5H-E267
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Site:</b> S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Well:</b> Vogl-McCoy 2B-5H-E267	<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		

<b>Site</b> S5-T2N-R67W (Vogl-McCoy)				
<b>Site Position:</b>	<b>Northing:</b>	1,303,967.76 ft	<b>Latitude:</b>	40.166330
<b>From:</b> Lat/Long	<b>Easting:</b>	3,161,787.74 ft	<b>Longitude:</b>	-104.921110
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> 13.200 in		<b>Grid Convergence:</b>	0.37 °

<b>Well</b> Vogl-McCoy 2B-5H-E267				
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>	1,304,643.00 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>	3,161,434.00 ft
			<b>Longitude:</b>	-104.922360
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	4,835.0 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	4/30/2014	8.54	66.74	52,690

<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> 5/9/2014
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>
143.0	14,846.0	Survey #1 (Hz)
		<b>Tool Name</b>
		Geolink MWD
		<b>Description</b>
		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	0.44	138.55	143.0	-0.4	0.4	0.4	0.31	0.31	
235.0	0.57	146.11	235.0	-1.1	0.9	1.1	0.16	0.14	
327.0	0.66	62.35	327.0	-1.2	1.6	1.2	0.90	0.10	
419.0	1.41	21.04	419.0	0.1	2.5	-0.1	1.10	0.82	
511.0	2.42	17.35	510.9	3.0	3.4	-3.0	1.11	1.10	
603.0	3.82	359.33	602.8	7.9	4.0	-7.9	1.84	1.52	
695.0	4.48	355.90	694.5	14.6	3.7	-14.6	0.77	0.72	
787.0	3.78	354.85	786.3	21.2	3.2	-21.2	0.77	-0.76	
815.0	3.47	356.17	814.3	23.0	3.0	-23.0	1.15	-1.11	
913.0	3.40	351.70	912.1	28.8	2.4	-28.8	0.28	-0.07	
1,005.0	3.60	354.50	1,003.9	34.4	1.7	-34.4	0.29	0.22	
1,097.0	3.80	356.10	1,095.7	40.3	1.2	-40.3	0.24	0.22	

# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Vogl-McCoy 2B-5H-E267
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Site:</b> S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Well:</b> Vogl-McCoy 2B-5H-E267	<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
1,189.0	2.50	9.10	1,187.6	45.3	1.4	-45.3	1.60	-1.41	
1,281.0	2.80	4.00	1,279.5	49.5	1.8	-49.5	0.41	0.33	
1,373.0	2.80	356.20	1,371.4	54.0	1.8	-54.0	0.41	0.00	
1,465.0	2.70	348.80	1,463.3	58.4	1.3	-58.4	0.40	-0.11	
1,557.0	2.70	340.90	1,555.2	62.6	0.1	-62.6	0.40	0.00	
1,649.0	2.90	4.90	1,647.1	66.9	-0.4	-66.9	1.28	0.22	
1,740.0	2.90	0.50	1,737.9	71.5	-0.2	-71.5	0.24	0.00	
1,832.0	2.60	353.00	1,829.8	75.9	-0.4	-75.9	0.51	-0.33	
1,924.0	2.60	342.80	1,921.7	80.0	-1.3	-80.0	0.50	0.00	
2,016.0	2.10	357.50	2,013.7	83.7	-1.9	-83.7	0.85	-0.54	
2,108.0	1.80	347.10	2,105.6	86.8	-2.3	-86.8	0.50	-0.33	
2,200.0	1.50	342.60	2,197.6	89.3	-3.0	-89.3	0.35	-0.33	
2,292.0	1.80	24.80	2,289.5	91.8	-2.8	-91.8	1.33	0.33	
2,384.0	1.50	18.50	2,381.5	94.2	-1.8	-94.2	0.38	-0.33	
2,476.0	1.60	16.80	2,473.5	96.6	-1.0	-96.6	0.12	0.11	
2,568.0	1.40	8.90	2,565.4	98.9	-0.5	-98.9	0.31	-0.22	
2,660.0	1.30	6.70	2,657.4	101.1	-0.2	-101.1	0.12	-0.11	
2,752.0	1.10	352.20	2,749.4	103.0	-0.2	-103.0	0.39	-0.22	
2,846.0	0.30	67.30	2,843.4	104.0	-0.1	-104.0	1.13	-0.85	
2,940.0	0.10	101.60	2,937.4	104.1	0.2	-104.1	0.24	-0.21	
3,034.0	0.30	231.10	3,031.4	103.9	0.1	-103.9	0.40	0.21	
3,128.0	0.30	140.80	3,125.4	103.5	0.1	-103.5	0.45	0.00	
3,223.0	0.40	156.90	3,220.4	103.0	0.4	-103.0	0.15	0.11	
3,317.0	0.30	157.20	3,314.4	102.5	0.6	-102.5	0.11	-0.11	
3,411.0	0.10	157.30	3,408.4	102.2	0.7	-102.2	0.21	-0.21	
3,505.0	0.20	86.00	3,502.4	102.1	0.9	-102.1	0.21	0.11	
3,600.0	0.20	317.90	3,597.4	102.3	1.0	-102.3	0.38	0.00	
3,695.0	1.10	289.90	3,692.4	102.7	0.0	-102.7	0.98	0.95	
3,789.0	1.60	294.50	3,786.3	103.6	-2.1	-103.6	0.54	0.53	
3,884.0	0.90	289.90	3,881.3	104.4	-4.0	-104.4	0.74	-0.74	
3,979.0	1.20	285.60	3,976.3	104.9	-5.6	-104.9	0.33	0.32	
4,073.0	0.20	174.10	4,070.3	105.0	-6.6	-105.0	1.37	-1.06	
4,168.0	0.40	69.20	4,165.3	104.9	-6.2	-104.9	0.52	0.21	
4,262.0	0.50	20.80	4,259.3	105.4	-5.8	-105.4	0.40	0.11	
4,357.0	0.50	10.40	4,354.3	106.2	-5.6	-106.2	0.10	0.00	
4,452.0	0.70	14.40	4,449.3	107.2	-5.3	-107.2	0.21	0.21	
4,546.0	1.20	102.80	4,543.3	107.6	-4.2	-107.6	1.46	0.53	
4,641.0	0.50	113.70	4,638.3	107.2	-2.9	-107.2	0.75	-0.74	
4,736.0	0.20	288.80	4,733.3	107.1	-2.7	-107.1	0.74	-0.32	
4,830.0	0.20	265.00	4,827.3	107.1	-3.0	-107.1	0.09	0.00	
4,925.0	0.30	313.60	4,922.3	107.2	-3.3	-107.2	0.24	0.11	
5,019.0	0.10	244.80	5,016.3	107.4	-3.6	-107.4	0.30	-0.21	
5,114.0	0.20	297.00	5,111.3	107.4	-3.8	-107.4	0.17	0.11	
5,209.0	0.40	313.20	5,206.3	107.7	-4.2	-107.7	0.23	0.21	
5,303.0	0.40	316.40	5,300.2	108.2	-4.7	-108.2	0.02	0.00	
5,398.0	0.20	300.40	5,395.2	108.5	-5.0	-108.5	0.23	-0.21	
5,492.0	0.40	319.80	5,489.2	108.8	-5.4	-108.8	0.24	0.21	
5,587.0	0.70	302.40	5,584.2	109.4	-6.1	-109.4	0.36	0.32	
5,682.0	0.80	168.50	5,679.2	109.1	-6.4	-109.1	1.45	0.11	
5,776.0	0.70	166.50	5,773.2	107.9	-6.2	-107.9	0.11	-0.11	
5,871.0	0.40	184.30	5,868.2	107.0	-6.1	-107.0	0.36	-0.32	
5,966.0	0.40	188.90	5,963.2	106.3	-6.1	-106.3	0.03	0.00	
6,060.0	0.10	225.90	6,057.2	105.9	-6.3	-105.9	0.35	-0.32	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Vogl-McCoy 2B-5H-E267
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Site:</b>	S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Well:</b>	Vogl-McCoy 2B-5H-E267	<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
