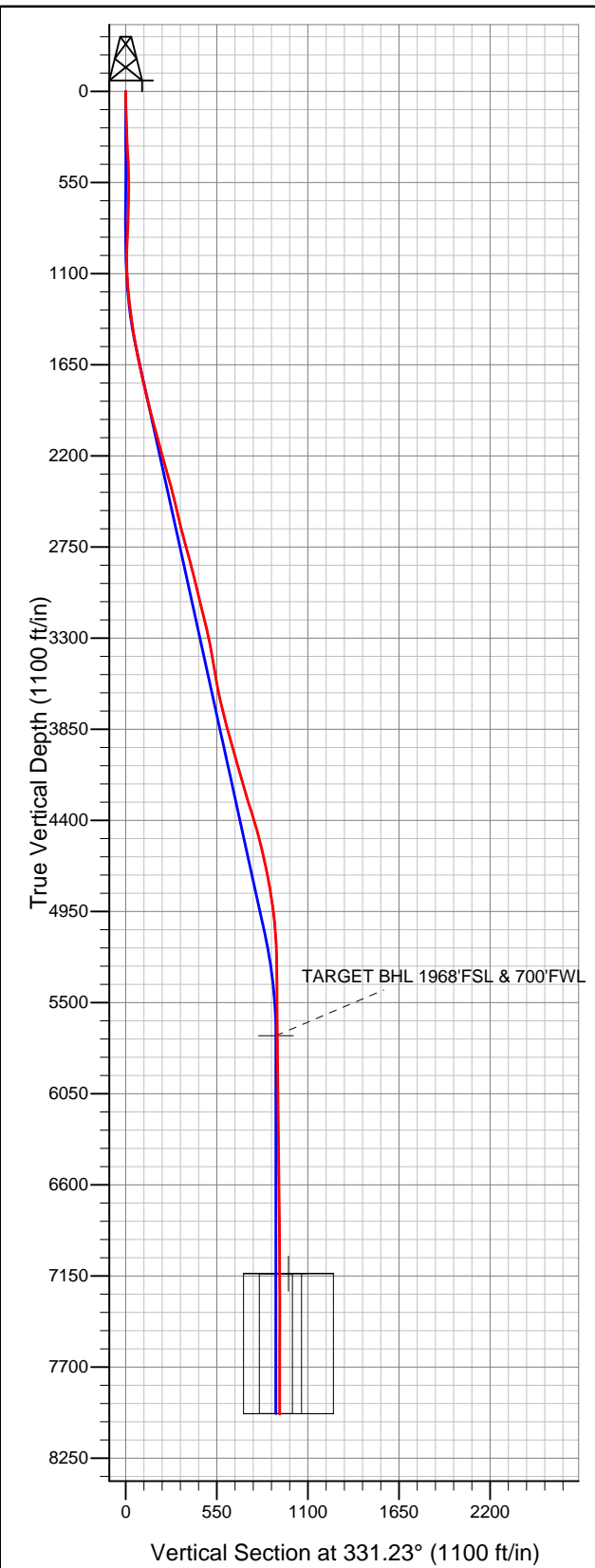
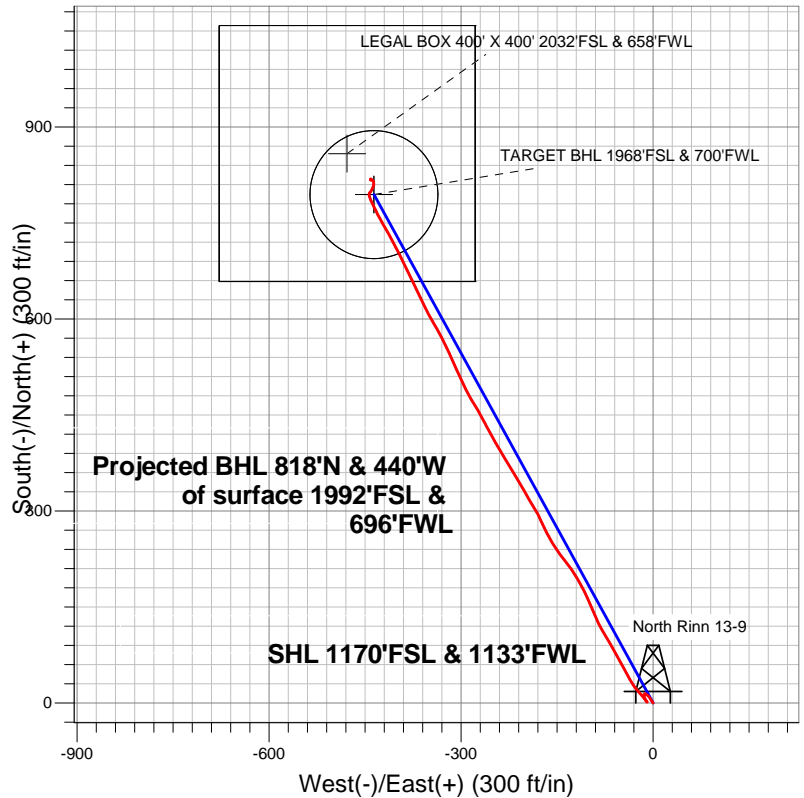


