



Final Survey Plot

Projected Final Survey -
 8249'MD & 8070'TVD @ 1288'VS
 0.8 deg Inc 211.0 deg AZ

Project: SEC.2-T2N-R66W
 Site: lone 8-4-2 Pad Sec.2-T2N-R66W
 Well: lone 4-6-2
 Plan: Wellbore #1



EnCana Oil & Gas Weld County CO

SEC.2-T2N-R66W

lone 8-4-2 Pad Sec.2-T2N-R66W

lone 4-6-2

Wellbore #1

Survey: Survey #1

Standard Survey Report

31 October, 2011

Company:	EnCana Oil & Gas Weld County CO	Local Co-ordinate Reference:	Well lone 4-6-2
Project:	SEC.2-T2N-R66W	TVD Reference:	WELL @ 5064.0ft (Original Well Elev)
Site:	lone 8-4-2 Pad Sec.2-T2N-R66W	MD Reference:	WELL @ 5064.0ft (Original Well Elev)
Well:	lone 4-6-2	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.2-T2N-R66W, 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		Ione 8-4-2 Pad Sec.2-T2N-R66W			
Site Position:		Northing:	1,303,343.32 ft	Latitude:	40.163570
From:	Lat/Long	Easting:	3,212,571.13 ft	Longitude:	-104.739400
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.49 °

Well	Ione 4-6-2					
Well Position	+N-S	0.0 ft	Northing:	1,303,343.13 ft	Latitude:	40.163570
	+E-W	0.0 ft	Easting:	3,212,551.57 ft	Longitude:	-104.739470
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	5,051.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/27/2011	8.79	66.85	52,978

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	267.57

Survey Program		Date	10/31/2011		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
94.0	8,249.0	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 Survey	0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
	94.0	0.80	108.60	94.0	-0.2	0.6	-0.6	0.85	0.85	0.00
	185.0	0.50	230.50	185.0	-0.7	0.9	-0.9	1.26	-0.33	133.96
	276.0	2.40	266.70	276.0	-1.0	-1.3	1.3	2.22	2.09	39.78
	367.0	4.20	269.20	366.8	-1.2	-6.5	6.6	1.98	1.98	2.75
	459.0	5.90	271.60	458.4	-1.1	-14.6	14.7	1.86	1.85	2.61
	550.0	8.30	270.30	548.7	-0.9	-25.9	25.9	2.64	2.64	-1.43
	642.0	9.00	268.90	639.7	-1.0	-39.7	39.7	0.79	0.76	-1.52
	734.0	10.50	269.40	730.4	-1.3	-55.3	55.3	1.63	1.63	0.54
	827.0	12.70	268.20	821.5	-1.7	-74.0	74.0	2.38	2.37	-1.29
	887.0	14.20	269.70	879.8	-1.9	-87.9	87.9	2.57	2.50	2.50
	958.0	14.40	266.40	948.6	-2.5	-105.4	105.5	1.18	0.28	-4.65
1,051.0	14.40	267.70	1,038.7	-3.7	-128.5	128.6	0.35	0.00	1.40	

