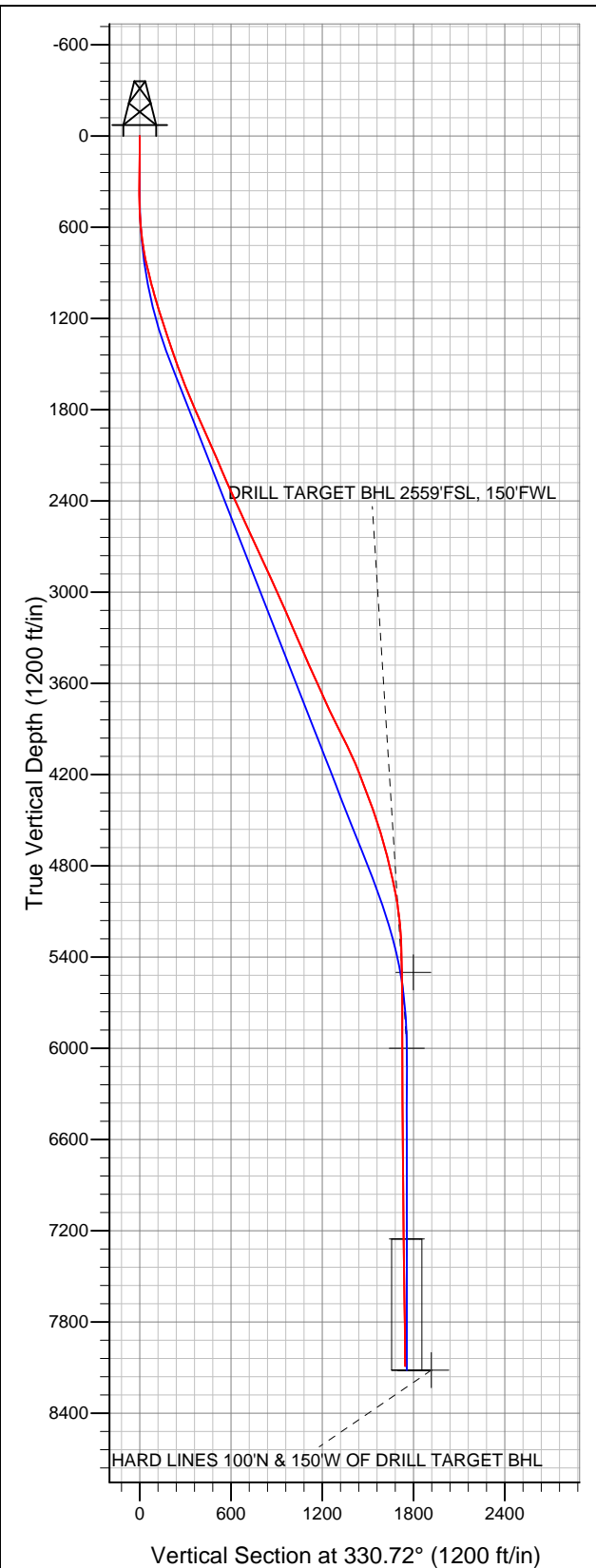


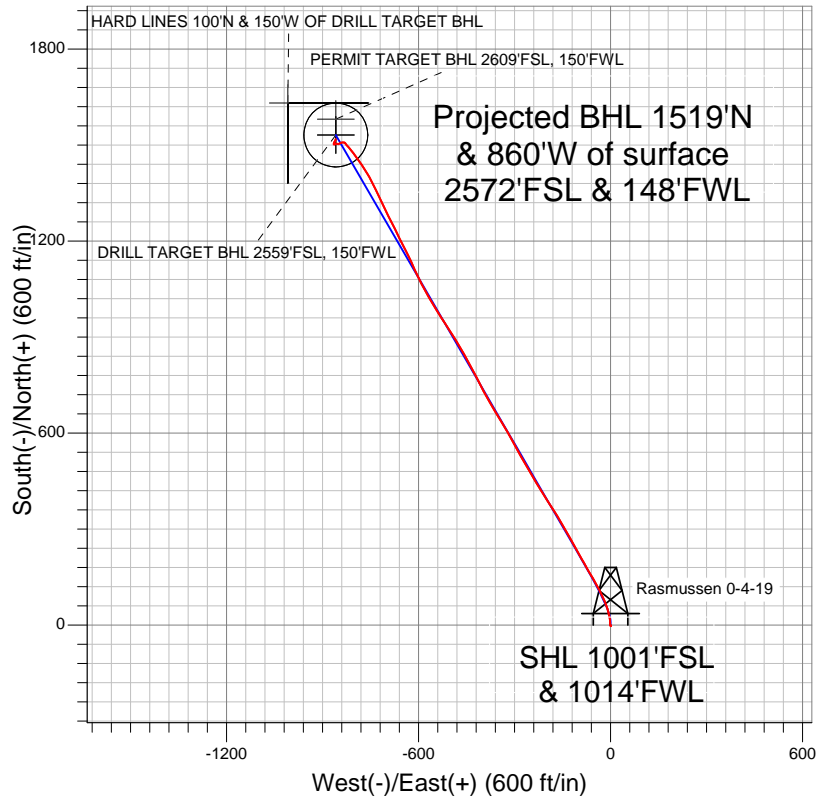
# Well Name: Rasmussen 0-4-19

Surface Location: Rasmussen 0-6-19 Pad Sec.19-T2N-R68W  
North American Datum 1983 US State Plane 1983Colorado Northern Zone  
Ground Elevation: 5000.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1286636.35	3125350.17	40.119340	-105.051780	
		Original Well Elev	WELL @ 5013.0ft (Original Well Elev)			



## EnCana Oil & Gas Weld County CO



### LEGEND

- Survey #1
- △ Rasmussen 0-4-19, Wellbore #1, Plan #2 (2-13-12) R V0
- Wellbore #1

## Final Survey Plot

Projected Final Survey -  
8420'MD & 8090'TVD @ 1746'VS  
0.80 deg Inc 319.70 deg AZ

Project: SEC.19-T2N-R68W  
Site: Rasmussen 0-6-19 Pad Sec.19-T2N-R68W  
Well: Rasmussen 0-4-19  
Plan: Wellbore #1



# **EnCana Oil & Gas Weld County CO**

**SEC.19-T2N-R68W**

**Rasmussen 0-6-19 Pad Sec.19-T2N-R68W**

**Rasmussen 0-4-19**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**20 February, 2012**

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rasmussen 0-4-19
<b>Project:</b>	SEC.19-T2N-R68W	<b>TVD Reference:</b>	WELL @ 5013.0ft (Original Well Elev)
<b>Site:</b>	Rasmussen 0-6-19 Pad Sec.19-T2N-R68W	<b>MD Reference:</b>	WELL @ 5013.0ft (Original Well Elev)
<b>Well:</b>	Rasmussen 0-4-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

<b>Project</b>	SEC.19-T2N-R68W, Weld County, Colorado		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		Rasmussen 0-6-19 Pad Sec.19-T2N-R68W			
Site Position:		Northing:	1,286,636.30ft	Latitude:	40.119340
From:	Lat/Long	Easting:	3,125,338.98ft	Longitude:	-105.051820
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.29 °

Well	Rasmussen 0-4-19					
Well Position	+N-S	0.0 ft	Northing:	1,286,636.35 ft	Latitude:	40.119340
	+E-W	0.0 ft	Easting:	3,125,350.17 ft	Longitude:	-105.051780
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,000.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/13/2012	8.90	66.75	52,881

