

Well Name: **North Rinn 0-8-9**

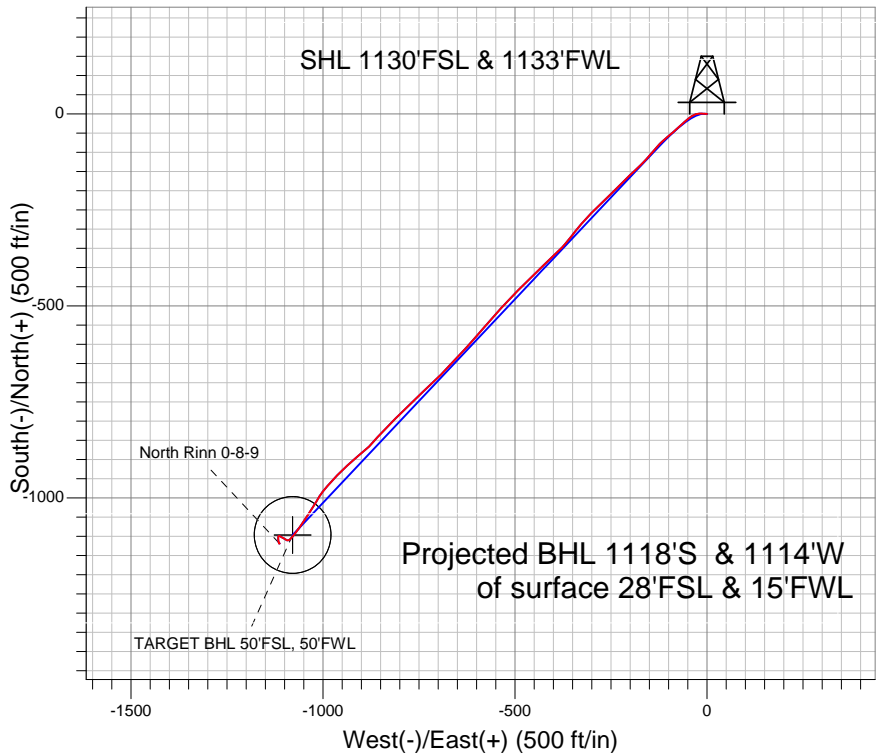
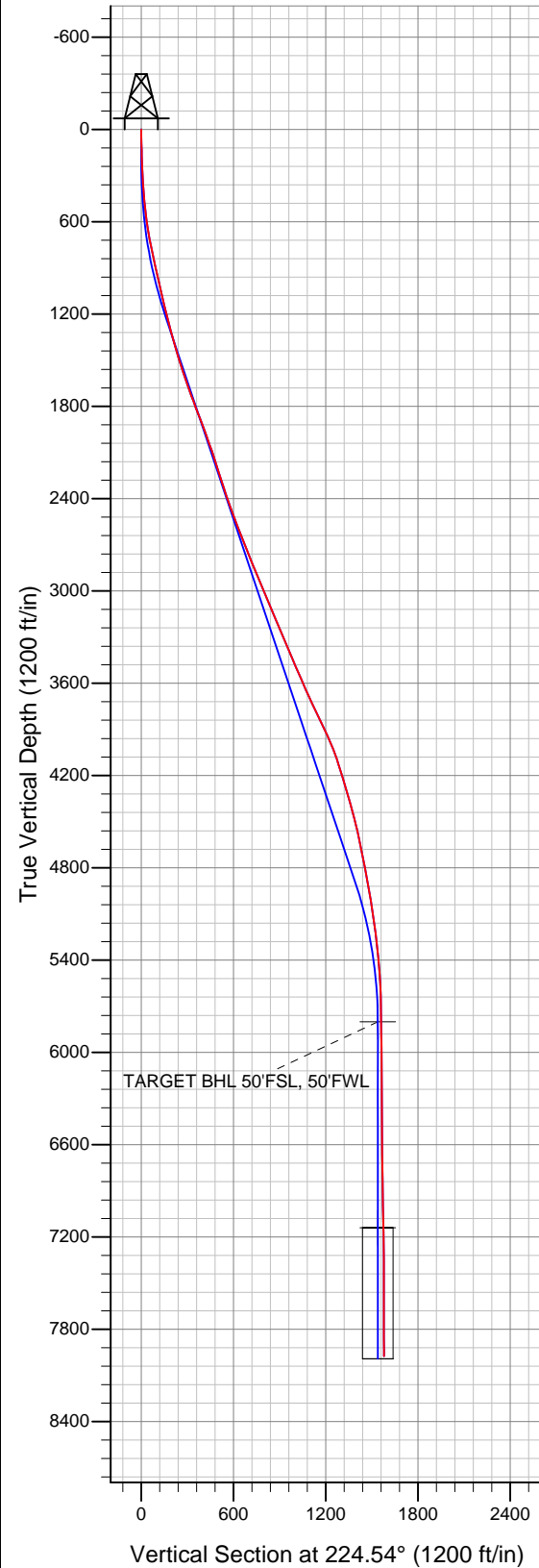
Surface Location: North Rinn 2-4-9 Pad Sec.9-T2N-R68W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4866.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1297529.90	3135990.49	40.149090	-105.013520	