6,155.0	0.20	201.10	6,152.2	105.7	-6.4	-105.7	0.12	0.11	
6,249.0	0.40	282.20	6,246.2	105.6	-6.8	-105.6	0.45	0.21	
6,344.0	0.30	196.50	6,341.2	105.5	-7.1	-105.5	0.51	-0.11	
6,438.0	0.40	337.30	6,435.2	105.5	-7.3	-105.5	0.70	0.11	
6,533.0	0.70	315.90	6,530.2	106.3	-7.9	-106.3	0.38	0.32	
6,553.0	0.60	303.90	6,550.2	106.4	-8.0	-106.4	0.84	-0.50	
6,628.0	2.20	174.00	6,625.2	105.2	-8.2	-105.2	3.50	2.13	
6,675.0	7.30	165.20	6,672.0	101.4	-7.4	-101.4	10.93	10.85	
6,722.0	10.50	166.10	6,718.4	94.4	-5.6	-94.4	6.81	6.81	
6,769.0	14.70	171.40	6,764.3	84.3	-3.6	-84.3	9.26	8.94	
6,817.0	18.80	173.00	6,810.3	70.6	-1.8	-70.6	8.59	8.54	
6,864.0	22.60	178.70	6,854.2	54.0	-0.7	-54.0	9.14	8.09	
6,912.0	26.50	180.50	6,897.9	34.1	-0.6	-34.1	8.27	8.12	
6,959.0	30.90	177.90	6,939.1	11.5	-0.2	-11.5	9.73	9.36	
7,006.0	34.00	178.70	6,978.8	-13.7	0.5	13.7	6.66	6.60	
7,053.0	38.00	179.00	7,016.8	-41.3	1.1	41.3	8.52	8.51	
7,101.0	41.00	179.50	7,053.8	-71.8	1.5	71.8	6.28	6.25	
7,148.0	43.40	181.20	7,088.6	-103.4	1.3	103.4	5.65	5.11	
7,195.0	44.80	181.30	7,122.4	-136.1	0.6	136.1	2.98	2.98	
7,243.0	47.60	178.40	7,155.6	-170.7	0.7	170.7	7.28	5.83	
7,290.0	50.20	177.60	7,186.5	-206.1	1.9	206.1	5.68	5.53	
7,337.0	55.70	178.50	7,214.8	-243.6	3.2	243.6	11.80	11.70	
7,384.0	61.50	180.50	7,239.3	-283.7	3.5	283.7	12.86	12.34	
7,432.0	66.80	181.60	7,260.2	-326.8	2.7	326.8	11.23	11.04	
7,479.0	70.20	180.70	7,277.4	-370.5	1.8	370.5	7.45	7.23	
7,527.0	72.70	181.20	7,292.7	-416.0	1.1	416.0	5.30	5.21	
7,574.0	75.00	180.30	7,305.8	-461.2	0.5	461.2	5.23	4.89	
7,668.0	85.20	178.00	7,321.9	-553.6	1.9	553.6	11.12	10.85	
7,760.0	89.80	178.90	7,325.9	-645.5	4.4	645.5	5.09	5.00	
7,852.0	91.10	181.60	7,325.2	-737.5	4.0	737.5	3.26	1.41	
7,944.0	91.10	181.70	7,323.4	-829.4	1.3	829.4	0.11	0.00	
8,036.0	90.90	182.10	7,321.8	-921.3	-1.7	921.3	0.49	-0.22	
8,128.0	91.70	182.40	7,319.7	-1,013.3	-5.3	1,013.3	0.93	0.87	
8,220.0	90.90	183.40	7,317.7	-1,105.1	-10.0	1,105.1	1.39	-0.87	
8,311.0	91.40	183.40	7,315.8	-1,195.9	-15.4	1,195.9	0.55	0.55	
8,403.0	89.40	183.10	7,315.2	-1,287.8	-20.6	1,287.8	2.20	-2.17	
8,495.0	90.20	183.00	7,315.5	-1,379.6	-25.5	1,379.6	0.88	0.87	
8,587.0	90.60	181.60	7,314.9	-1,471.6	-29.2	1,471.6	1.58	0.43	
8,679.0	87.10	177.90	7,316.7	-1,563.5	-28.8	1,563.5	5.53	-3.80	
8,726.0	88.38	178.51	7,318.6	-1,610.5	-27.3	1,610.5	3.02	2.72	
8,771.0	89.60	179.10	7,319.4	-1,655.4	-26.4	1,655.4	3.01	2.71	
8,863.0	90.90	180.60	7,319.0	-1,747.4	-26.1	1,747.4	2.16	1.41	
8,954.0	89.80	180.30	7,318.4	-1,838.4	-26.8	1,838.4	1.25	-1.21	
9,046.0	89.70	179.40	7,318.8	-1,930.4	-26.6	1,930.4	0.98	-0.11	
9,138.0	88.40	179.70	7,320.3	-2,022.4	-25.9	2,022.4	1.45	-1.41	
9,230.0	88.80	179.80	7,322.6	-2,114.4	-25.5	2,114.4	0.45	0.43	
9,322.0	88.30	180.10	7,324.9	-2,206.3	-25.4	2,206.3	0.63	-0.54	
9,414.0	91.50	180.50	7,325.1	-2,298.3	-25.9	2,298.3	3.51	3.48	
9,506.0	91.00	180.80	7,323.1	-2,390.3	-26.9	2,390.3	0.63	-0.54	
9,598.0	90.90	181.20	7,321.5	-2,482.3	-28.5	2,482.3	0.45	-0.11	
9,690.0	88.60	179.50	7,321.9	-2,574.3	-29.1	2,574.3	3.11	-2.50	
9,782.0	89.40	180.00	7,323.5	-2,666.2	-28.7	2,666.2	1.03	0.87	
9,874.0	89.10	180.10	7,324.7	-2,758.2	-28.8	2,758.2	0.34	-0.33	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Vogl-McCoy 2B-5H-E267
<b>Project:</b>	DJ Wattenberg	<b>TD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Site:</b>	S5-T2N-R67W (Vogl-McCoy)	<b>MVD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Well:</b>	Vogl-McCoy 2B-5H-E267	<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