**Well Name: North Rinn 13-9**

Surface Location: North Rinn 2-4-9 Pad Sec.9-T2N-R68W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone  
Ground Elevation: 4866.0  
+N/-S +E/-W Northing Easting Latitude Longitude Slot  
0.0 0.0 1297569.97 3135990.27 40.149200 -105.013520  
Original Well Elev WELL @ 4879.0ft (Original Well Elev)



**EnCana Oil & Gas Weld County CO**



**LEGEND**

- North Rinn 13-9, Wellbore #1, Plan #1(7-22-13)R V0
- Wellbore #1
- Survey #1

**Final Survey Plot**

Projected Final Survey -  
8092'MD & 7984'TVD @ 929'VS  
0.20 deg Inc 17.00 deg AZ

Project: SEC.9-T2N-R68W  
Site: North Rinn 2-4-9 Pad Sec.9-T2N-R68W  
Well: North Rinn 13-9  
Plan: Wellbore #1



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

**SEC.9-T2N-R68W**

**North Rinn 2-4-9 Pad Sec.9-T2N-R68W**

**North Rinn 13-9**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**29 July, 2013**



<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well North Rinn 13-9
<b>Project:</b>	SEC.9-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4879.0ft (Original Well Elev)
<b>Site:</b>	North Rinn 2-4-9 Pad Sec.9-T2N-R68W	<b>MD Reference:</b>	WELL @ 4879.0ft (Original Well Elev)
<b>Well:</b>	North Rinn 13-9	<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.9-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

<b>Site</b>	North Rinn 2-4-9 Pad Sec.9-T2N-R68W		
<b>Site Position:</b>		<b>Northing:</b>	1,297,580.91 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,135,990.21 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.149230
		<b>Longitude:</b>	-105.013520
		<b>Grid Convergence:</b>	0.31 °

<b>Well</b>	North Rinn 13-9		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,297,569.97 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,135,990.27 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.149200
		<b>Longitude:</b>	-105.013520
		<b>Ground Level:</b>	4,866.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/3/2013	8.71	66.74	52,765

<b>Design</b>	Wellbore #1				
<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	331.23	