Original Well Elev WELL @ 4879.0ft (Original Well Elev)

EnCana Oil & Gas Weld County CO



LEGEND

- North Rinn 0-8-9, Wellbore #1, Plan #1 (7-05-13)R V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8232'MD & 7975'TVD @
1579' VS 0.40 deg Inc
293.45 deg AZ

Project: SEC.9-T2N-R68W
Site: North Rinn 2-4-9 Pad Sec.9-T2N-R68W
Well: North Rinn 0-8-9
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 0-8-9

Wellbore #1

Survey: Survey #1

Standard Survey Report

11 July, 2013



Company:	EnCana Oil & Gas Weld County CO	Local Co-ordinate Reference:	Well North Rinn 0-8-9
Project:	SEC.9-T2N-R68W	TVD Reference:	WELL @ 4879.0ft (Original Well Elev)
Site:	North Rinn 2-4-9 Pad Sec.9-T2N-R68W	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Well:	North Rinn 0-8-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.9-T2N-R68W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

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

Well	North Rinn 0-8-9					
Well Position	+N/-S	0.0 ft	Northing:	1,297,529.90 ft	Latitude:	40.149090
	+E/-W	0.0 ft	Easting:	3,135,990.49 ft	Longitude:	-105.013520
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,866.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/5/2013	8.70	66.74	52,756

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	224.54	

Survey Program	Date	7/11/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
137.0	8,232.0	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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
137.0	2.20	272.60	137.0	0.1	-2.6	1.8	1.61	1.61	0.00	
197.0	3.30	272.00	196.9	0.2	-5.5	3.7	1.83	1.83	-1.00	
257.0	4.00	275.20	256.8	0.5	-9.3	6.2	1.21	1.17	5.33	
317.0	4.50	274.10	316.6	0.8	-13.7	9.0	0.84	0.83	-1.83	
378.0	5.50	267.50	377.4	0.9	-19.1	12.7	1.89	1.64	-10.82	
438.0	6.20	259.90	437.1	0.2	-25.1	17.5	1.74	1.17	-12.67	
498.0	6.40	249.00	496.7	-1.6	-31.4	23.2	2.02	0.33	-18.17	
559.0	7.20	238.10	557.3	-4.8	-37.8	30.0	2.48	1.31	-17.87	
620.0	8.50	233.90	617.7	-9.5	-44.7	38.1	2.33	2.13	-6.89	
680.0	9.70	228.80	676.9	-15.4	-52.1	47.6	2.41	2.00	-8.50	
741.0	11.20	229.10	736.9	-22.7	-60.5	58.6	2.46	2.46	0.49	
753.0	11.40	228.30	748.7	-24.3	-62.2	60.9	2.12	1.67	-6.67	