9,968.0	89.50	178.90	7,325.9	-2,852.2	-28.0	2,852.2	1.35	0.43	
10,063.0	88.90	178.10	7,327.2	-2,947.2	-25.5	2,947.2	1.05	-0.63	
10,158.0	89.10	180.00	7,328.9	-3,042.2	-23.9	3,042.2	2.01	0.21	
10,252.0	91.30	180.30	7,328.5	-3,136.1	-24.1	3,136.1	2.36	2.34	
10,347.0	90.00	181.20	7,327.5	-3,231.1	-25.4	3,231.1	1.66	-1.37	
10,441.0	90.50	181.10	7,327.1	-3,325.1	-27.3	3,325.1	0.54	0.53	
10,536.0	88.20	179.10	7,328.1	-3,420.1	-27.4	3,420.1	3.21	-2.42	
10,583.0	89.34	179.15	7,329.1	-3,467.1	-26.7	3,467.1	2.43	2.43	
10,631.0	90.50	179.20	7,329.2	-3,515.1	-26.0	3,515.1	2.42	2.42	
10,725.0	88.10	180.20	7,330.4	-3,609.1	-25.5	3,609.1	2.77	-2.55	
10,820.0	87.90	179.70	7,333.7	-3,704.0	-25.5	3,704.0	0.57	-0.21	
10,866.0	88.87	179.80	7,335.0	-3,750.0	-25.2	3,750.0	2.12	2.11	
10,915.0	89.90	179.90	7,335.5	-3,799.0	-25.1	3,799.0	2.11	2.10	
11,009.0	91.20	180.20	7,334.6	-3,893.0	-25.2	3,893.0	1.42	1.38	
11,104.0	89.40	180.50	7,334.1	-3,988.0	-25.8	3,988.0	1.92	-1.89	
11,199.0	89.40	181.20	7,335.1	-4,082.9	-27.2	4,082.9	0.74	0.00	
11,293.0	91.00	183.30	7,334.8	-4,176.9	-30.9	4,176.9	2.81	1.70	
11,388.0	90.10	183.90	7,333.9	-4,271.7	-36.8	4,271.7	1.14	-0.95	
11,441.0	88.86	183.45	7,334.3	-4,324.6	-40.2	4,324.6	2.49	-2.34	
11,482.0	87.90	183.10	7,335.5	-4,365.5	-42.6	4,365.5	2.49	-2.34	
11,577.0	86.10	181.80	7,340.5	-4,460.2	-46.6	4,460.2	2.34	-1.89	
11,671.0	86.50	179.10	7,346.5	-4,554.0	-47.4	4,554.0	2.90	0.43	
11,766.0	86.40	178.30	7,352.4	-4,648.8	-45.2	4,648.8	0.85	-0.11	
11,861.0	88.90	176.10	7,356.3	-4,743.6	-40.6	4,743.6	3.50	2.63	
11,955.0	91.60	176.30	7,355.9	-4,837.4	-34.4	4,837.4	2.88	2.87	
12,050.0	90.50	177.60	7,354.2	-4,932.3	-29.3	4,932.3	1.79	-1.16	
12,144.0	89.60	177.80	7,354.1	-5,026.2	-25.5	5,026.2	0.98	-0.96	
12,238.0	89.20	178.70	7,355.1	-5,120.1	-22.7	5,120.1	1.05	-0.43	
12,333.0	90.10	179.60	7,355.6	-5,215.1	-21.3	5,215.1	1.34	0.95	
12,428.0	87.40	179.90	7,357.7	-5,310.1	-20.8	5,310.1	2.86	-2.84	
12,522.0	87.90	179.20	7,361.6	-5,404.0	-20.1	5,404.0	0.91	0.53	
12,617.0	90.10	180.10	7,363.2	-5,499.0	-19.5	5,499.0	2.50	2.32	
12,711.0	91.00	179.80	7,362.3	-5,593.0	-19.4	5,593.0	1.01	0.96	
12,806.0	91.30	179.30	7,360.4	-5,688.0	-18.7	5,688.0	0.61	0.32	
12,901.0	88.40	178.00	7,360.7	-5,782.9	-16.5	5,782.9	3.35	-3.05	
12,995.0	89.80	178.90	7,362.1	-5,876.9	-13.9	5,876.9	1.77	1.49	
13,090.0	90.90	179.80	7,361.6	-5,971.9	-12.8	5,971.9	1.50	1.16	
13,184.0	89.40	179.30	7,361.3	-6,065.9	-12.1	6,065.9	1.68	-1.60	
13,279.0	90.10	179.00	7,361.7	-6,160.9	-10.7	6,160.9	0.80	0.74	
13,373.0	90.50	178.10	7,361.2	-6,254.8	-8.3	6,254.8	1.05	0.43	
13,468.0	90.20	172.80	7,360.7	-6,349.5	-0.8	6,349.5	5.59	-0.32	
13,501.0	90.13	172.62	7,360.6	-6,382.2	3.4	6,382.2	0.59	-0.21	
13,541.0	90.04	172.41	7,360.5	-6,421.9	8.6	6,421.9	0.57	-0.22	
13,562.0	90.00	172.30	7,360.5	-6,442.7	11.4	6,442.7	0.56	-0.19	
13,657.0	89.70	171.70	7,360.7	-6,536.8	24.6	6,536.8	0.71	-0.32	
13,751.0	89.40	175.00	7,361.5	-6,630.1	35.5	6,630.1	3.52	-0.32	
13,846.0	91.10	179.40	7,361.1	-6,725.0	40.2	6,725.0	4.97	1.79	
13,940.0	86.50	179.40	7,363.0	-6,818.9	41.1	6,818.9	4.89	-4.89	
14,035.0	86.60	182.60	7,368.8	-6,913.7	39.5	6,913.7	3.36	0.11	
14,130.0	87.50	181.80	7,373.6	-7,008.5	35.8	7,008.5	1.27	0.95	
14,224.0	89.60	180.60	7,376.0	-7,102.5	33.9	7,102.5	2.57	2.23	
14,319.0	91.40	183.40	7,375.2	-7,197.4	30.6	7,197.4	3.50	1.89	
14,414.0	91.70	184.00	7,372.6	-7,292.2	24.4	7,292.2	0.71	0.32	

# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Vogl-McCoy 2B-5H-E267
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Site:</b> S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Well:</b> Vogl-McCoy 2B-5H-E267	<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
14,508.0	91.60	183.50	7,369.9	-7,385.9	18.3	7,385.9	0.54	-0.11	
14,603.0	91.00	182.50	7,367.8	-7,480.8	13.3	7,480.8	1.23	-0.63	
14,697.0	89.70	181.80	7,367.2	-7,574.7	9.8	7,574.7	1.57	-1.38	
14,792.0	88.80	180.70	7,368.4	-7,669.6	7.7	7,669.6	1.50	-0.95	Last CES Survey @ 14,792' MD
14,846.0	88.80	180.70	7,369.6	-7,723.6	7.1	7,723.6	0.00	0.00	PTB @ 14,846'

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,338.0	-3,745.5	-41.2	1,300,897.28	3,161,417.19	40.157908	-104.922507	
- actual wellpath misses target center by 16.2ft at 10861.6ft MD (7334.9 TVD, -3745.5 N, -25.3 E)										
- Point										
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,320.0	-3,745.5	-41.2	1,300,897.28	3,161,417.19	40.157908	-104.922507	
- actual wellpath misses target center by 21.8ft at 10861.1ft MD (7334.9 TVD, -3745.0 N, -25.3 E)										
- Point										
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,311.0	-3,745.5	-41.2	1,300,897.28	3,161,417.19	40.157908	-104.922507	
- actual wellpath misses target center by 28.7ft at 10860.8ft MD (7334.9 TVD, -3744.8 N, -25.3 E)										
- Point										
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,359.0	-7,762.8	11.2	1,296,880.43	3,161,495.74	40.146880	-104.922320	
- actual wellpath misses target center by 40.8ft at 14846.0ft MD (7369.6 TVD, -7723.6 N, 7.1 E)										
- Point										
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,338.0	-7,762.8	11.2	1,296,880.43	3,161,495.74	40.146880	-104.922320	
- actual wellpath misses target center by 50.5ft at 14846.0ft MD (7369.6 TVD, -7723.6 N, 7.1 E)										
- Point										
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,320.0	-2,832.3	-31.4	1,301,810.60	3,161,421.03	40.160415	-104.922472	
- actual wellpath misses target center by 6.5ft at 9947.9ft MD (7325.7 TVD, -2832.2 N, -28.3 E)										
- Point										
Vogl-McCoy 2B-5H-E26' - hit/miss target - Shape	0.00	0.00	7,311.0	-7,762.8	11.2	1,296,880.43	3,161,495.74	40.146880	-104.922320	
- actual wellpath misses target center by 70.6ft at 14846.0ft MD (7369.6 TVD, -7723.6 N, 7.1 E)										
- Point										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
14,792.0	7,368.4	-7,669.6	7.7	Last CES Survey @ 14,792' MD	
14,846.0	7,369.6	-7,723.6	7.1	PTB @ 14,846'	

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

**DJ Wattenberg**

**S5-T2N-R67W (Vogl-McCoy)**

**Vogl-McCoy 2B-5H-E267**

**Hz**

**Design: FINAL**

## **Survey Report - Geographic**

**09 May, 2014**

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Vogl-McCoy 2B-5H-E267
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Site:</b> S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Well:</b> Vogl-McCoy 2B-5H-E267	<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		

<b>Site</b> S5-T2N-R67W (Vogl-McCoy)				
<b>Site Position:</b>	<b>Northing:</b>	1,303,967.76 ft	<b>Latitude:</b>	40.166330
<b>From:</b> Lat/Long	<b>Easting:</b>	3,161,787.74 ft	<b>Longitude:</b>	-104.922110
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> 13.200 in		<b>Grid Convergence:</b>	0.37 °

<b>Well</b> Vogl-McCoy 2B-5H-E267				
<b>Well Position</b>	<b>+N/-S</b> 0.0 ft	<b>Northing:</b> 1,304,643.00 ft	<b>Latitude:</b>	40.168190
	<b>+E/-W</b> 0.0 ft	<b>Easting:</b> 3,161,434.00 ft	<b>Longitude:</b>	-104.922360
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b>	4,835.0 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</b>
	IGRF2010	4/30/2014	(°) 8.54	(°) 66.74	(nT) 52,690

<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</b>	<b>+E/-W</b>	<b>Direction</b>
	(ft)	(ft)	(ft)	(°)
	0.0	0.0	0.0	180.00

<b>Survey Program</b>		<b>Date</b> 5/9/2014
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>
(ft) 143.0	(ft) 14,846.0	Survey #1 (Hz)
		<b>Tool Name</b> Geolink MWD
		<b>Description</b> Geolink MWD

<b>Survey</b>										
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	1,304,643.00	3,161,434.00	40.168190	-104.922360	
143.0	0.44	138.55	143.0	-0.4	0.4	1,304,642.59	3,161,434.36	40.168189	-104.922359	
235.0	0.57	146.11	235.0	-1.1	0.9	1,304,641.95	3,161,434.86	40.168187	-104.922357	
327.0	0.66	62.35	327.0	-1.2	1.6	1,304,641.82	3,161,435.58	40.168187	-104.922355	
419.0	1.41	21.04	419.0	0.1	2.5	1,304,643.13	3,161,436.45	40.168190	-104.922351	
511.0	2.42	17.35	510.9	3.0	3.4	1,304,646.04	3,161,437.41	40.168198	-104.922348	
603.0	3.82	359.33	602.8	7.9	4.0	1,304,650.97	3,161,437.93	40.168212	-104.922346	
695.0	4.48	355.90	694.5	14.6	3.7	1,304,657.61	3,161,437.59	40.168230	-104.922347	
787.0	3.78	354.85	786.3	21.2	3.2	1,304,664.21	3,161,437.02	40.168248	-104.922349	
815.0	3.47	356.17	814.3	23.0	3.0	1,304,665.98	3,161,436.87	40.168253	-104.922349	
913.0	3.40	351.70	912.1	28.8	2.4	1,304,671.81	3,161,436.21	40.168269	-104.922352	
1,005.0	3.60	354.50	1,003.9	34.4	1.7	1,304,677.38	3,161,435.50	40.168284	-104.922354	

