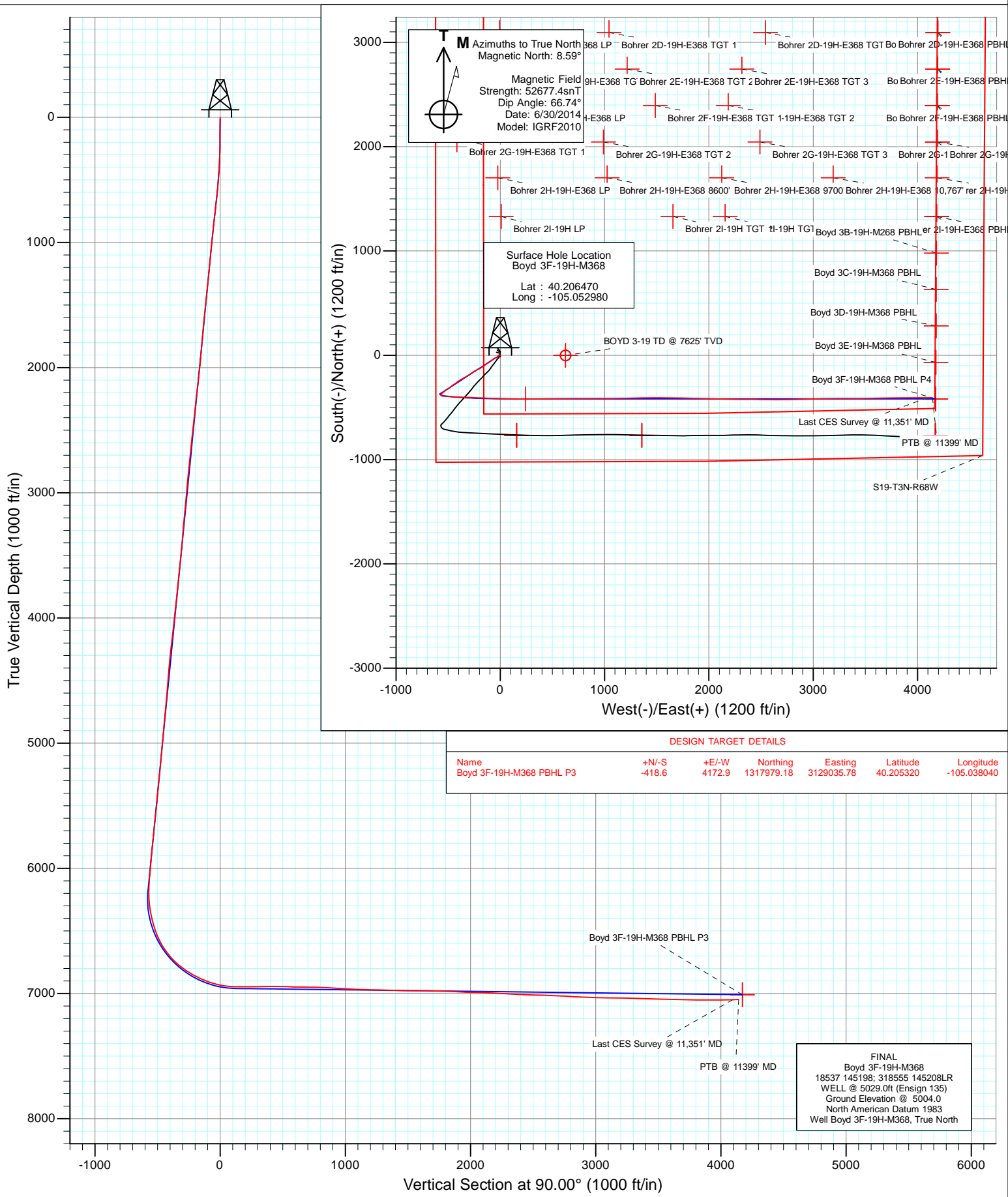




Project: DJ Wattenberg  
 Site: S19-T3N-R68W (Bohrer/Boyd)  
 Well: Boyd 3F-19H-M368  
 Wellbore: Hz  
 Design: FINAL



**M** Azimuths to True North  
 Magnetic North: 8.59°  
 Magnetic Field  
 Strength: 52677.4snT  
 Dip Angle: 66.74°  
 Date: 6/30/2014  
 Model: IGRF2010

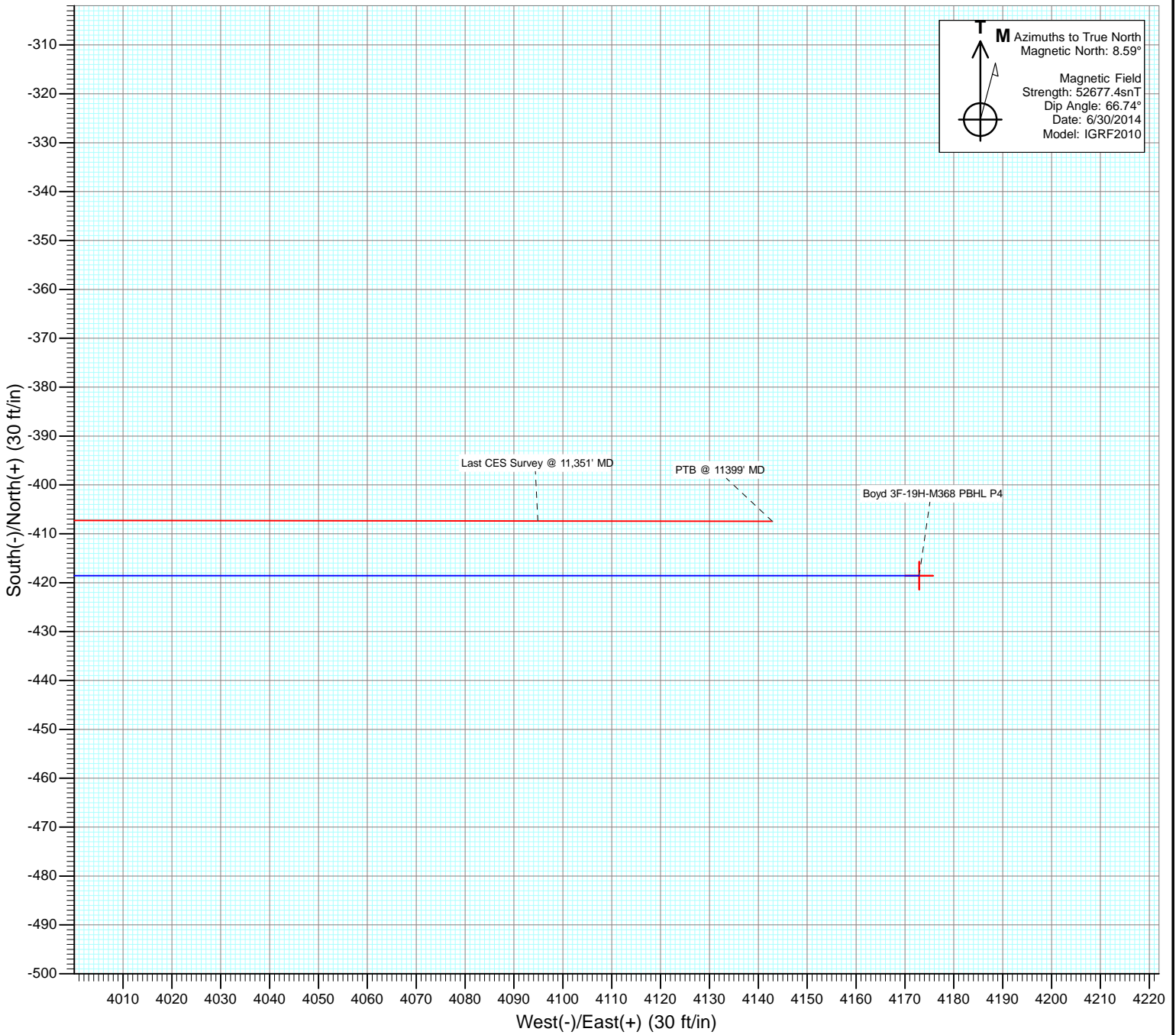
**Surface Hole Location**  
 Boyd 3F-19H-M368  
 Lat : 40.206470  
 Long : -105.052980

