



## Final Survey Plot

Projected Final Survey -  
 8641'MD & 8548'TVD @ 886'VS  
 0.8 deg Inc 92.7 deg AZ

Project: SEC.22-T1N-R68W  
 Site: Cosslett 4-0-22 Pad Sec.22-T1N-R68W  
 Well: Cosslett 42-22  
 Plan: Wellbore #1



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

**SEC.22-T1N-R68W**

**Cosslett 4-0-22 Pad Sec.22-T1N-R68W**

**Cosslett 42-22**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**02 November, 2011**

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Cosslett 42-22
<b>Project:</b>	SEC.22-T1N-R68W	<b>TVD Reference:</b>	WELL @ 5198.0ft (Original Well Elev)
<b>Site:</b>	Cosslett 4-0-22 Pad Sec.22-T1N-R68W	<b>MD Reference:</b>	WELL @ 5198.0ft (Original Well Elev)
<b>Well:</b>	Cosslett 42-22	<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.22-T1N-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		Cosslett 4-0-22 Pad Sec.22-T1N-R68W			
Site Position:		Northing:	1,257,775.21 ft	Latitude:	40.039830
From:	Lat/Long	Easting:	3,144,297.62 ft	Longitude:	-104.984630
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.33 °

Well	Cosslett 42-22					
Well Position	+N-S	0.0 ft	Northing:	1,257,775.50 ft	Latitude:	40.039830
	+E-W	0.0 ft	Easting:	3,144,348.02 ft	Longitude:	-104.984450
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,185.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/11/2011	8.91	66.71	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	135.17	

Survey Program		Date	11/2/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
138.0	8,641.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey	Wellbore Data									
	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)
Main Wellbore	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	138.0	0.40	356.10	138.0	0.5	0.0	-0.4	0.29	0.29	0.00
	229.0	0.40	344.50	229.0	1.1	-0.1	-0.9	0.09	0.00	-12.75
	320.0	0.50	345.70	320.0	1.8	-0.3	-1.5	0.11	0.11	1.32
	411.0	0.80	128.60	411.0	1.8	0.1	-1.2	1.36	0.33	157.03
	503.0	2.70	143.70	502.9	-0.4	1.9	1.6	2.11	2.07	16.41
	594.0	4.80	137.60	593.7	-4.9	5.7	7.5	2.35	2.31	-6.70
	685.0	7.10	137.00	684.2	-11.8	12.1	16.9	2.53	2.53	-0.66
	778.0	9.40	131.90	776.3	-21.1	21.7	30.2	2.59	2.47	-5.48
	872.0	11.90	131.80	868.7	-32.7	34.6	47.6	2.66	2.66	-0.11
	960.0	13.60	130.50	954.5	-45.5	49.2	67.0	1.96	1.93	-1.48
	1,026.0	13.50	130.00	1,018.6	-55.5	61.0	82.4	0.23	-0.15	-0.76
	1,120.0	14.70	131.90	1,109.8	-70.5	78.3	105.2	1.37	1.28	2.02