<b>Survey Program</b>	<b>Date</b> 7/29/2013				
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
167.0	8,092.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<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>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
167.0	1.80	326.70	167.0	2.2	-1.4	2.6	1.08	1.08	0.00	
257.0	2.20	325.50	256.9	4.8	-3.2	5.7	0.45	0.44	-1.33	
348.0	2.70	321.60	347.8	7.9	-5.5	9.6	0.58	0.55	-4.29	
438.0	2.60	322.00	437.7	11.2	-8.1	13.7	0.11	-0.11	0.44	
529.0	2.40	300.50	528.7	13.8	-11.0	17.4	1.05	-0.22	-23.63	
620.0	1.50	229.10	619.6	14.0	-13.5	18.8	2.63	-0.99	-78.46	
711.0	2.40	172.20	710.6	11.3	-14.2	16.7	2.22	0.99	-62.53	
751.0	2.90	165.70	750.5	9.5	-13.8	15.0	1.46	1.25	-16.25	
834.0	3.30	155.00	833.4	5.3	-12.3	10.6	0.85	0.48	-12.89	
962.0	1.10	127.50	961.3	1.2	-9.8	5.8	1.86	-1.72	-21.48	
1,091.0	2.50	327.80	1,090.3	2.8	-10.3	7.4	2.75	1.09	-123.80	
1,220.0	5.30	316.20	1,219.0	9.5	-15.9	16.0	2.24	2.17	-8.99	