DESIGN TARGET DETAILS						
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
Boyd 3F-19H-M368 PBHL P3	-418.6	4172.9	1317979.18	3129035.78	40.205320	-105.038040

**FINAL**  
 Boyd 3F-19H-M368  
 18537 145198; 318555 145208LR  
 WELL @ 5029.0ft (Ensign 135)  
 Ground Elevation @ 5004.0  
 North American Datum 1983  
 Well Boyd 3F-19H-M368, True North

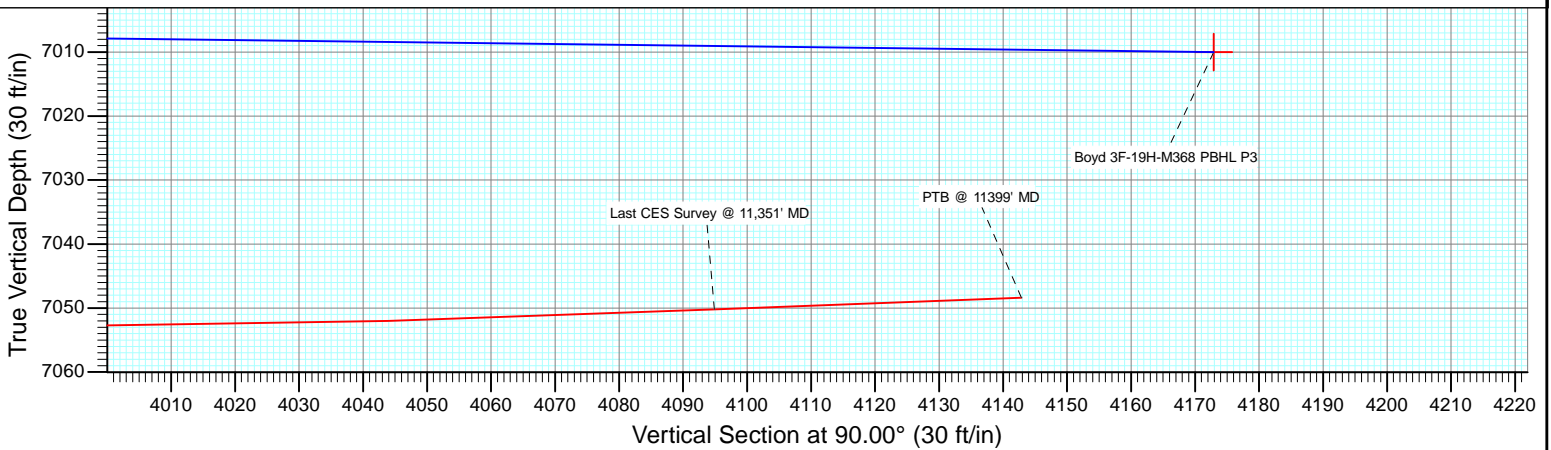


Project: DJ Wattenberg  
Site: S19-T3N-R68W (Bohrer/Boyd)  
Well: Boyd 3F-19H-M368  
Wellbore: Hz  
Design: FINAL



**M** Azimuths to True North  
Magnetic North: 8.59°

Magnetic Field  
Strength: 52677.4snT  
Dip Angle: 66.74°  
Date: 6/30/2014  
Model: IGRF2010



# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Boyd 3F-19H-M368
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Site:</b> S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Well:</b> Boyd 3F-19H-M368	<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> S19-T3N-R68W (Bohrer/Boyd)				
<b>Site Position:</b>	<b>Northing:</b> 1,318,413.13 ft	<b>Latitude:</b> 40.206570		
<b>From:</b> Lat/Long	<b>Easting:</b> 3,124,860.64 ft	<b>Longitude:</b> -105.052980		
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> 13.200 in	<b>Grid Convergence:</b> 0.29 °		

<b>Well</b> Boyd 3F-19H-M368				
<b>Well Position</b>	<b>+N/-S</b> 0.0 ft	<b>Northing:</b> 1,318,376.70 ft	<b>Latitude:</b> 40.206470	
	<b>+E/-W</b> 0.0 ft	<b>Easting:</b> 3,124,860.82 ft	<b>Longitude:</b> -105.052980	
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 5,004.0 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	6/30/2014	8.59	66.74	52,677