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Vogl-McCoy 2B-5H-E267
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Site:</b>	S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Well:</b>	Vogl-McCoy 2B-5H-E267	<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		
1,097.0	3.80	356.10	1,095.7	40.3	1.2	1,304,683.29	3,161,434.98	40.168301	-104.922356		
1,189.0	2.50	9.10	1,187.6	45.3	1.4	1,304,688.32	3,161,435.06	40.168314	-104.922355		
1,281.0	2.80	4.00	1,279.5	49.5	1.8	1,304,692.54	3,161,435.51	40.168326	-104.922354		
1,373.0	2.80	356.20	1,371.4	54.0	1.8	1,304,697.03	3,161,435.48	40.168338	-104.922354		
1,465.0	2.70	348.80	1,463.3	58.4	1.3	1,304,701.39	3,161,434.89	40.168350	-104.922356		
1,557.0	2.70	340.90	1,555.2	62.6	0.1	1,304,705.55	3,161,433.73	40.168362	-104.922360		
1,649.0	2.90	4.90	1,647.1	66.9	-0.4	1,304,709.92	3,161,433.19	40.168374	-104.922362		
1,740.0	2.90	0.50	1,737.9	71.5	-0.2	1,304,714.51	3,161,433.38	40.168386	-104.922361		
1,832.0	2.60	353.00	1,829.8	75.9	-0.4	1,304,718.91	3,161,433.11	40.168398	-104.922362		
1,924.0	2.60	342.80	1,921.7	80.0	-1.3	1,304,722.97	3,161,432.22	40.168410	-104.922365		
2,016.0	2.10	357.50	2,013.7	83.7	-1.9	1,304,726.64	3,161,431.50	40.168420	-104.922367		
2,108.0	1.80	347.10	2,105.6	86.8	-2.3	1,304,729.73	3,161,431.09	40.168428	-104.922369		
2,200.0	1.50	342.60	2,197.6	89.3	-3.0	1,304,732.29	3,161,430.39	40.168435	-104.922371		
2,292.0	1.80	24.80	2,289.5	91.8	-2.8	1,304,734.75	3,161,430.62	40.168442	-104.922370		
2,384.0	1.50	18.50	2,381.5	94.2	-1.8	1,304,737.21	3,161,431.59	40.168449	-104.922367		
2,476.0	1.60	16.80	2,473.5	96.6	-1.0	1,304,739.58	3,161,432.33	40.168455	-104.922364		
2,568.0	1.40	8.90	2,565.4	98.9	-0.5	1,304,741.93	3,161,432.86	40.168462	-104.922362		
2,660.0	1.30	6.70	2,657.4	101.1	-0.2	1,304,744.08	3,161,433.14	40.168467	-104.922361		
2,752.0	1.10	352.20	2,749.4	103.0	-0.2	1,304,745.99	3,161,433.13	40.168473	-104.922361		
2,846.0	0.30	67.30	2,843.4	104.0	-0.1	1,304,746.98	3,161,433.23	40.168475	-104.922361		
2,940.0	0.10	101.60	2,937.4	104.1	0.2	1,304,747.06	3,161,433.53	40.168476	-104.922359		
3,034.0	0.30	231.10	3,031.4	103.9	0.1	1,304,746.89	3,161,433.42	40.168475	-104.922360		
3,128.0	0.30	140.80	3,125.4	103.5	0.1	1,304,746.54	3,161,433.39	40.168474	-104.922360		
3,223.0	0.40	156.90	3,220.4	103.0	0.4	1,304,746.05	3,161,433.68	40.168473	-104.922359		
3,317.0	0.30	157.20	3,314.4	102.5	0.6	1,304,745.52	3,161,433.91	40.168471	-104.922358		
3,411.0	0.10	157.30	3,408.4	102.2	0.7	1,304,745.22	3,161,434.04	40.168471	-104.922358		
3,505.0	0.20	86.00	3,502.4	102.1	0.9	1,304,745.15	3,161,434.23	40.168470	-104.922357		
3,600.0	0.20	317.90	3,597.4	102.3	1.0	1,304,745.29	3,161,434.28	40.168471	-104.922357		
3,695.0	1.10	289.90	3,692.4	102.7	0.0	1,304,745.72	3,161,433.31	40.168472	-104.922360		
3,789.0	1.60	294.50	3,786.3	103.6	-2.1	1,304,746.55	3,161,431.26	40.168474	-104.922368		
3,884.0	0.90	289.90	3,881.3	104.4	-4.0	1,304,747.34	3,161,429.35	40.168477	-104.922374		
3,979.0	1.20	285.60	3,976.3	104.9	-5.6	1,304,747.86	3,161,427.69	40.168478	-104.922380		
4,073.0	0.20	174.10	4,070.3	105.0	-6.6	1,304,747.95	3,161,426.76	40.168478	-104.922384		
4,168.0	0.40	69.20	4,165.3	104.9	-6.2	1,304,747.91	3,161,427.08	40.168478	-104.922383		
4,262.0	0.50	20.80	4,259.3	105.4	-5.8	1,304,748.41	3,161,427.53	40.168479	-104.922381		
4,357.0	0.50	10.40	4,354.3	106.2	-5.6	1,304,749.21	3,161,427.75	40.168482	-104.922380		
4,452.0	0.70	14.40	4,449.3	107.2	-5.3	1,304,750.18	3,161,427.96	40.168484	-104.922379		
4,546.0	1.20	102.80	4,543.3	107.6	-4.2	1,304,750.52	3,161,429.06	40.168485	-104.922375		
4,641.0	0.50	113.70	4,638.3	107.2	-2.9	1,304,750.14	3,161,430.42	40.168484	-104.922371		
4,736.0	0.20	288.80	4,733.3	107.1	-2.7	1,304,750.03	3,161,430.64	40.168484	-104.922370		
4,830.0	0.20	265.00	4,827.3	107.1	-3.0	1,304,750.07	3,161,430.32	40.168484	-104.922371		
4,925.0	0.30	313.60	4,922.3	107.2	-3.3	1,304,750.22	3,161,429.97	40.168484	-104.922372		
5,019.0	0.10	244.80	5,016.3	107.4	-3.6	1,304,750.36	3,161,429.72	40.168485	-104.922373		
5,114.0	0.20	297.00	5,111.3	107.4	-3.8	1,304,750.39	3,161,429.50	40.168485	-104.922374		
5,209.0	0.40	313.20	5,206.3	107.7	-4.2	1,304,750.69	3,161,429.11	40.168486	-104.922375		
5,303.0	0.40	316.40	5,300.2	108.2	-4.7	1,304,751.15	3,161,428.64	40.168487	-104.922377		
5,398.0	0.20	300.40	5,395.2	108.5	-5.0	1,304,751.48	3,161,428.26	40.168488	-104.922378		
5,492.0	0.40	319.80	5,489.2	108.8	-5.4	1,304,751.81	3,161,427.91	40.168489	-104.922380		
5,587.0	0.70	302.40	5,584.2	109.4	-6.1	1,304,752.37	3,161,427.20	40.168490	-104.922382		
5,682.0	0.80	168.50	5,679.2	109.1	-6.4	1,304,752.03	3,161,426.84	40.168489	-104.922383		
5,776.0	0.70	166.50	5,773.2	107.9	-6.2	1,304,750.83	3,161,427.12	40.168486	-104.922382		
5,871.0	0.40	184.30	5,868.2	107.0	-6.1	1,304,749.93	3,161,427.23	40.168484	-104.922382		
5,966.0	0.40	188.90	5,963.2	106.3	-6.1	1,304,749.27	3,161,427.16	40.168482	-104.922382		
6,060.0	0.10	225.90	6,057.2	105.9	-6.3	1,304,748.89	3,161,427.05	40.168481	-104.922383		
6,155.0	0.20	201.10	6,152.2	105.7	-6.4	1,304,748.68	3,161,426.94	40.168480	-104.922383		