<b>Company:</b>	EnCana Oil & Gas Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Cosslett 42-22
<b>Project:</b>	SEC.22-T1N-R68W	<b>TVD Reference:</b>	WELL @ 5198.0ft (Original Well Elev)
<b>Site:</b>	Cosslett 4-0-22 Pad Sec.22-T1N-R68W	<b>MD Reference:</b>	WELL @ 5198.0ft (Original Well Elev)
<b>Well:</b>	Cosslett 42-22	<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)	
1,213.0	13.50	130.50	1,200.0	-85.4	95.4	127.8	1.34	-1.29	-1.51	
1,307.0	12.80	133.00	1,291.5	-99.6	111.3	149.1	0.96	-0.74	2.66	
1,400.0	12.60	133.90	1,382.3	-113.7	126.2	169.6	0.30	-0.22	0.97	
1,494.0	13.30	133.50	1,473.9	-128.2	141.4	190.6	0.75	0.74	-0.43	
1,587.0	14.20	134.20	1,564.2	-143.6	157.3	212.7	0.98	0.97	0.75	
1,681.0	13.80	132.80	1,655.4	-159.2	173.8	235.5	0.56	-0.43	-1.49	
1,774.0	13.30	132.50	1,745.8	-174.0	189.9	257.2	0.54	-0.54	-0.32	
1,868.0	12.90	133.20	1,837.4	-188.5	205.5	278.5	0.46	-0.43	0.74	
1,961.0	11.40	133.20	1,928.3	-201.9	219.7	298.1	1.61	-1.61	0.00	
2,055.0	10.40	130.50	2,020.6	-213.7	233.0	315.8	1.19	-1.06	-2.87	
2,149.0	9.80	137.70	2,113.1	-225.2	244.8	332.3	1.49	-0.64	7.66	
2,242.0	11.30	139.30	2,204.6	-237.9	256.1	349.3	1.64	1.61	1.72	
2,336.0	13.00	139.50	2,296.5	-252.9	268.9	369.0	1.81	1.81	0.21	
2,429.0	13.00	137.20	2,387.1	-268.6	282.8	389.9	0.56	0.00	-2.47	
2,522.0	12.70	133.70	2,477.8	-283.3	297.3	410.6	0.90	-0.32	-3.76	
2,616.0	13.20	131.10	2,569.4	-297.5	312.9	431.6	0.82	0.53	-2.77	
2,709.0	12.80	127.90	2,660.0	-310.8	329.0	452.4	0.89	-0.43	-3.44	
2,803.0	12.80	127.40	2,751.6	-323.5	345.5	473.1	0.12	0.00	-0.53	
2,896.0	12.60	133.50	2,842.4	-336.8	361.1	493.4	1.46	-0.22	6.56	
2,990.0	12.80	133.90	2,934.1	-351.1	376.0	514.1	0.23	0.21	0.43	
3,083.0	13.30	133.70	3,024.7	-365.6	391.2	535.1	0.54	0.54	-0.22	
3,176.0	12.70	136.00	3,115.3	-380.3	406.0	556.0	0.85	-0.65	2.47	
3,271.0	12.20	131.40	3,208.1	-394.5	420.8	576.4	1.17	-0.53	-4.84	
3,366.0	12.10	133.00	3,300.9	-407.9	435.6	596.4	0.37	-0.11	1.68	
3,459.0	12.40	133.50	3,391.8	-421.4	450.0	616.1	0.34	0.32	0.54	
3,552.0	12.10	133.50	3,482.7	-435.0	464.3	635.8	0.32	-0.32	0.00	
3,646.0	12.10	133.50	3,574.6	-448.6	478.6	655.5	0.00	0.00	0.00	
3,739.0	11.00	132.60	3,665.7	-461.3	492.2	674.1	1.20	-1.18	-0.97	
3,833.0	12.00	131.80	3,757.8	-473.9	506.1	692.9	1.08	1.06	-0.85	
3,927.0	13.10	130.90	3,849.6	-487.4	521.4	713.2	1.19	1.17	-0.96	
4,022.0	11.50	128.30	3,942.4	-500.3	537.0	733.4	1.78	-1.68	-2.74	
4,117.0	12.20	127.90	4,035.4	-512.3	552.3	752.7	0.74	0.74	-0.42	
4,210.0	14.10	135.10	4,125.9	-526.4	568.1	773.8	2.69	2.04	7.74	
4,304.0	12.80	135.80	4,217.4	-542.0	583.4	795.7	1.39	-1.38	0.74	
4,397.0	10.40	143.00	4,308.5	-556.1	595.7	814.3	3.01	-2.58	7.74	
4,491.0	8.50	139.70	4,401.2	-568.1	605.3	829.6	2.10	-2.02	-3.51	
4,584.0	6.80	143.20	4,493.3	-577.8	613.0	841.9	1.89	-1.83	3.76	
4,678.0	5.80	142.70	4,586.8	-586.0	619.2	852.2	1.07	-1.06	-0.53	
4,771.0	4.70	142.50	4,679.4	-592.8	624.4	860.6	1.18	-1.18	-0.22	
4,865.0	3.10	147.20	4,773.2	-598.0	628.1	866.9	1.73	-1.70	5.00	
4,958.0	3.00	157.80	4,866.0	-602.3	630.4	871.6	0.61	-0.11	11.40	
5,052.0	3.00	177.00	4,959.9	-607.1	631.4	875.7	1.06	0.00	20.43	
5,092.4	3.34	178.42	5,000.3	-609.3	631.5	877.4	0.87	0.85	3.51	
DRILL TARGET BHL 2110'FNL, 585'FEL										
5,096.2	3.38	178.53	5,004.0	-609.5	631.5	877.5	0.87	0.85	3.12	
PERMIT BHL 2170'FNL, 585'FEL										
5,146.0	3.80	179.90	5,053.7	-612.6	631.6	879.7	0.87	0.85	2.74	
5,239.0	1.10	150.10	5,146.7	-616.5	632.0	882.8	3.12	-2.90	-32.04	
5,332.0	0.40	200.70	5,239.6	-617.6	632.4	883.8	0.97	-0.75	54.41	
5,426.0	0.50	271.70	5,333.6	-617.9	631.8	883.6	0.56	0.11	75.53	
5,520.0	0.60	255.90	5,427.6	-618.0	630.9	883.1	0.19	0.11	-16.81	
5,613.0	0.70	269.40	5,520.6	-618.1	629.9	882.4	0.20	0.11	14.52	
5,707.0	0.60	265.50	5,614.6	-618.1	628.8	881.7	0.12	-0.11	-4.15	
5,800.0	0.50	270.30	5,707.6	-618.2	627.9	881.1	0.12	-0.11	5.16	