<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	90.00

<b>Survey Program</b>		<b>Date</b> 7/7/2014
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>
141.0	11,399.0	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	
141.0	0.20	305.80	141.0	0.1	-0.2	-0.2	0.14	0.14	
233.0	0.80	280.60	233.0	0.4	-1.0	-1.0	0.68	0.65	
325.0	2.20	258.60	325.0	0.1	-3.3	-3.3	1.62	1.52	
417.0	4.20	241.30	416.8	-1.8	-8.0	-8.0	2.39	2.17	
509.0	5.80	232.80	508.5	-6.3	-14.7	-14.7	1.91	1.74	
601.0	6.90	235.70	599.9	-12.2	-22.9	-22.9	1.25	1.20	
693.0	7.30	239.90	691.2	-18.2	-32.6	-32.6	0.71	0.43	
784.0	7.20	239.60	781.5	-24.0	-42.5	-42.5	0.12	-0.11	
817.0	7.40	239.30	814.2	-26.2	-46.1	-46.1	0.62	0.61	
916.0	7.20	239.80	912.4	-32.5	-56.9	-56.9	0.21	-0.20	
1,007.0	7.00	238.20	1,002.7	-38.3	-66.6	-66.6	0.31	-0.22	
1,099.0	6.70	233.30	1,094.0	-44.5	-75.6	-75.6	0.71	-0.33	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Boyd 3F-19H-M368
<b>Project:</b>	DJ Wattenberg	<b>TD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Site:</b>	S19-T3N-R68W (Bohrer/Boyd)	<b>MVD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Well:</b>	Boyd 3F-19H-M368	<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
1,191.0	5.80	229.90	1,185.5	-50.7	-83.5	-83.5	1.06	-0.98	
1,283.0	7.80	237.00	1,276.8	-57.1	-92.3	-92.3	2.35	2.17	
1,375.0	7.50	234.80	1,368.0	-63.9	-102.4	-102.4	0.46	-0.33	
1,466.0	6.80	235.20	1,458.3	-70.4	-111.7	-111.7	0.77	-0.77	
1,558.0	6.90	240.50	1,549.7	-76.3	-121.0	-121.0	0.70	0.11	
1,650.0	6.50	237.60	1,641.0	-81.8	-130.2	-130.2	0.57	-0.43	
1,741.0	6.00	232.50	1,731.5	-87.4	-138.3	-138.3	0.82	-0.55	
1,833.0	6.60	233.70	1,822.9	-93.5	-146.4	-146.4	0.67	0.65	
1,925.0	6.50	228.20	1,914.3	-100.1	-154.5	-154.5	0.69	-0.11	
2,017.0	7.60	233.90	2,005.6	-107.2	-163.3	-163.3	1.42	1.20	
2,108.0	7.80	243.80	2,095.8	-113.4	-173.7	-173.7	1.47	0.22	
2,200.0	7.50	238.60	2,187.0	-119.3	-184.5	-184.5	0.82	-0.33	
2,292.0	7.10	234.70	2,278.3	-125.7	-194.2	-194.2	0.69	-0.43	
2,384.0	6.90	246.20	2,369.6	-131.2	-203.9	-203.9	1.54	-0.22	
2,478.0	6.80	244.80	2,462.9	-135.9	-214.1	-214.1	0.21	-0.11	
2,573.0	6.70	243.80	2,557.3	-140.7	-224.2	-224.2	0.16	-0.11	
2,667.0	6.60	242.50	2,650.6	-145.6	-233.9	-233.9	0.19	-0.11	
2,762.0	6.50	242.30	2,745.0	-150.7	-243.5	-243.5	0.11	-0.11	
2,856.0	6.40	239.80	2,838.4	-155.8	-252.8	-252.8	0.32	-0.11	
2,951.0	6.30	236.30	2,932.8	-161.3	-261.7	-261.7	0.42	-0.11	
3,045.0	6.50	234.60	3,026.2	-167.3	-270.3	-270.3	0.29	0.21	
3,140.0	6.20	234.30	3,120.7	-173.4	-278.8	-278.8	0.32	-0.32	
3,234.0	6.10	234.30	3,214.1	-179.3	-287.0	-287.0	0.11	-0.11	
3,329.0	6.50	234.30	3,308.5	-185.3	-295.5	-295.5	0.42	0.42	
3,423.0	6.00	233.30	3,402.0	-191.4	-303.7	-303.7	0.54	-0.53	
3,518.0	6.10	242.60	3,496.5	-196.7	-312.2	-312.2	1.04	0.11	
3,612.0	7.00	240.30	3,589.8	-201.8	-321.6	-321.6	1.00	0.96	
3,707.0	6.30	238.70	3,684.2	-207.4	-331.1	-331.1	0.76	-0.74	
3,802.0	6.60	237.50	3,778.6	-213.0	-340.2	-340.2	0.35	0.32	
3,896.0	7.30	243.10	3,871.9	-218.6	-350.0	-350.0	1.04	0.74	
3,991.0	6.40	246.90	3,966.2	-223.4	-360.3	-360.3	1.06	-0.95	
4,085.0	8.10	239.00	4,059.5	-228.9	-370.8	-370.8	2.09	1.81	
4,180.0	7.40	240.80	4,153.6	-235.3	-381.9	-381.9	0.78	-0.74	
4,274.0	7.80	235.20	4,246.8	-241.9	-392.4	-392.4	0.89	0.43	
4,369.0	6.90	233.60	4,341.0	-249.0	-402.3	-402.3	0.97	-0.95	
4,464.0	6.30	231.00	4,435.4	-255.7	-410.9	-410.9	0.71	-0.63	
4,558.0	5.80	228.20	4,528.9	-262.1	-418.5	-418.5	0.62	-0.53	
4,653.0	6.20	237.50	4,623.3	-268.0	-426.4	-426.4	1.10	0.42	
4,747.0	5.60	236.50	4,716.8	-273.3	-434.5	-434.5	0.65	-0.64	
4,842.0	6.90	235.90	4,811.3	-279.0	-443.1	-443.1	1.37	1.37	
4,937.0	6.10	237.20	4,905.7	-285.0	-452.0	-452.0	0.86	-0.84	
5,031.0	7.10	229.80	4,999.0	-291.4	-460.7	-460.7	1.39	1.06	
5,126.0	6.20	231.40	5,093.4	-298.4	-469.2	-469.2	0.97	-0.95	
5,220.0	6.80	227.00	5,186.8	-305.4	-477.2	-477.2	0.83	0.64	
5,315.0	7.20	238.50	5,281.1	-312.3	-486.4	-486.4	1.53	0.42	
5,409.0	6.30	237.60	5,374.4	-318.2	-495.8	-495.8	0.96	-0.96	
5,504.0	6.90	235.30	5,468.8	-324.2	-504.9	-504.9	0.69	0.63	
5,599.0	7.00	234.30	5,563.1	-330.8	-514.3	-514.3	0.17	0.11	
5,694.0	7.80	232.30	5,657.3	-338.2	-524.1	-524.1	0.88	0.84	
5,788.0	6.30	234.20	5,750.6	-345.1	-533.3	-533.3	1.61	-1.60	
5,882.0	7.60	234.70	5,843.9	-351.7	-542.5	-542.5	1.38	1.38	
5,977.0	6.20	232.30	5,938.2	-358.5	-551.7	-551.7	1.50	-1.47	
6,071.0	6.40	231.30	6,031.7	-364.8	-559.8	-559.8	0.24	0.21	