Company:	EnCana Oil & Gas Weld County CO	Local Co-ordinate Reference:	Well North Rinn 0-8-9
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Site:	North Rinn 2-4-9 Pad Sec.9-T2N-R68W	MD Reference:	WELL @ 4879.0ft (Original Well Elev)
Well:	North Rinn 0-8-9	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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)
827.0	12.60	227.90	821.1	-34.5	-73.7	76.3	1.63	1.62	-0.54
913.0	12.40	229.00	905.0	-46.9	-87.6	94.9	0.36	-0.23	1.28
999.0	12.80	230.20	989.0	-59.0	-101.9	113.5	0.56	0.47	1.40
1,085.0	12.80	227.40	1,072.8	-71.6	-116.2	132.5	0.72	0.00	-3.26
1,170.0	13.50	220.70	1,155.6	-85.5	-129.6	151.8	1.97	0.82	-7.88
1,256.0	14.80	221.60	1,239.0	-101.3	-143.5	172.8	1.53	1.51	1.05
1,342.0	15.30	221.60	1,322.1	-118.0	-158.3	195.1	0.58	0.58	0.00
1,428.0	15.50	225.50	1,405.0	-134.5	-174.0	218.0	1.23	0.23	4.53
1,513.0	17.20	227.20	1,486.5	-151.0	-191.4	241.9	2.08	2.00	2.00
1,599.0	18.60	226.00	1,568.4	-169.2	-210.5	268.3	1.68	1.63	-1.40
1,685.0	19.50	225.30	1,649.7	-188.8	-230.6	296.3	1.08	1.05	-0.81
1,770.0	20.10	224.90	1,729.6	-209.2	-251.0	325.1	0.72	0.71	-0.47
1,856.0	21.10	225.10	1,810.1	-230.5	-272.4	355.4	1.17	1.16	0.23
1,942.0	21.00	227.60	1,890.4	-251.9	-294.8	386.3	1.05	-0.12	2.91
2,028.0	20.20	220.90	1,970.9	-273.5	-315.9	416.5	2.89	-0.93	-7.79
2,113.0	19.30	219.10	2,050.9	-295.5	-334.3	445.1	1.28	-1.06	-2.12
2,199.0	18.30	217.90	2,132.3	-317.2	-351.6	472.7	1.25	-1.16	-1.40
2,285.0	17.90	220.20	2,214.1	-337.9	-368.4	499.3	0.95	-0.47	2.67
2,371.0	17.40	225.80	2,296.0	-357.0	-386.2	525.3	2.06	-0.58	6.51
2,456.0	19.20	227.40	2,376.7	-375.3	-405.6	552.0	2.20	2.12	1.88
2,542.0	19.90	226.50	2,457.8	-394.9	-426.6	580.7	0.89	0.81	-1.05
2,628.0	20.40	226.20	2,538.5	-415.4	-448.0	610.3	0.59	0.58	-0.35
2,714.0	21.30	224.90	2,618.9	-436.8	-469.9	640.9	1.18	1.05	-1.51
2,799.0	21.40	224.40	2,698.0	-458.8	-491.6	671.9	0.24	0.12	-0.59
2,885.0	22.10	222.60	2,777.9	-482.0	-513.5	703.7	1.12	0.81	-2.09
2,971.0	22.20	222.50	2,857.6	-505.8	-535.5	736.1	0.12	0.12	-0.12
3,056.0	22.90	222.50	2,936.1	-529.9	-557.5	768.7	0.82	0.82	0.00
3,142.0	23.20	220.50	3,015.2	-555.1	-579.8	802.3	0.98	0.35	-2.33
3,228.0	22.90	220.50	3,094.3	-580.7	-601.7	835.9	0.35	-0.35	0.00
3,314.0	22.70	222.30	3,173.6	-605.7	-623.7	869.2	0.84	-0.23	2.09
3,399.0	23.00	224.10	3,251.9	-629.8	-646.3	902.2	0.89	0.35	2.12
3,485.0	23.10	223.20	3,331.1	-654.1	-669.5	935.8	0.43	0.12	-1.05
3,571.0	22.70	224.20	3,410.3	-678.3	-692.7	969.3	0.65	-0.47	1.16
3,657.0	24.00	226.30	3,489.3	-702.3	-716.9	1,003.4	1.79	1.51	2.44
3,742.0	23.20	226.70	3,567.1	-725.7	-741.5	1,037.4	0.96	-0.94	0.47
3,828.0	23.90	225.60	3,646.0	-749.5	-766.3	1,071.7	0.96	0.81	-1.28
3,914.0	25.20	226.30	3,724.2	-774.4	-792.0	1,107.5	1.55	1.51	0.81
3,999.0	25.40	224.90	3,801.1	-799.8	-818.0	1,143.8	0.74	0.24	-1.65
4,085.0	26.30	222.10	3,878.4	-827.0	-843.8	1,181.3	1.76	1.05	-3.26
4,171.0	23.80	223.00	3,956.4	-853.8	-868.4	1,217.6	2.94	-2.91	1.05
4,257.0	21.30	229.00	4,035.8	-876.8	-892.0	1,250.6	3.95	-2.91	6.98
4,342.0	18.30	228.60	4,115.7	-895.7	-913.7	1,279.3	3.53	-3.53	-0.47
4,428.0	17.00	228.60	4,197.7	-913.0	-933.2	1,305.3	1.51	-1.51	0.00
4,514.0	15.30	227.90	4,280.3	-928.9	-951.1	1,329.2	1.99	-1.98	-0.81
4,600.0	17.00	221.40	4,362.9	-945.9	-967.8	1,353.0	2.88	1.98	-7.56
4,685.0	15.50	221.10	4,444.5	-963.8	-983.5	1,376.8	1.77	-1.76	-0.35
4,771.0	13.30	219.70	4,527.8	-980.1	-997.4	1,398.1	2.59	-2.56	-1.63
4,857.0	11.90	212.60	4,611.7	-995.2	-1,008.5	1,416.7	2.42	-1.63	-8.26
4,943.0	11.60	211.60	4,695.9	-1,010.0	-1,017.8	1,433.8	0.42	-0.35	-1.16
5,028.0	11.60	212.10	4,779.2	-1,024.5	-1,026.8	1,450.4	0.12	0.00	0.59
5,114.0	10.80	212.50	4,863.6	-1,038.6	-1,035.7	1,466.8	0.93	-0.93	0.47
5,200.0	10.00	213.20	4,948.1	-1,051.7	-1,044.1	1,482.0	0.94	-0.93	0.81
5,285.0	9.00	214.60	5,032.0	-1,063.3	-1,051.9	1,495.7	1.21	-1.18	1.65
5,371.0	8.30	214.40	5,117.0	-1,074.0	-1,059.3	1,508.5	0.81	-0.81	-0.23