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Vogl-McCoy 2B-5H-E267
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Site:</b>	S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Well:</b>	Vogl-McCoy 2B-5H-E267	<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	
6,249.0	0.40	282.20	6,246.2	105.6	-6.8	1,304,748.59	3,161,426.56	40.168480	-104.922384	
6,344.0	0.30	196.50	6,341.2	105.5	-7.1	1,304,748.42	3,161,426.16	40.168480	-104.922386	
6,438.0	0.40	337.30	6,435.2	105.5	-7.3	1,304,748.49	3,161,425.97	40.168480	-104.922387	
6,533.0	0.70	315.90	6,530.2	106.3	-7.9	1,304,749.20	3,161,425.43	40.168482	-104.922388	
6,553.0	0.60	303.90	6,550.2	106.4	-8.0	1,304,749.35	3,161,425.26	40.168482	-104.922389	
6,628.0	2.20	174.00	6,625.2	105.2	-8.2	1,304,748.14	3,161,425.09	40.168479	-104.922390	
6,675.0	7.30	165.20	6,672.0	101.4	-7.4	1,304,744.36	3,161,425.97	40.168468	-104.922387	
6,722.0	10.50	166.10	6,718.4	94.4	-5.6	1,304,737.32	3,161,427.81	40.168449	-104.922380	
6,769.0	14.70	171.40	6,764.3	84.3	-3.6	1,304,727.28	3,161,429.80	40.168421	-104.922373	
6,817.0	18.80	173.00	6,810.3	70.6	-1.8	1,304,713.58	3,161,431.74	40.168384	-104.922367	
6,864.0	22.60	178.70	6,854.2	54.0	-0.7	1,304,697.03	3,161,432.98	40.168338	-104.922363	
6,912.0	26.50	180.50	6,897.9	34.1	-0.6	1,304,677.10	3,161,433.22	40.168284	-104.922362	
6,959.0	30.90	177.90	6,939.1	11.5	-0.2	1,304,654.54	3,161,433.72	40.168222	-104.922361	
7,006.0	34.00	178.70	6,978.8	-13.7	0.5	1,304,629.34	3,161,434.63	40.168153	-104.922358	
7,053.0	38.00	179.00	7,016.8	-41.3	1.1	1,304,601.73	3,161,435.36	40.168077	-104.922356	
7,101.0	41.00	179.50	7,053.8	-71.8	1.5	1,304,571.21	3,161,435.95	40.167993	-104.922355	
7,148.0	43.40	181.20	7,088.6	-103.4	1.3	1,304,539.65	3,161,435.95	40.167906	-104.922356	
7,195.0	44.80	181.30	7,122.4	-136.1	0.6	1,304,506.94	3,161,435.45	40.167816	-104.922358	
7,243.0	47.60	178.40	7,155.6	-170.7	0.7	1,304,472.31	3,161,435.79	40.167721	-104.922358	
7,290.0	50.20	177.60	7,186.5	-206.1	1.9	1,304,436.93	3,161,437.26	40.167624	-104.922353	
7,337.0	55.70	178.50	7,214.8	-243.6	3.2	1,304,399.46	3,161,438.77	40.167521	-104.922349	
7,384.0	61.50	180.50	7,239.3	-283.7	3.5	1,304,359.37	3,161,439.36	40.167411	-104.922348	
7,432.0	66.80	181.60	7,260.2	-326.8	2.7	1,304,316.19	3,161,438.84	40.167293	-104.922351	
7,479.0	70.20	180.70	7,277.4	-370.5	1.8	1,304,272.47	3,161,438.25	40.167173	-104.922354	
7,527.0	72.70	181.20	7,292.7	-416.0	1.1	1,304,226.97	3,161,437.79	40.167048	-104.922356	
7,574.0	75.00	180.30	7,305.8	-461.2	0.5	1,304,181.83	3,161,437.50	40.166924	-104.922358	
7,668.0	85.20	178.00	7,321.9	-553.6	1.9	1,304,089.40	3,161,439.50	40.166670	-104.922353	
7,760.0	89.80	178.90	7,325.9	-645.5	4.4	1,303,997.56	3,161,442.58	40.166418	-104.922345	
7,852.0	91.10	181.60	7,325.2	-737.5	4.0	1,303,905.57	3,161,442.78	40.166166	-104.922346	
7,944.0	91.10	181.70	7,323.4	-829.4	1.3	1,303,813.61	3,161,440.73	40.165913	-104.922356	
8,036.0	90.90	182.10	7,321.8	-921.3	-1.7	1,303,721.66	3,161,438.28	40.165661	-104.922366	
8,128.0	91.70	182.40	7,319.7	-1,013.3	-5.3	1,303,629.74	3,161,435.27	40.165408	-104.922379	
8,220.0	90.90	183.40	7,317.7	-1,105.1	-10.0	1,303,537.85	3,161,431.21	40.165156	-104.922396	
8,311.0	91.40	183.40	7,315.8	-1,195.9	-15.4	1,303,447.00	3,161,426.41	40.164907	-104.922415	
8,403.0	89.40	183.10	7,315.2	-1,287.8	-20.6	1,303,355.12	3,161,421.79	40.164655	-104.922434	
8,495.0	90.20	183.00	7,315.5	-1,379.6	-25.5	1,303,263.22	3,161,417.49	40.164403	-104.922451	
8,587.0	90.60	181.60	7,314.9	-1,471.6	-29.2	1,303,171.28	3,161,414.40	40.164150	-104.922465	
8,679.0	87.10	177.90	7,316.7	-1,563.5	-28.8	1,303,079.33	3,161,415.40	40.163898	-104.922463	
8,726.0	88.38	178.51	7,318.6	-1,610.5	-27.3	1,303,032.40	3,161,417.18	40.163769	-104.922458	
8,771.0	89.60	179.10	7,319.4	-1,655.4	-26.4	1,302,987.43	3,161,418.41	40.163646	-104.922455	
8,863.0	90.90	180.60	7,319.0	-1,747.4	-26.1	1,302,895.44	3,161,419.25	40.163393	-104.922454	
8,954.0	89.80	180.30	7,318.4	-1,838.4	-26.8	1,302,804.44	3,161,419.13	40.163143	-104.922456	
9,046.0	89.70	179.40	7,318.8	-1,930.4	-26.6	1,302,712.45	3,161,419.97	40.162891	-104.922455	
9,138.0	88.40	179.70	7,320.3	-2,022.4	-25.9	1,302,620.47	3,161,421.29	40.162638	-104.922453	
9,230.0	88.80	179.80	7,322.6	-2,114.4	-25.5	1,302,528.50	3,161,422.29	40.162386	-104.922451	
9,322.0	88.30	180.10	7,324.9	-2,206.3	-25.4	1,302,436.54	3,161,422.97	40.162133	-104.922451	
9,414.0	91.50	180.50	7,325.1	-2,298.3	-25.9	1,302,344.55	3,161,423.08	40.161881	-104.922453	
9,506.0	91.00	180.80	7,323.1	-2,390.3	-26.9	1,302,252.57	3,161,422.64	40.161628	-104.922457	
9,598.0	90.90	181.20	7,321.5	-2,482.3	-28.5	1,302,160.59	3,161,421.63	40.161376	-104.922462	
9,690.0	88.60	179.50	7,321.9	-2,574.3	-29.1	1,302,068.60	3,161,421.67	40.161123	-104.922464	
9,782.0	89.40	180.00	7,323.5	-2,666.2	-28.7	1,301,976.62	3,161,422.67	40.160871	-104.922463	
9,874.0	89.10	180.10	7,324.7	-2,758.2	-28.8	1,301,884.63	3,161,423.19	40.160618	-104.922463	
9,968.0	89.50	178.90	7,325.9	-2,852.2	-28.0	1,301,790.65	3,161,424.62	40.160360	-104.922460	
10,063.0	88.90	178.10	7,327.2	-2,947.2	-25.5	1,301,695.71	3,161,427.73	40.160100	-104.922451	
10,158.0	89.10	180.00	7,328.9	-3,042.2	-23.9	1,301,600.76	3,161,429.92	40.159839	-104.922446	