# Cathedral Energy Services

## Survey Report

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Boyd 3F-19H-M368
<b>Project:</b>	DJ Wattenberg	<b>TD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Site:</b>	S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Well:</b>	Boyd 3F-19H-M368	<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
6,118.0	6.10	231.90	6,078.4	-368.0	-563.8	-563.8	0.65	-0.64	
6,166.0	5.30	222.10	6,126.1	-371.2	-567.3	-567.3	2.62	-1.67	
6,213.0	5.70	195.60	6,172.9	-375.1	-569.4	-569.4	5.42	0.85	
6,261.0	6.70	165.00	6,220.7	-380.1	-569.3	-569.3	7.10	2.08	
6,308.0	8.40	137.50	6,267.3	-385.3	-566.3	-566.3	8.39	3.62	
6,355.0	9.10	114.80	6,313.7	-389.4	-560.6	-560.6	7.45	1.49	
6,402.0	10.00	98.90	6,360.1	-391.6	-553.2	-553.2	5.91	1.91	
6,450.0	12.90	95.30	6,407.1	-392.7	-543.8	-543.8	6.22	6.04	
6,497.0	16.80	92.40	6,452.6	-393.5	-531.7	-531.7	8.44	8.30	
6,544.0	19.40	91.60	6,497.2	-394.0	-517.1	-517.1	5.56	5.53	
6,591.0	22.80	92.70	6,541.1	-394.6	-500.2	-500.2	7.28	7.23	
6,639.0	26.70	94.50	6,584.7	-395.9	-480.2	-480.2	8.27	8.12	
6,686.0	31.60	94.10	6,625.7	-397.6	-457.4	-457.4	10.43	10.43	
6,733.0	37.10	93.30	6,664.5	-399.3	-430.9	-430.9	11.74	11.70	
6,780.0	40.50	93.00	6,701.1	-400.9	-401.5	-401.5	7.25	7.23	
6,828.0	44.00	93.10	6,736.6	-402.6	-369.3	-369.3	7.29	7.29	
6,875.0	48.80	92.00	6,769.0	-404.1	-335.3	-335.3	10.35	10.21	
6,923.0	53.60	91.40	6,799.1	-405.3	-297.9	-297.9	10.05	10.00	
6,970.0	57.10	92.40	6,825.8	-406.5	-259.3	-259.3	7.65	7.45	
7,017.0	61.00	92.50	6,850.0	-408.3	-219.0	-219.0	8.30	8.30	
7,064.0	64.10	92.50	6,871.6	-410.1	-177.4	-177.4	6.60	6.60	
7,112.0	67.20	93.20	6,891.4	-412.3	-133.7	-133.7	6.59	6.46	
7,159.0	70.20	93.30	6,908.5	-414.7	-90.0	-90.0	6.39	6.38	
7,206.0	73.90	91.40	6,923.0	-416.6	-45.3	-45.3	8.76	7.87	
7,253.0	79.00	90.90	6,934.0	-417.5	0.4	0.4	10.90	10.85	
7,301.0	83.10	90.00	6,941.5	-417.9	47.8	47.8	8.74	8.54	
7,347.0	87.30	89.70	6,945.3	-417.7	93.6	93.6	9.15	9.13	
7,422.0	90.10	90.20	6,947.0	-417.7	168.6	168.6	3.79	3.73	
7,516.0	90.90	90.20	6,946.2	-418.0	262.6	262.6	0.85	0.85	
7,610.0	90.90	90.40	6,944.7	-418.5	356.5	356.5	0.21	0.00	
7,705.0	88.80	90.80	6,945.0	-419.5	451.5	451.5	2.25	-2.21	
7,799.0	87.90	88.70	6,947.7	-419.1	545.5	545.5	2.43	-0.96	
7,894.0	89.40	88.30	6,949.9	-416.6	640.4	640.4	1.63	1.58	
7,989.0	89.30	89.60	6,951.0	-414.8	735.4	735.4	1.37	-0.11	
8,083.0	87.90	90.50	6,953.3	-414.9	829.4	829.4	1.77	-1.49	
8,178.0	86.30	90.20	6,958.1	-415.5	924.2	924.2	1.71	-1.68	
8,241.0	85.70	89.10	6,962.5	-415.1	987.1	987.1	1.99	-0.95	
8,304.0	87.10	89.40	6,966.4	-414.3	1,050.0	1,050.0	2.27	2.22	
8,367.0	88.40	89.70	6,968.9	-413.8	1,112.9	1,112.9	2.12	2.06	
8,462.0	88.40	88.90	6,971.6	-412.6	1,207.9	1,207.9	0.84	0.00	
8,557.0	89.10	88.60	6,973.6	-410.6	1,302.8	1,302.8	0.80	0.74	
8,651.0	88.50	88.80	6,975.6	-408.4	1,396.8	1,396.8	0.67	-0.64	
8,746.0	88.50	89.70	6,978.1	-407.2	1,491.7	1,491.7	0.95	0.00	
8,840.0	90.40	91.00	6,979.0	-407.8	1,585.7	1,585.7	2.45	2.02	
8,904.0	89.80	91.50	6,978.9	-409.2	1,649.7	1,649.7	1.22	-0.94	
8,967.0	88.40	91.10	6,979.9	-410.6	1,712.7	1,712.7	2.31	-2.22	
9,030.0	87.80	91.40	6,982.0	-412.0	1,775.6	1,775.6	1.06	-0.95	
9,125.0	87.60	91.40	6,985.8	-414.3	1,870.5	1,870.5	0.21	-0.21	
9,220.0	87.10	91.20	6,990.2	-416.4	1,965.4	1,965.4	0.57	-0.53	
9,314.0	88.70	90.90	6,993.6	-418.2	2,059.3	2,059.3	1.73	1.70	
9,409.0	87.60	90.90	6,996.7	-419.7	2,154.3	2,154.3	1.16	-1.16	
9,503.0	87.40	91.10	7,000.8	-421.3	2,248.1	2,248.1	0.30	-0.21	
9,598.0	86.60	90.50	7,005.8	-422.6	2,343.0	2,343.0	1.05	-0.84	