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<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)
5,894.0	0.50	276.30	5,801.6	-618.1	627.1	880.5	0.06	0.00	6.38
5,987.0	0.60	289.60	5,894.6	-617.9	626.3	879.8	0.17	0.11	14.30
6,081.0	0.70	281.70	5,988.6	-617.6	625.2	878.8	0.14	0.11	-8.40
6,174.0	0.80	289.40	6,081.6	-617.3	624.1	877.8	0.15	0.11	8.28
6,268.0	0.80	299.30	6,175.6	-616.8	622.9	876.6	0.15	0.00	10.53
6,361.0	0.60	307.40	6,268.6	-616.2	621.9	875.4	0.24	-0.22	8.71
6,455.0	0.70	298.60	6,362.6	-615.6	621.0	874.4	0.15	0.11	-9.36
6,549.0	0.60	293.50	6,456.6	-615.1	620.1	873.4	0.12	-0.11	-5.43
6,642.0	0.30	322.30	6,549.6	-614.7	619.5	872.7	0.39	-0.32	30.97
6,736.0	0.20	303.50	6,643.6	-614.4	619.2	872.3	0.14	-0.11	-20.00
6,830.0	0.10	173.40	6,737.6	-614.4	619.1	872.2	0.29	-0.11	-138.40
6,924.0	0.60	149.50	6,831.6	-614.9	619.3	872.7	0.54	0.53	-25.43
7,017.0	0.70	144.40	6,924.6	-615.8	619.9	873.8	0.12	0.11	-5.48
7,111.0	1.00	147.40	7,018.6	-617.0	620.7	875.1	0.32	0.32	3.19
7,204.0	1.10	158.10	7,111.5	-618.5	621.4	876.8	0.24	0.11	11.51
7,298.0	1.10	154.10	7,205.5	-620.1	622.2	878.4	0.08	0.00	-4.26
7,391.0	1.10	150.80	7,298.5	-621.7	623.0	880.2	0.07	0.00	-3.55
7,484.0	1.00	141.40	7,391.5	-623.1	623.9	881.8	0.21	-0.11	-10.11
7,578.0	1.10	107.50	7,485.5	-624.1	625.3	883.4	0.66	0.11	-36.06
7,672.0	0.40	201.50	7,579.5	-624.6	626.1	884.4	1.27	-0.74	100.00
7,708.0	0.56	222.34	7,615.5	-624.9	625.9	884.4	0.66	0.46	57.90
<b>LEGAL BOX 400' X 400' 1985'FNL, 666'FEL</b>									
7,766.0	0.90	237.10	7,673.5	-625.3	625.3	884.3	0.66	0.58	25.45
7,859.0	0.70	258.90	7,766.4	-625.8	624.1	883.9	0.39	-0.22	23.44
7,952.0	1.30	315.40	7,859.4	-625.2	622.9	882.5	1.17	0.65	60.75
8,046.0	1.00	344.10	7,953.4	-623.6	621.9	880.7	0.68	-0.32	30.53
8,139.0	1.10	223.70	8,046.4	-623.5	621.0	880.0	1.96	0.11	-129.46
8,233.0	1.40	146.70	8,140.4	-625.1	621.0	881.2	1.67	0.32	-81.92
8,327.0	1.10	155.80	8,234.4	-626.9	622.0	883.2	0.38	-0.32	9.68
8,420.0	0.50	158.50	8,327.4	-628.1	622.6	884.4	0.65	-0.65	2.90
8,514.0	0.70	94.30	8,421.4	-628.5	623.3	885.2	0.70	0.21	-68.30
8,595.0	0.80	92.70	8,502.4	-628.6	624.3	886.0	0.13	0.12	-1.98
8,641.0	0.80	92.70	8,548.3	-628.6	625.0	886.4	0.00	0.00	0.00

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