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)	
	0.0	0.0	0.0	330.72	

Survey Program		Date	2/20/2012		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
72.0	8,420.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
	Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Survey Data	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	72.0	0.50	127.20	72.0	-0.2	0.3	-0.3	0.69	0.69	0.00
	163.0	0.90	140.40	163.0	-1.0	1.0	-1.4	0.47	0.44	14.51
	254.0	0.90	179.40	254.0	-2.2	1.5	-2.7	0.66	0.00	42.86
	346.0	0.60	215.60	346.0	-3.4	1.2	-3.5	0.59	-0.33	39.35
	438.0	1.50	312.80	438.0	-2.9	0.0	-2.6	1.83	0.98	105.65
	529.0	3.70	350.30	528.9	0.8	-1.3	1.3	2.93	2.42	41.21
	621.0	6.50	2.10	620.5	8.9	-1.6	8.6	3.23	3.04	12.83
	712.0	9.20	350.60	710.6	21.2	-2.6	19.8	3.42	2.97	-12.64
	746.0	10.40	347.10	744.1	26.9	-3.8	25.3	3.94	3.53	-10.29
	810.0	10.40	347.10	807.1	38.2	-6.3	36.4	0.00	0.00	0.00
	815.0	12.40	343.90	812.0	39.1	-6.6	37.3	41.94	40.00	-64.00
902.0	14.10	342.20	896.7	58.2	-12.4	56.8	2.00	1.95	-1.95	

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rasmussen 0-4-19
<b>Project:</b>	SEC.19-T2N-R68W	<b>TVD Reference:</b>	WELL @ 5013.0ft (Original Well Elev)
<b>Site:</b>	Rasmussen 0-6-19 Pad Sec.19-T2N-R68W	<b>MD Reference:</b>	WELL @ 5013.0ft (Original Well Elev)
<b>Well:</b>	Rasmussen 0-4-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

## Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
989.0	14.60	335.70	981.0	78.3	-20.2	78.1	1.94	0.57	-7.47
1,077.0	16.80	333.90	1,065.7	99.8	-30.3	101.9	2.56	2.50	-2.05
1,164.0	17.30	331.60	1,148.9	122.5	-42.0	127.4	0.96	0.57	-2.64
1,251.0	18.20	328.70	1,231.7	145.5	-55.2	153.9	1.45	1.03	-3.33
1,339.0	18.30	329.90	1,315.3	169.2	-69.3	181.4	0.44	0.11	1.36
1,426.0	18.70	331.80	1,397.8	193.3	-82.7	209.0	0.83	0.46	2.18
1,513.0	19.30	329.00	1,480.1	217.9	-96.7	237.4	1.25	0.69	-3.22
1,600.0	21.00	332.00	1,561.7	244.0	-111.5	267.3	2.29	1.95	3.45
1,688.0	21.70	330.90	1,643.7	272.1	-126.8	299.3	0.92	0.80	-1.25
1,775.0	23.20	328.80	1,724.1	300.8	-143.5	332.6	1.95	1.72	-2.41
1,862.0	22.30	330.20	1,804.3	329.8	-160.6	366.2	1.21	-1.03	1.61
1,950.0	24.10	327.20	1,885.2	359.4	-178.6	400.8	2.45	2.05	-3.41
2,037.0	25.10	328.00	1,964.3	390.0	-198.0	437.0	1.21	1.15	0.92
2,124.0	23.70	327.10	2,043.5	420.3	-217.3	472.9	1.66	-1.61	-1.03
2,212.0	22.90	328.70	2,124.4	449.8	-235.8	507.6	1.16	-0.91	1.82
2,299.0	23.00	331.10	2,204.5	479.1	-252.8	541.5	1.08	0.11	2.76
2,386.0	23.80	330.20	2,284.3	509.2	-269.7	576.1	1.01	0.92	-1.03
2,473.0	24.40	331.10	2,363.7	540.2	-287.1	611.6	0.81	0.69	1.03
2,561.0	24.50	331.10	2,443.8	572.1	-304.7	648.0	0.11	0.11	0.00
2,648.0	24.60	328.70	2,523.0	603.4	-322.8	684.2	1.15	0.11	-2.76
2,735.0	24.70	329.50	2,602.1	634.5	-341.5	720.4	0.40	0.11	0.92
2,823.0	25.10	330.10	2,681.9	666.5	-360.1	757.5	0.54	0.45	0.68
2,910.0	24.40	329.50	2,760.9	698.0	-378.4	793.9	0.85	-0.80	-0.69
2,997.0	24.90	331.80	2,840.0	729.6	-396.2	830.2	1.24	0.57	2.64
3,085.0	24.20	333.90	2,920.0	762.2	-412.9	866.7	1.27	-0.80	2.39
3,172.0	24.60	331.80	2,999.2	794.1	-429.3	902.6	1.10	0.46	-2.41
3,259.0	23.30	330.90	3,078.7	825.1	-446.2	937.9	1.55	-1.49	-1.03
3,346.0	24.20	329.20	3,158.4	855.5	-463.7	973.0	1.30	1.03	-1.95
3,434.0	23.20	329.70	3,239.0	885.9	-481.7	1,008.3	1.16	-1.14	0.57
3,521.0	23.00	327.20	3,319.0	915.0	-499.6	1,042.4	1.15	-0.23	-2.87
3,608.0	23.70	326.50	3,398.9	943.9	-518.4	1,076.8	0.87	0.80	-0.80
3,696.0	24.30	328.80	3,479.2	974.1	-537.6	1,112.6	1.26	0.68	2.61
3,783.0	24.40	328.80	3,558.5	1,004.8	-556.1	1,148.4	0.11	0.11	0.00
3,870.0	24.40	329.70	3,637.7	1,035.7	-574.5	1,184.4	0.43	0.00	1.03
3,958.0	24.40	333.80	3,717.9	1,067.7	-591.7	1,220.7	1.92	0.00	4.66
4,045.0	25.10	335.70	3,796.9	1,100.6	-607.2	1,257.0	1.22	0.80	2.18
4,132.0	26.60	334.60	3,875.2	1,135.1	-623.2	1,294.8	1.81	1.72	-1.26
4,219.0	27.50	333.10	3,952.7	1,170.6	-640.6	1,334.3	1.30	1.03	-1.72
4,307.0	25.80	333.60	4,031.3	1,205.8	-658.3	1,373.8	1.95	-1.93	0.57
4,394.0	23.20	333.20	4,110.5	1,238.1	-674.5	1,409.8	2.99	-2.99	-0.46
4,481.0	20.80	332.90	4,191.1	1,267.1	-689.3	1,442.4	2.76	-2.76	-0.34
4,569.0	21.20	335.20	4,273.3	1,295.5	-703.1	1,473.8	1.04	0.45	2.61
4,656.0	20.40	333.80	4,354.6	1,323.4	-716.3	1,504.7	1.08	-0.92	-1.61
4,743.0	20.00	334.60	4,436.3	1,350.4	-729.4	1,534.6	0.56	-0.46	0.92
4,831.0	18.60	334.30	4,519.3	1,376.7	-742.0	1,563.7	1.59	-1.59	-0.34
4,918.0	15.50	330.80	4,602.5	1,399.3	-753.7	1,589.1	3.75	-3.56	-4.02
5,005.0	14.80	327.60	4,686.5	1,418.9	-765.3	1,611.9	1.25	-0.80	-3.68
5,092.0	14.20	326.70	4,770.7	1,437.2	-777.1	1,633.6	0.74	-0.69	-1.03
5,180.0	13.50	325.10	4,856.1	1,454.6	-788.9	1,654.6	0.91	-0.80	-1.82
5,267.0	11.70	322.70	4,941.0	1,470.0	-800.1	1,673.4	2.15	-2.07	-2.76
5,354.0	9.70	319.20	5,026.5	1,482.5	-810.2	1,689.4	2.42	-2.30	-4.02
5,442.0	7.10	320.70	5,113.6	1,492.3	-818.5	1,702.0	2.96	-2.95	1.70
5,529.0	5.40	319.90	5,200.1	1,499.6	-824.5	1,711.3	1.96	-1.95	-0.92
5,616.0	3.10	319.20	5,286.8	1,504.5	-828.7	1,717.6	2.64	-2.64	-0.80