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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)
5,457.0	7.50	216.00	5,202.2	-1,083.6	-1,066.1	1,520.1	0.96	-0.93	1.86
5,543.0	6.80	216.70	5,287.5	-1,092.3	-1,072.4	1,530.7	0.82	-0.81	0.81
5,628.0	6.10	217.70	5,372.0	-1,099.9	-1,078.2	1,540.2	0.83	-0.82	1.18
5,714.0	4.40	228.80	5,457.6	-1,105.7	-1,083.5	1,548.0	2.29	-1.98	12.91
5,800.0	2.90	235.50	5,543.4	-1,109.1	-1,087.7	1,553.5	1.81	-1.74	7.79
5,886.0	2.70	262.90	5,629.3	-1,110.6	-1,091.5	1,557.2	1.56	-0.23	31.86
5,971.0	2.70	302.30	5,714.3	-1,109.7	-1,095.2	1,559.2	2.14	0.00	46.35
6,056.3	2.70	302.30	5,799.5	-1,107.6	-1,098.6	1,560.0	0.00	0.00	0.00
TARGET BHL 50'FSL, 50'FWL									
6,057.0	2.70	302.30	5,800.2	-1,107.6	-1,098.6	1,560.0	0.00	0.00	0.00
6,143.0	2.40	300.50	5,886.1	-1,105.6	-1,101.9	1,560.9	0.36	-0.35	-2.09
6,229.0	2.10	301.40	5,972.0	-1,103.8	-1,104.8	1,561.7	0.35	-0.35	1.05
6,400.0	1.70	300.50	6,142.9	-1,100.9	-1,109.7	1,563.0	0.23	-0.23	-0.53
6,571.0	0.80	291.20	6,313.9	-1,099.2	-1,113.0	1,564.1	0.54	-0.53	-5.44
6,743.0	0.50	256.70	6,485.9	-1,098.9	-1,114.8	1,565.2	0.28	-0.17	-20.06
6,914.0	0.70	198.90	6,656.9	-1,100.1	-1,115.9	1,566.8	0.35	0.12	-33.80
7,086.0	1.10	188.90	6,828.8	-1,102.7	-1,116.5	1,569.1	0.25	0.23	-5.81
7,257.0	1.60	179.90	6,999.8	-1,106.7	-1,116.7	1,572.1	0.32	0.29	-5.26
7,396.0	1.76	171.31	7,138.7	-1,110.8	-1,116.4	1,574.8	0.21	0.11	-6.18
TARGET CIRCLE 50'FSL, 50'FWL									
7,429.0	1.80	169.50	7,171.7	-1,111.8	-1,116.2	1,575.4	0.21	0.13	-5.48
7,600.0	1.10	157.60	7,342.7	-1,115.9	-1,115.1	1,577.6	0.44	-0.41	-6.96
7,772.0	0.70	125.80	7,514.6	-1,118.1	-1,113.6	1,578.0	0.36	-0.23	-18.49
7,943.0	0.10	237.80	7,685.6	-1,118.8	-1,112.9	1,578.0	0.43	-0.35	65.50
8,115.0	0.40	298.10	7,857.6	-1,118.6	-1,113.6	1,578.3	0.21	0.17	35.06
8,188.0	0.40	295.20	7,930.6	-1,118.3	-1,114.0	1,578.5	0.03	0.00	-3.97
8,232.0	0.40	293.45	7,974.6	-1,118.2	-1,114.3	1,578.6	0.03	0.00	-3.98

Checked By: _____ Approved By: _____ Date: _____