# Cathedral Energy Services

## Survey Report

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Boyd 3F-19H-M368
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Site:</b> S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Well:</b> Boyd 3F-19H-M368	<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
9,692.0	88.00	90.40	7,010.2	-423.4	2,436.9	2,436.9	1.49	1.49	
9,787.0	88.30	91.40	7,013.2	-424.8	2,531.8	2,531.8	1.10	0.32	
9,882.0	87.30	90.10	7,016.9	-426.1	2,626.8	2,626.8	1.73	-1.05	
9,976.0	88.40	89.60	7,020.4	-425.8	2,720.7	2,720.7	1.29	1.17	
10,071.0	86.00	88.60	7,025.1	-424.4	2,815.6	2,815.6	2.74	-2.53	
10,166.0	87.50	88.80	7,030.4	-422.2	2,910.4	2,910.4	1.59	1.58	
10,260.0	88.90	88.10	7,033.4	-419.7	3,004.3	3,004.3	1.66	1.49	
10,355.0	88.80	88.50	7,035.3	-416.8	3,099.2	3,099.2	0.43	-0.11	
10,449.0	89.30	89.50	7,036.9	-415.2	3,193.2	3,193.2	1.19	0.53	
10,544.0	88.20	90.10	7,038.9	-414.9	3,288.2	3,288.2	1.32	-1.16	
10,639.0	88.40	89.70	7,041.8	-414.7	3,383.1	3,383.1	0.47	0.21	
10,733.0	87.70	89.60	7,045.0	-414.1	3,477.1	3,477.1	0.75	-0.74	
10,828.0	89.50	89.00	7,047.3	-413.0	3,572.0	3,572.0	2.00	1.89	
10,922.0	88.60	89.30	7,048.8	-411.6	3,666.0	3,666.0	1.01	-0.96	
11,017.0	88.60	89.20	7,051.2	-410.3	3,761.0	3,761.0	0.11	0.00	
11,111.0	89.80	88.70	7,052.5	-408.6	3,855.0	3,855.0	1.38	1.28	
11,254.0	90.00	90.20	7,052.7	-407.2	3,997.9	3,997.9	1.06	0.14	
11,300.0	91.80	90.00	7,052.0	-407.3	4,043.9	4,043.9	3.94	3.91	
11,351.0	92.20	90.10	7,050.2	-407.4	4,094.9	4,094.9	0.81	0.78	Last CES Survey @ 11,351' MD
11,399.0	92.20	90.10	7,048.4	-407.4	4,142.8	4,142.8	0.00	0.00	PTB @ 11399' MD

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
Boyd 3F-19H-M368 PBI - hit/miss target - Shape	0.00	0.00	7,053.0	-418.6	4,172.9	1,317,979.18	3,129,035.78	40.205320	-105.038040	
- actual wellpath misses target center by 32.4ft at 11399.0ft MD (7048.4 TVD, -407.4 N, 4142.8 E)										
- Point										
Boyd 3F-19H-M368 PBI - hit/miss target - Shape	0.00	0.00	7,040.0	-418.6	4,172.9	1,317,979.18	3,129,035.78	40.205320	-105.038040	
- actual wellpath misses target center by 33.1ft at 11399.0ft MD (7048.4 TVD, -407.4 N, 4142.8 E)										
- Point										
Boyd 3F-19H-M368 TG1 - hit/miss target - Shape	0.00	0.00	6,948.0	-418.6	242.8	1,317,959.37	3,125,105.75	40.205321	-105.052111	
- actual wellpath misses target center by 1.7ft at 7496.3ft MD (6946.5 TVD, -417.9 N, 242.8 E)										
- Point										
Boyd 3F-19H-M368 PBI - hit/miss target - Shape	0.00	0.00	7,010.0	-418.6	4,172.9	1,317,979.18	3,129,035.78	40.205320	-105.038040	
- actual wellpath misses target center by 50.0ft at 11399.0ft MD (7048.4 TVD, -407.4 N, 4142.8 E)										
- Point										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment	
11,351.0	7,050.2	-407.4	4,094.9	Last CES Survey @ 11,351' MD	
11,399.0	7,048.4	-407.4	4,142.8	PTB @ 11399' MD	

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

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

**DJ Wattenberg**

**S19-T3N-R68W (Bohrer/Boyd)**

**Boyd 3F-19H-M368**

**Hz**

**Design: FINAL**

## **Survey Report - Geographic**

**07 July, 2014**

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Boyd 3F-19H-M368
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Site:</b> S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Well:</b> Boyd 3F-19H-M368	<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> S19-T3N-R68W (Bohrer/Boyd)		
<b>Site Position:</b>	<b>Northing:</b> 1,318,413.13 ft	<b>Latitude:</b> 40.206570
<b>From:</b> Lat/Long	<b>Easting:</b> 3,124,860.64 ft	<b>Longitude:</b> -105.052980
<b>Position Uncertainty:</b> 0.0 ft	<b>Slot Radius:</b> 13.200 in	<b>Grid Convergence:</b> 0.29 °

<b>Well</b> Boyd 3F-19H-M368			
<b>Well Position</b>	<b>+N/-S</b> 0.0 ft	<b>Northing:</b> 1,318,376.70 ft	<b>Latitude:</b> 40.206470
	<b>+E/-W</b> 0.0 ft	<b>Easting:</b> 3,124,860.82 ft	<b>Longitude:</b> -105.052980
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 5,004.0 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	6/30/2014	(°) 8.59	(°) 66.74	(nT) 52,677

<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	90.00	

<b>Survey Program</b>		<b>Date</b> 7/7/2014		
<b>From</b>	<b>To</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
141.0	11,399.0	Survey #1 (Hz)	Geolink MWD	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	1,318,376.70	3,124,860.82	40.206470	-105.052980	
141.0	0.20	305.80	141.0	0.1	-0.2	1,318,376.84	3,124,860.62	40.206470	-105.052981	
233.0	0.80	280.60	233.0	0.4	-1.0	1,318,377.05	3,124,859.86	40.206471	-105.052984	
325.0	2.20	258.60	325.0	0.1	-3.3	1,318,376.81	3,124,857.50	40.206470	-105.052992	
417.0	4.20	241.30	416.8	-1.8	-8.0	1,318,374.81	3,124,852.82	40.206465	-105.053009	
509.0	5.80	232.80	508.5	-6.3	-14.7	1,318,370.35	3,124,846.19	40.206453	-105.053033	
601.0	6.90	235.70	599.9	-12.2	-22.9	1,318,364.39	3,124,837.95	40.206437	-105.053062	
693.0	7.30	239.90	691.2	-18.2	-32.6	1,318,358.29	3,124,828.36	40.206420	-105.053097	
784.0	7.20	239.60	781.5	-24.0	-42.5	1,318,352.46	3,124,818.47	40.206404	-105.053132	
817.0	7.40	239.30	814.2	-26.2	-46.1	1,318,350.31	3,124,814.87	40.206398	-105.053145	
916.0	7.20	239.80	912.4	-32.5	-56.9	1,318,343.88	3,124,804.05	40.206381	-105.053184	
1,007.0	7.00	238.20	1,002.7	-38.3	-66.6	1,318,338.04	3,124,794.44	40.206365	-105.053219	