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Rasmussen 0-4-19
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<b>Site:</b>	Rasmussen 0-6-19 Pad Sec.19-T2N-R68W	<b>MD Reference:</b>	WELL @ 5013.0ft (Original Well Elev)
<b>Well:</b>	Rasmussen 0-4-19	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,704.0	1.10	297.40	5,374.7	1,506.7	-831.0	1,720.7	2.41	-2.27	-24.77
5,791.0	1.10	291.40	5,461.7	1,507.4	-832.5	1,722.0	0.13	0.00	-6.90
5,830.1	1.09	284.00	5,500.8	1,507.7	-833.2	1,722.5	0.36	-0.03	-18.95
<b>PERMIT TARGET BHL 2609'FSL, 150'FWL</b>									
5,878.0	1.10	274.90	5,548.7	1,507.8	-834.1	1,723.1	0.36	0.02	-18.98
5,965.0	1.30	270.80	5,635.7	1,507.9	-835.9	1,724.1	0.25	0.23	-4.71
6,053.0	0.40	287.50	5,723.7	1,508.0	-837.2	1,724.8	1.05	-1.02	18.98
6,227.0	1.30	259.90	5,897.7	1,507.8	-839.8	1,725.9	0.55	0.52	-15.86
6,329.5	1.34	248.35	6,000.2	1,507.2	-842.0	1,726.4	0.26	0.04	-11.26
<b>DRILL TARGET BHL 2559'FSL, 150'FWL</b>									
6,402.0	1.40	240.80	6,072.6	1,506.4	-843.6	1,726.6	0.26	0.08	-10.42
6,577.0	1.60	238.10	6,247.6	1,504.1	-847.5	1,726.4	0.12	0.11	-1.54
6,751.0	0.60	265.90	6,421.5	1,502.8	-850.5	1,726.7	0.64	-0.57	15.98
6,926.0	1.90	281.40	6,596.5	1,503.3	-854.3	1,729.0	0.76	0.74	8.86
7,100.0	0.40	305.80	6,770.4	1,504.2	-857.6	1,731.4	0.89	-0.86	14.02
7,275.0	1.10	230.20	6,945.4	1,503.5	-859.4	1,731.7	0.61	0.40	-43.20
7,450.0	1.50	256.90	7,120.4	1,501.9	-862.9	1,732.0	0.41	0.23	15.26
7,583.8	1.07	339.21	7,254.2	1,502.6	-865.0	1,733.7	1.29	-0.32	61.51
<b>TARGET CIRCLE 2559'FSL &amp; 150'FWL</b>									
7,624.0	1.40	357.80	7,294.3	1,503.5	-865.2	1,734.5	1.29	0.83	46.27
7,799.0	1.80	29.70	7,469.3	1,508.0	-863.9	1,737.9	0.55	0.23	18.23
7,973.0	1.30	33.00	7,643.2	1,512.0	-861.5	1,740.2	0.29	-0.29	1.90
8,148.0	0.80	25.10	7,818.2	1,514.8	-859.9	1,741.8	0.30	-0.29	-4.51
8,323.0	0.80	21.20	7,993.2	1,517.1	-858.9	1,743.3	0.03	0.00	-2.23
8,370.0	0.80	319.70	8,040.2	1,517.6	-859.0	1,743.8	1.74	0.00	-130.85
8,420.0	0.80	319.70	8,090.2	1,518.1	-859.5	1,744.5	0.00	0.00	0.00
<b>HARD LINES 100'N &amp; 150'W OF DRILL TARGET BHL</b>									

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