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Vogl-McCoy 2B-5H-E267
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Site:</b>	S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b>	KB @ 4865.0ft (H&P 522)
<b>Well:</b>	Vogl-McCoy 2B-5H-E267	<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	
10,252.0	91.30	180.30	7,328.5	-3,136.1	-24.1	1,301,506.76	3,161,430.29	40.159581	-104.922447	
10,347.0	90.00	181.20	7,327.5	-3,231.1	-25.4	1,301,411.77	3,161,429.66	40.159320	-104.922451	
10,441.0	90.50	181.10	7,327.1	-3,325.1	-27.3	1,301,317.78	3,161,428.39	40.159062	-104.922458	
10,536.0	88.20	179.10	7,328.1	-3,420.1	-27.4	1,301,222.80	3,161,428.84	40.158801	-104.922458	
10,583.0	89.34	179.15	7,329.1	-3,467.1	-26.7	1,301,175.82	3,161,429.86	40.158672	-104.922456	
10,631.0	90.50	179.20	7,329.2	-3,515.1	-26.0	1,301,127.84	3,161,430.87	40.158541	-104.922453	
10,725.0	88.10	180.20	7,330.4	-3,609.1	-25.5	1,301,033.86	3,161,431.97	40.158283	-104.922452	
10,820.0	87.90	179.70	7,333.7	-3,704.0	-25.5	1,300,938.92	3,161,432.67	40.158022	-104.922451	
10,866.0	88.87	179.80	7,335.0	-3,750.0	-25.2	1,300,892.94	3,161,433.17	40.157896	-104.922451	
10,915.0	89.90	179.90	7,335.5	-3,799.0	-25.1	1,300,843.95	3,161,433.62	40.157761	-104.922450	
11,009.0	91.20	180.20	7,334.6	-3,893.0	-25.2	1,300,749.95	3,161,434.15	40.157503	-104.922450	
11,104.0	89.40	180.50	7,334.1	-3,988.0	-25.8	1,300,654.96	3,161,434.19	40.157243	-104.922453	
11,199.0	89.40	181.20	7,335.1	-4,082.9	-27.2	1,300,559.97	3,161,433.40	40.156982	-104.922458	
11,293.0	91.00	183.30	7,334.8	-4,176.9	-30.9	1,300,466.03	3,161,430.32	40.156724	-104.922471	
11,388.0	90.10	183.90	7,333.9	-4,271.7	-36.8	1,300,371.18	3,161,424.98	40.156464	-104.922492	
11,441.0	88.86	183.45	7,334.3	-4,324.6	-40.2	1,300,318.27	3,161,421.92	40.156319	-104.922504	
11,482.0	87.90	183.10	7,335.5	-4,365.5	-42.6	1,300,277.34	3,161,419.85	40.156206	-104.922513	
11,577.0	86.10	181.80	7,340.5	-4,460.2	-46.6	1,300,182.54	3,161,416.41	40.155946	-104.922527	
11,671.0	86.50	179.10	7,346.5	-4,554.0	-47.4	1,300,088.75	3,161,416.28	40.155689	-104.922530	
11,766.0	86.40	178.30	7,352.4	-4,648.8	-45.2	1,299,993.97	3,161,419.05	40.155428	-104.922522	
11,861.0	88.90	176.10	7,356.3	-4,743.6	-40.6	1,299,899.21	3,161,424.31	40.155168	-104.922505	
11,955.0	91.60	176.30	7,355.9	-4,837.4	-34.4	1,299,805.47	3,161,431.15	40.154911	-104.922483	
12,050.0	90.50	177.60	7,354.2	-4,932.3	-29.3	1,299,710.66	3,161,436.82	40.154650	-104.922465	
12,144.0	89.60	177.80	7,354.1	-5,026.2	-25.5	1,299,616.76	3,161,441.20	40.154392	-104.922452	
12,238.0	89.20	178.70	7,355.1	-5,120.1	-22.7	1,299,522.83	3,161,444.69	40.154135	-104.922441	
12,333.0	90.10	179.60	7,355.6	-5,215.1	-21.3	1,299,427.86	3,161,446.71	40.153874	-104.922436	
12,428.0	87.40	179.90	7,357.7	-5,310.1	-20.8	1,299,332.89	3,161,447.75	40.153613	-104.922435	
12,522.0	87.90	179.20	7,361.6	-5,404.0	-20.1	1,299,238.98	3,161,449.10	40.153355	-104.922432	
12,617.0	90.10	180.10	7,363.2	-5,499.0	-19.5	1,299,143.99	3,161,450.30	40.153095	-104.922430	
12,711.0	91.00	179.80	7,362.3	-5,593.0	-19.4	1,299,050.00	3,161,450.99	40.152837	-104.922430	
12,806.0	91.30	179.30	7,360.4	-5,688.0	-18.7	1,298,955.02	3,161,452.35	40.152576	-104.922427	
12,901.0	88.40	178.00	7,360.7	-5,782.9	-16.5	1,298,860.08	3,161,455.21	40.152315	-104.922419	
12,995.0	89.80	178.90	7,362.1	-5,876.9	-13.9	1,298,766.15	3,161,458.36	40.152057	-104.922410	
13,090.0	90.90	179.80	7,361.6	-5,971.9	-12.8	1,298,671.17	3,161,460.06	40.151796	-104.922406	
13,184.0	89.40	179.30	7,361.3	-6,065.9	-12.1	1,298,577.18	3,161,461.41	40.151538	-104.922404	
13,279.0	90.10	179.00	7,361.7	-6,160.9	-10.7	1,298,482.20	3,161,463.44	40.151278	-104.922399	
13,373.0	90.50	178.10	7,361.2	-6,254.8	-8.3	1,298,388.25	3,161,466.43	40.151020	-104.922390	
13,468.0	90.20	172.80	7,360.7	-6,349.5	-0.8	1,298,293.64	3,161,474.58	40.150760	-104.922363	
13,501.0	90.13	172.62	7,360.6	-6,382.2	3.4	1,298,260.93	3,161,478.98	40.150670	-104.922348	
13,541.0	90.04	172.41	7,360.5	-6,421.9	8.6	1,298,221.31	3,161,484.45	40.150561	-104.922329	
13,562.0	90.00	172.30	7,360.5	-6,442.7	11.4	1,298,200.51	3,161,487.38	40.150504	-104.922319	
13,657.0	89.70	171.70	7,360.7	-6,536.8	24.6	1,298,106.53	3,161,501.21	40.150246	-104.922272	
13,751.0	89.40	175.00	7,361.5	-6,630.1	35.5	1,298,013.25	3,161,512.70	40.149989	-104.922233	
13,846.0	91.10	179.40	7,361.1	-6,725.0	40.2	1,297,918.42	3,161,517.96	40.149729	-104.922167	
13,940.0	86.50	179.40	7,363.0	-6,818.9	41.1	1,297,824.48	3,161,519.56	40.149471	-104.922213	
14,035.0	86.60	182.60	7,368.8	-6,913.7	39.5	1,297,729.67	3,161,518.52	40.149211	-104.922219	
14,130.0	87.50	181.80	7,373.6	-7,008.5	35.8	1,297,634.85	3,161,515.50	40.148951	-104.922232	
14,224.0	89.60	180.60	7,376.0	-7,102.5	33.9	1,297,540.89	3,161,514.14	40.148693	-104.922239	
14,319.0	91.40	183.40	7,375.2	-7,197.4	30.6	1,297,445.95	3,161,511.44	40.148432	-104.922251	
14,414.0	91.70	184.00	7,372.6	-7,292.2	24.4	1,297,351.14	3,161,505.93	40.148172	-104.922273	
14,508.0	91.60	183.50	7,369.9	-7,385.9	18.3	1,297,257.35	3,161,500.40	40.147915	-104.922295	
14,603.0	91.00	182.50	7,367.8	-7,480.8	13.3	1,297,162.47	3,161,496.05	40.147654	-104.922313	
14,697.0	89.70	181.80	7,367.2	-7,574.7	9.8	1,297,068.52	3,161,493.13	40.147396	-104.922325	
14,792.0	88.80	180.70	7,368.4	-7,669.6	7.7	1,296,973.57	3,161,491.68	40.147136	-104.922333	

Last CES Survey @ 14,792' MD

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Vogl-McCoy 2B-5H-E267
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Site:</b> S5-T2N-R67W (Vogl-McCoy)	<b>MD Reference:</b> KB @ 4865.0ft (H&P 522)
<b>Well:</b> Vogl-McCoy 2B-5H-E267	<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
14,846.0	88.80	180.70	7,369.6	-7,723.6	7.1	1,296,919.58	3,161,491.37	40.146988	-104.922335
<b>PTB @ 14,846'</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Vogl-McCoy 2B-5H-E26'	0.00	0.00	7,359.0	-7,762.8	11.2	1,296,880.43	3,161,495.75	40.146880	-104.922320
- actual wellpath misses target center by 40.8ft at 14846.0ft MD (7369.6 TVD, -7723.6 N, 7.1 E)									
- Point									

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
14,792.0	7,368.4	-7,669.6	7.7	Last CES Survey @ 14,792' MD	
14,846.0	7,369.6	-7,723.6	7.1	PTB @ 14,846'	

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