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Boyd 3F-19H-M368
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Site:</b>	S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Well:</b>	Boyd 3F-19H-M368	<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	
1,099.0	6.70	233.30	1,094.0	-44.5	-75.6	1,318,331.83	3,124,785.41	40.206348	-105.053251	
1,191.0	5.80	229.90	1,185.5	-50.7	-83.5	1,318,325.59	3,124,777.58	40.206331	-105.053279	
1,283.0	7.80	237.00	1,276.8	-57.1	-92.3	1,318,319.15	3,124,768.82	40.206313	-105.053311	
1,375.0	7.50	234.80	1,368.0	-63.9	-102.4	1,318,312.24	3,124,758.71	40.206295	-105.053347	
1,466.0	6.80	235.20	1,458.3	-70.4	-111.7	1,318,305.69	3,124,749.47	40.206277	-105.053380	
1,558.0	6.90	240.50	1,549.7	-76.3	-121.0	1,318,299.82	3,124,740.21	40.206261	-105.053413	
1,650.0	6.50	237.60	1,641.0	-81.8	-130.2	1,318,294.26	3,124,731.04	40.206246	-105.053446	
1,741.0	6.00	232.50	1,731.5	-87.4	-138.3	1,318,288.56	3,124,722.94	40.206230	-105.053476	
1,833.0	6.60	233.70	1,822.9	-93.5	-146.4	1,318,282.46	3,124,714.90	40.206213	-105.053504	
1,925.0	6.50	228.20	1,914.3	-100.1	-154.5	1,318,275.82	3,124,706.79	40.206195	-105.053534	
2,017.0	7.60	233.90	2,005.6	-107.2	-163.3	1,318,268.72	3,124,698.02	40.206176	-105.053565	
2,108.0	7.80	243.80	2,095.8	-113.4	-173.7	1,318,262.40	3,124,687.65	40.206159	-105.053602	
2,200.0	7.50	238.60	2,187.0	-119.3	-184.5	1,318,256.46	3,124,676.96	40.206143	-105.053641	
2,292.0	7.10	234.70	2,278.3	-125.7	-194.2	1,318,250.00	3,124,667.22	40.206125	-105.053676	
2,384.0	6.90	246.20	2,369.6	-131.2	-203.9	1,318,244.43	3,124,657.55	40.206110	-105.053710	
2,478.0	6.80	244.80	2,462.9	-135.9	-214.1	1,318,239.73	3,124,647.38	40.206097	-105.053747	
2,573.0	6.70	243.80	2,557.3	-140.7	-224.2	1,318,234.84	3,124,637.34	40.206084	-105.053783	
2,667.0	6.60	242.50	2,650.6	-145.6	-233.9	1,318,229.88	3,124,627.65	40.206070	-105.053818	
2,762.0	6.50	242.30	2,745.0	-150.7	-243.5	1,318,224.81	3,124,618.07	40.206056	-105.053852	
2,856.0	6.40	239.80	2,838.4	-155.8	-252.8	1,318,219.65	3,124,608.86	40.206042	-105.053885	
2,951.0	6.30	236.30	2,932.8	-161.3	-261.7	1,318,214.05	3,124,599.98	40.206027	-105.053917	
3,045.0	6.50	234.60	3,026.2	-167.3	-270.3	1,318,208.06	3,124,591.38	40.206011	-105.053948	
3,140.0	6.20	234.30	3,120.7	-173.4	-278.8	1,318,201.91	3,124,582.86	40.205994	-105.053979	
3,234.0	6.10	234.30	3,214.1	-179.3	-287.0	1,318,196.00	3,124,574.71	40.205978	-105.054008	
3,329.0	6.50	234.30	3,308.5	-185.3	-295.5	1,318,189.87	3,124,566.28	40.205961	-105.054038	
3,423.0	6.00	233.30	3,402.0	-191.4	-303.7	1,318,183.79	3,124,558.05	40.205945	-105.054068	
3,518.0	6.10	242.60	3,496.5	-196.7	-312.2	1,318,178.45	3,124,549.61	40.205930	-105.054098	
3,612.0	7.00	240.30	3,589.8	-201.8	-321.6	1,318,173.27	3,124,540.23	40.205916	-105.054132	
3,707.0	6.30	238.70	3,684.2	-207.4	-331.1	1,318,167.65	3,124,530.77	40.205901	-105.054166	
3,802.0	6.60	237.50	3,778.6	-213.0	-340.2	1,318,161.96	3,124,521.74	40.205885	-105.054198	
3,896.0	7.30	243.10	3,871.9	-218.6	-350.0	1,318,156.31	3,124,511.89	40.205870	-105.054234	
3,991.0	6.40	246.90	3,966.2	-223.4	-360.3	1,318,151.45	3,124,501.66	40.205857	-105.054270	
4,085.0	8.10	239.00	4,059.5	-228.9	-370.8	1,318,145.93	3,124,491.19	40.205842	-105.054308	
4,180.0	7.40	240.80	4,153.6	-235.3	-381.9	1,318,139.44	3,124,480.15	40.205824	-105.054347	
4,274.0	7.80	235.20	4,246.8	-241.9	-392.4	1,318,132.79	3,124,469.66	40.205806	-105.054385	
4,369.0	6.90	233.60	4,341.0	-249.0	-402.3	1,318,125.68	3,124,459.81	40.205787	-105.054421	
4,464.0	6.30	231.00	4,435.4	-255.7	-410.9	1,318,118.97	3,124,451.20	40.205768	-105.054451	
4,558.0	5.80	228.20	4,528.9	-262.1	-418.5	1,318,112.52	3,124,443.68	40.205751	-105.054478	
4,653.0	6.20	237.50	4,623.3	-268.0	-426.4	1,318,106.52	3,124,435.81	40.205734	-105.054507	
4,747.0	5.60	236.50	4,716.8	-273.3	-434.5	1,318,101.22	3,124,427.73	40.205720	-105.054536	
4,842.0	6.90	235.90	4,811.3	-279.0	-443.1	1,318,095.42	3,124,419.17	40.205704	-105.054567	
4,937.0	6.10	237.20	4,905.7	-285.0	-452.0	1,318,089.44	3,124,410.23	40.205688	-105.054599	
5,031.0	7.10	229.80	4,999.0	-291.4	-460.7	1,318,082.94	3,124,401.62	40.205670	-105.054630	
5,126.0	6.20	231.40	5,093.4	-298.4	-469.2	1,318,075.91	3,124,393.17	40.205651	-105.054660	
5,220.0	6.80	227.00	5,186.8	-305.4	-477.2	1,318,068.91	3,124,385.16	40.205632	-105.054689	
5,315.0	7.20	238.50	5,281.1	-312.3	-486.4	1,318,061.91	3,124,376.01	40.205613	-105.054722	
5,409.0	6.30	237.60	5,374.4	-318.2	-495.8	1,318,056.03	3,124,366.66	40.205597	-105.054755	
5,504.0	6.90	235.30	5,468.8	-324.2	-504.9	1,318,049.94	3,124,357.60	40.205580	-105.054788	
5,599.0	7.00	234.30	5,563.1	-330.8	-514.3	1,318,043.26	3,124,348.24	40.205562	-105.054821	
5,694.0	7.80	232.30	5,657.3	-338.2	-524.1	1,318,035.89	3,124,338.48	40.205542	-105.054857	
5,788.0	6.30	234.20	5,750.6	-345.1	-533.3	1,318,028.93	3,124,329.28	40.205523	-105.054890	
5,882.0	7.60	234.70	5,843.9	-351.7	-542.5	1,318,022.27	3,124,320.06	40.205505	-105.054923	
5,977.0	6.20	232.30	5,938.2	-358.5	-551.7	1,318,015.46	3,124,310.91	40.205486	-105.054956	
6,071.0	6.40	231.30	6,031.7	-364.8	-559.8	1,318,009.04	3,124,302.83	40.205469	-105.054985	
6,118.0	6.10	231.90	6,078.4	-368.0	-563.8	1,318,005.84	3,124,298.84	40.205460	-105.054999	