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well North Rinn 13-9
<b>Project:</b>	SEC.9-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4879.0ft (Original Well Elev)
<b>Site:</b>	North Rinn 2-4-9 Pad Sec.9-T2N-R68W	<b>MD Reference:</b>	WELL @ 4879.0ft (Original Well Elev)
<b>Well:</b>	North Rinn 13-9	<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)	
1,348.0	7.40	320.60	1,346.2	20.1	-25.2	29.8	1.68	1.64	3.44	
1,477.0	9.90	330.60	1,473.7	36.2	-35.9	49.1	2.25	1.94	7.75	
1,605.0	11.30	331.30	1,599.5	56.8	-47.4	72.6	1.10	1.09	0.55	
1,734.0	12.60	331.50	1,725.7	80.3	-60.2	99.3	1.01	1.01	0.16	
1,862.0	14.00	328.10	1,850.3	105.7	-75.0	128.7	1.25	1.09	-2.66	
1,991.0	14.20	336.60	1,975.4	133.5	-89.5	160.1	1.61	0.16	6.59	
2,120.0	15.30	336.20	2,100.2	163.6	-102.7	192.8	0.86	0.85	-0.31	
2,248.0	16.10	329.00	2,223.4	194.2	-118.6	227.3	1.64	0.63	-5.63	
2,377.0	15.50	322.00	2,347.5	223.1	-138.5	262.2	1.55	-0.47	-5.43	
2,505.0	13.40	327.40	2,471.5	249.1	-157.0	293.9	1.95	-1.64	4.22	
2,634.0	13.70	337.60	2,596.9	275.8	-170.9	324.0	1.86	0.23	7.91	
2,763.0	15.20	327.60	2,721.8	304.2	-185.8	356.1	2.25	1.16	-7.75	
2,891.0	15.10	331.60	2,845.4	333.1	-202.7	389.5	0.82	-0.08	3.13	
3,020.0	13.30	327.40	2,970.4	360.4	-218.7	421.1	1.61	-1.40	-3.26	
3,149.0	14.20	330.00	3,095.8	386.6	-234.6	451.7	0.85	0.70	2.02	
3,278.0	13.60	330.40	3,221.0	413.5	-250.0	482.7	0.47	-0.47	0.31	
3,406.0	10.60	332.30	3,346.1	437.0	-262.9	509.6	2.36	-2.34	1.48	
3,534.0	9.60	330.00	3,472.1	456.6	-273.7	532.0	0.84	-0.78	-1.80	
3,663.0	10.30	328.60	3,599.2	475.8	-285.1	554.3	0.57	0.54	-1.09	
3,791.0	14.00	335.80	3,724.3	499.7	-297.4	581.1	3.12	2.89	5.63	
3,920.0	15.80	335.30	3,849.0	529.9	-311.1	614.2	1.40	1.40	-0.39	
4,049.0	15.20	334.80	3,973.3	561.1	-325.7	648.6	0.48	-0.47	-0.39	
4,177.0	16.10	329.20	4,096.5	591.6	-341.9	683.1	1.37	0.70	-4.38	
4,306.0	16.00	334.30	4,220.5	623.0	-358.8	718.7	1.10	-0.08	3.95	
4,434.0	18.10	334.30	4,342.9	656.8	-375.0	756.2	1.64	1.64	0.00	
4,563.0	15.70	334.30	4,466.3	690.6	-391.3	793.7	1.86	-1.86	0.00	
4,692.0	12.20	330.80	4,591.5	718.2	-405.5	824.7	2.79	-2.71	-2.71	
4,820.0	12.20	330.80	4,716.6	741.8	-418.7	851.8	0.00	0.00	0.00	
4,949.0	9.10	332.50	4,843.3	762.8	-430.1	875.6	2.42	-2.40	1.32	
5,077.0	6.80	335.50	4,970.1	778.6	-437.9	893.3	1.83	-1.80	2.34	
5,206.0	3.40	336.60	5,098.6	789.1	-442.6	904.7	2.64	-2.64	0.85	
5,335.0	1.80	7.80	5,227.5	794.6	-443.8	910.2	1.61	-1.24	24.19	
5,506.0	1.20	56.00	5,398.4	798.3	-442.0	912.5	0.78	-0.35	28.19	
5,678.0	1.00	17.90	5,570.4	800.7	-440.0	913.7	0.43	-0.12	-22.15	
5,807.5	0.92	23.80	5,699.9	802.8	-439.3	915.1	0.10	-0.06	4.56	
<b>TARGET BHL 1968'FSL &amp; 700'FWL</b>										
5,849.0	0.90	25.90	5,741.3	803.3	-439.0	915.5	0.10	-0.05	5.06	
6,020.0	0.90	26.10	5,912.3	805.8	-437.8	917.0	0.00	0.00	0.12	
6,192.0	0.90	15.00	6,084.3	808.3	-436.9	918.8	0.10	0.00	-6.45	
6,363.0	0.60	4.00	6,255.3	810.5	-436.5	920.5	0.19	-0.18	-6.43	
6,535.0	0.80	349.90	6,427.3	812.6	-436.6	922.4	0.15	0.12	-8.20	
6,706.0	1.00	348.90	6,598.3	815.2	-437.1	924.9	0.12	0.12	-0.58	
6,878.0	0.70	264.80	6,770.2	816.6	-438.4	926.8	0.67	-0.17	-48.90	
7,049.0	0.50	268.50	6,941.2	816.5	-440.2	927.5	0.12	-0.12	2.16	
7,221.0	0.50	314.90	7,113.2	817.0	-441.5	928.6	0.23	0.00	26.98	
7,243.6	0.46	318.45	7,135.9	817.1	-441.6	928.8	0.21	-0.17	15.68	
<b>TARGET CIRCLE 1968'FSL &amp; 700'FWL</b>										
7,244.1	0.46	318.45	7,136.3	817.1	-441.6	928.8	0.00	0.00	0.00	
<b>LEGAL BOX 400' X 400' 2032'FSL &amp; 658'FWL</b>										
7,392.0	0.30	1.00	7,284.2	817.9	-442.0	929.7	0.21	-0.11	28.77	
7,564.0	0.20	82.50	7,456.2	818.4	-441.7	930.0	0.19	-0.06	47.38	
7,735.0	0.30	162.50	7,627.2	818.0	-441.3	929.5	0.19	0.06	46.78	
7,907.0	0.20	67.30	7,799.2	817.7	-440.9	929.0	0.22	-0.06	-55.35	
8,092.0	0.20	17.00	7,984.2	818.2	-440.5	929.2	0.09	0.00	-27.19	

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well North Rinn 13-9
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<b>Site:</b>	North Rinn 2-4-9 Pad Sec.9-T2N-R68W	<b>MD Reference:</b>	WELL @ 4879.0ft (Original Well Elev)
<b>Well:</b>	North Rinn 13-9	<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)

Checked By: _____	Approved By: _____	Date: _____
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