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b>	EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b>	Well Boyd 3F-19H-M368
<b>Project:</b>	DJ Wattenberg	<b>TVD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Site:</b>	S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b>	WELL @ 5029.0ft (Ensign 135)
<b>Well:</b>	Boyd 3F-19H-M368	<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	
6,166.0	5.30	222.10	6,126.1	-371.2	-567.3	1,318,002.60	3,124,295.36	40.205451	-105.055011	
6,213.0	5.70	195.60	6,172.9	-375.1	-569.4	1,317,998.73	3,124,293.30	40.205440	-105.055019	
6,261.0	6.70	165.00	6,220.7	-380.1	-569.3	1,317,993.73	3,124,293.41	40.205427	-105.055019	
6,308.0	8.40	137.50	6,267.3	-385.3	-566.3	1,317,988.57	3,124,296.46	40.205412	-105.055008	
6,355.0	9.10	114.80	6,313.7	-389.4	-560.6	1,317,984.50	3,124,302.18	40.205401	-105.054987	
6,402.0	10.00	98.90	6,360.1	-391.6	-553.2	1,317,982.35	3,124,309.60	40.205395	-105.054961	
6,450.0	12.90	95.30	6,407.1	-392.7	-543.8	1,317,981.26	3,124,319.06	40.205392	-105.054927	
6,497.0	16.80	92.40	6,452.6	-393.5	-531.7	1,317,980.55	3,124,331.08	40.205390	-105.054884	
6,544.0	19.40	91.60	6,497.2	-394.0	-517.1	1,317,980.12	3,124,345.67	40.205389	-105.054832	
6,591.0	22.80	92.70	6,541.1	-394.6	-500.2	1,317,979.56	3,124,362.58	40.205387	-105.054771	
6,639.0	26.70	94.50	6,584.7	-395.9	-480.2	1,317,978.38	3,124,382.63	40.205383	-105.054699	
6,686.0	31.60	94.10	6,625.7	-397.6	-457.4	1,317,976.78	3,124,405.46	40.205379	-105.054618	
6,733.0	37.10	93.30	6,664.5	-399.3	-430.9	1,317,975.22	3,124,431.93	40.205374	-105.054523	
6,780.0	40.50	93.00	6,701.1	-400.9	-401.5	1,317,973.75	3,124,461.33	40.205369	-105.054418	
6,828.0	44.00	93.10	6,736.6	-402.6	-369.3	1,317,972.19	3,124,493.57	40.205365	-105.054302	
6,875.0	48.80	92.00	6,769.0	-404.1	-335.3	1,317,970.86	3,124,527.57	40.205361	-105.054181	
6,923.0	53.60	91.40	6,799.1	-405.3	-297.9	1,317,969.95	3,124,564.95	40.205358	-105.054047	
6,970.0	57.10	92.40	6,825.8	-406.5	-259.3	1,317,968.86	3,124,603.59	40.205354	-105.053909	
7,017.0	61.00	92.50	6,850.0	-408.3	-219.0	1,317,967.34	3,124,643.86	40.205349	-105.053764	
7,064.0	64.10	92.50	6,871.6	-410.1	-177.4	1,317,965.73	3,124,685.54	40.205344	-105.053615	
7,112.0	67.20	93.20	6,891.4	-412.3	-133.7	1,317,963.77	3,124,729.22	40.205338	-105.053459	
7,159.0	70.20	93.30	6,908.5	-414.7	-90.0	1,317,961.51	3,124,772.94	40.205332	-105.053302	
7,206.0	73.90	91.40	6,923.0	-416.6	-45.3	1,317,959.91	3,124,817.62	40.205327	-105.053142	
7,253.0	79.00	90.90	6,934.0	-417.5	0.4	1,317,959.22	3,124,863.29	40.205324	-105.052979	
7,301.0	83.10	90.00	6,941.5	-417.9	47.8	1,317,959.09	3,124,910.69	40.205323	-105.052809	
7,347.0	87.30	89.70	6,945.3	-417.7	93.6	1,317,959.44	3,124,956.52	40.205323	-105.052645	
7,422.0	90.10	90.20	6,947.0	-417.7	168.6	1,317,959.89	3,125,031.49	40.205324	-105.052377	
7,516.0	90.90	90.20	6,946.2	-418.0	262.6	1,317,960.03	3,125,125.49	40.205323	-105.052040	
7,610.0	90.90	90.40	6,944.7	-418.5	356.5	1,317,960.01	3,125,219.48	40.205321	-105.051704	
7,705.0	88.80	90.80	6,945.0	-419.5	451.5	1,317,959.50	3,125,314.47	40.205319	-105.051364	
7,799.0	87.90	88.70	6,947.7	-419.1	545.5	1,317,960.38	3,125,408.42	40.205320	-105.051027	
7,894.0	89.40	88.30	6,949.9	-416.6	640.4	1,317,963.35	3,125,503.35	40.205326	-105.050687	
7,989.0	89.30	89.60	6,951.0	-414.8	735.4	1,317,965.57	3,125,598.31	40.205331	-105.050347	
8,083.0	87.90	90.50	6,953.3	-414.9	829.4	1,317,965.96	3,125,692.28	40.205331	-105.050011	
8,178.0	86.30	90.20	6,958.1	-415.5	924.2	1,317,965.86	3,125,787.15	40.205329	-105.049671	
8,241.0	85.70	89.10	6,962.5	-415.1	987.1	1,317,966.56	3,125,850.00	40.205330	-105.049446	
8,304.0	87.10	89.40	6,966.4	-414.3	1,050.0	1,317,967.70	3,125,912.86	40.205333	-105.049221	
8,367.0	88.40	89.70	6,968.9	-413.8	1,112.9	1,317,968.51	3,125,975.80	40.205334	-105.048996	
8,462.0	88.40	88.90	6,971.6	-412.6	1,207.9	1,317,970.15	3,126,070.75	40.205337	-105.048656	
8,557.0	89.10	88.60	6,973.6	-410.6	1,302.8	1,317,972.70	3,126,165.70	40.205343	-105.048316	
8,651.0	88.50	88.80	6,975.6	-408.4	1,396.8	1,317,975.30	3,126,259.64	40.205349	-105.047979	
8,746.0	88.50	89.70	6,978.1	-407.2	1,491.7	1,317,977.02	3,126,354.59	40.205352	-105.047640	
8,840.0	90.40	91.00	6,979.0	-407.8	1,585.7	1,317,976.92	3,126,448.58	40.205351	-105.047303	
8,904.0	89.80	91.50	6,978.9	-409.2	1,649.7	1,317,975.85	3,126,512.57	40.205347	-105.047074	
8,967.0	88.40	91.10	6,979.9	-410.6	1,712.7	1,317,974.74	3,126,575.55	40.205343	-105.046848	
9,030.0	87.80	91.40	6,982.0	-412.0	1,775.6	1,317,973.68	3,126,638.51	40.205339	-105.046623	
9,125.0	87.60	91.40	6,985.8	-414.3	1,870.5	1,317,971.84	3,126,733.41	40.205333	-105.046283	
9,220.0	87.10	91.20	6,990.2	-416.4	1,965.4	1,317,970.17	3,126,828.30	40.205327	-105.045944	
9,314.0	88.70	90.90	6,993.6	-418.2	2,059.3	1,317,968.92	3,126,922.22	40.205322	-105.045607	
9,409.0	87.60	90.90	6,996.7	-419.7	2,154.3	1,317,967.91	3,127,017.17	40.205318	-105.045268	
9,503.0	87.40	91.10	7,000.8	-421.3	2,248.1	1,317,966.74	3,127,111.07	40.205313	-105.044931	
9,598.0	86.60	90.50	7,005.8	-422.6	2,343.0	1,317,965.89	3,127,205.93	40.205310	-105.044592	
9,692.0	88.00	90.40	7,010.2	-423.4	2,436.9	1,317,965.63	3,127,299.83	40.205308	-105.044256	
9,787.0	88.30	91.40	7,013.2	-424.8	2,531.8	1,317,964.62	3,127,394.77	40.205303	-105.043916	
9,882.0	87.30	90.10	7,016.9	-426.1	2,626.8	1,317,963.85	3,127,489.69	40.205300	-105.043576	

# Cathedral Energy Services

## Survey Report - Geographic

<b>Company:</b> EnCana Oil & Gas (USA) Inc	<b>Local Co-ordinate Reference:</b> Well Boyd 3F-19H-M368
<b>Project:</b> DJ Wattenberg	<b>TVD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Site:</b> S19-T3N-R68W (Bohrer/Boyd)	<b>MD Reference:</b> WELL @ 5029.0ft (Ensign 135)
<b>Well:</b> Boyd 3F-19H-M368	<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	
9,976.0	88.40	89.60	7,020.4	-425.8	2,720.7	1,317,964.57	3,127,583.62	40.205301	-105.043240	
10,071.0	86.00	88.60	7,025.1	-424.4	2,815.6	1,317,966.54	3,127,678.48	40.205305	-105.042900	
10,166.0	87.50	88.80	7,030.4	-422.2	2,910.4	1,317,969.17	3,127,773.29	40.205311	-105.042560	
10,260.0	88.90	88.10	7,033.4	-419.7	3,004.3	1,317,972.18	3,127,867.19	40.205318	-105.042224	
10,355.0	88.80	88.50	7,035.3	-416.8	3,099.2	1,317,975.48	3,127,962.12	40.205325	-105.041884	
10,449.0	89.30	89.50	7,036.9	-415.2	3,193.2	1,317,977.59	3,128,056.08	40.205330	-105.041548	
10,544.0	88.20	90.10	7,038.9	-414.9	3,288.2	1,317,978.41	3,128,151.05	40.205331	-105.041208	
10,639.0	88.40	89.70	7,041.8	-414.7	3,383.1	1,317,979.05	3,128,246.01	40.205331	-105.040868	
10,733.0	87.70	89.60	7,045.0	-414.1	3,477.1	1,317,980.10	3,128,339.95	40.205333	-105.040531	
10,828.0	89.50	89.00	7,047.3	-413.0	3,572.0	1,317,981.74	3,128,434.90	40.205336	-105.040191	
10,922.0	88.60	89.30	7,048.8	-411.6	3,666.0	1,317,983.60	3,128,528.87	40.205339	-105.039855	
11,017.0	88.60	89.20	7,051.2	-410.3	3,761.0	1,317,985.33	3,128,623.82	40.205343	-105.039515	
11,111.0	89.80	88.70	7,052.5	-408.6	3,855.0	1,317,987.52	3,128,717.79	40.205348	-105.039179	
11,254.0	90.00	90.20	7,052.7	-407.2	3,997.9	1,317,989.62	3,128,860.77	40.205351	-105.038667	
11,300.0	91.80	90.00	7,052.0	-407.3	4,043.9	1,317,989.77	3,128,906.76	40.205351	-105.038502	
11,351.0	92.20	90.10	7,050.2	-407.4	4,094.9	1,317,989.98	3,128,957.71	40.205351	-105.038320	
<b>Last CES Survey @ 11,351' MD</b>										
11,399.0	92.20	90.10	7,048.4	-407.4	4,142.8	1,317,990.14	3,129,005.67	40.205351	-105.038148	
<b>PTB @ 11399' MD</b>										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
Boyd 3F-19H-M368 PBI	0.00	0.00	7,010.0	-418.6	4,172.9	1,317,979.18	3,129,035.78	40.205320	-105.038040	
- actual wellpath misses target center by 50.0ft at 11399.0ft MD (7048.4 TVD, -407.4 N, 4142.8 E)										
- Point										

Design Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
11,351.0	7,050.2	-407.4	4,094.9	Last CES Survey @ 11,351' MD	
11,399.0	7,048.4	-407.4	4,142.8	PTB @ 11399' MD	

Checked By: _____	Approved By: _____	Date: _____
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