Company:	EnCana Oil & Gas Weld County CO	Local Co-ordinate Reference:	Well lone 4-6-2
Project:	SEC.2-T2N-R66W	TVD Reference:	WELL @ 5064.0ft (Original Well Elev)
Site:	lone 8-4-2 Pad Sec.2-T2N-R66W	MD Reference:	WELL @ 5064.0ft (Original Well Elev)
Well:	lone 4-6-2	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)	
1,145.0	15.60	266.90	1,129.5	-4.9	-152.8	152.9	1.30	1.28	-0.85	
1,239.0	17.00	267.30	1,219.7	-6.2	-179.2	179.3	1.49	1.49	0.43	
1,332.0	17.00	266.00	1,308.6	-7.8	-206.3	206.5	0.41	0.00	-1.40	
1,426.0	17.60	267.00	1,398.4	-9.5	-234.2	234.4	0.71	0.64	1.06	
1,520.0	18.00	266.70	1,487.9	-11.1	-262.9	263.2	0.44	0.43	-0.32	
1,613.0	18.10	266.00	1,576.3	-12.9	-291.7	292.0	0.26	0.11	-0.75	
1,707.0	18.30	267.30	1,665.6	-14.6	-321.0	321.3	0.48	0.21	1.38	
1,801.0	18.70	266.30	1,754.8	-16.3	-350.8	351.1	0.54	0.43	-1.06	
1,894.0	17.80	266.70	1,843.1	-18.1	-379.8	380.3	0.98	-0.97	0.43	
1,988.0	16.90	266.60	1,932.8	-19.7	-407.8	408.3	0.96	-0.96	-0.11	
2,082.0	16.80	266.60	2,022.8	-21.3	-435.0	435.5	0.11	-0.11	0.00	
2,175.0	16.70	266.00	2,111.8	-23.0	-461.8	462.3	0.21	-0.11	-0.65	
2,269.0	15.90	266.30	2,202.0	-24.8	-488.1	488.7	0.86	-0.85	0.32	
2,363.0	16.20	267.40	2,292.4	-26.2	-514.0	514.7	0.45	0.32	1.17	
2,456.0	16.10	267.40	2,381.7	-27.4	-539.9	540.6	0.11	-0.11	0.00	
2,550.0	17.00	268.40	2,471.8	-28.4	-566.6	567.3	1.00	0.96	1.06	
2,644.0	15.90	266.20	2,562.0	-29.6	-593.2	593.9	1.34	-1.17	-2.34	
2,737.0	14.60	267.70	2,651.7	-30.9	-617.6	618.4	1.46	-1.40	1.61	
2,831.0	14.50	266.10	2,742.7	-32.2	-641.2	642.0	0.44	-0.11	-1.70	
2,925.0	14.60	273.60	2,833.7	-32.3	-664.8	665.6	2.01	0.11	7.98	
3,018.0	15.80	273.20	2,923.4	-30.8	-689.1	689.8	1.30	1.29	-0.43	
3,112.0	17.70	272.50	3,013.4	-29.5	-716.2	716.8	2.03	2.02	-0.74	
3,206.0	17.70	272.20	3,103.0	-28.3	-744.7	745.3	0.10	0.00	-0.32	
3,299.0	17.60	270.50	3,191.6	-27.7	-772.9	773.4	0.56	-0.11	-1.83	
3,393.0	17.10	266.50	3,281.3	-28.4	-800.9	801.4	1.38	-0.53	-4.26	
3,487.0	16.20	266.20	3,371.4	-30.1	-827.8	828.3	0.96	-0.96	-0.32	
3,580.0	17.30	267.60	3,460.4	-31.5	-854.6	855.1	1.26	1.18	1.51	
3,674.0	16.80	269.40	3,550.3	-32.3	-882.1	882.7	0.77	-0.53	1.91	
3,768.0	16.90	266.50	3,640.3	-33.2	-909.3	909.9	0.90	0.11	-3.09	
3,861.0	16.90	266.10	3,729.2	-35.0	-936.3	937.0	0.13	0.00	-0.43	
3,955.0	16.50	264.60	3,819.3	-37.2	-963.2	964.0	0.63	-0.43	-1.60	
4,049.0	16.80	268.90	3,909.3	-38.7	-990.1	990.9	1.35	0.32	4.57	
4,142.0	16.00	268.70	3,998.6	-39.2	-1,016.4	1,017.1	0.86	-0.86	-0.22	
4,236.0	16.70	268.20	4,088.8	-39.9	-1,042.8	1,043.6	0.76	0.74	-0.53	
4,330.0	16.90	267.50	4,178.7	-41.0	-1,070.0	1,070.7	0.30	0.21	-0.74	
4,423.0	17.90	267.20	4,267.5	-42.3	-1,097.7	1,098.6	1.08	1.08	-0.32	
4,517.0	17.70	266.90	4,357.0	-43.7	-1,126.4	1,127.3	0.23	-0.21	-0.32	
4,611.0	16.10	268.50	4,446.9	-44.8	-1,153.7	1,154.6	1.77	-1.70	1.70	
4,704.0	14.60	268.10	4,536.6	-45.6	-1,178.4	1,179.2	1.62	-1.61	-0.43	
4,798.0	14.60	265.60	4,627.6	-46.9	-1,202.0	1,202.9	0.67	0.00	-2.66	
4,892.0	13.80	265.60	4,718.7	-48.6	-1,225.0	1,226.0	0.85	-0.85	0.00	
4,985.0	11.90	268.30	4,809.4	-49.8	-1,245.6	1,246.6	2.14	-2.04	2.90	
5,079.0	9.90	265.00	4,901.7	-50.8	-1,263.4	1,264.4	2.23	-2.13	-3.51	
5,173.0	7.30	261.40	4,994.6	-52.4	-1,277.3	1,278.4	2.82	-2.77	-3.83	
5,266.0	5.70	264.60	5,087.0	-53.7	-1,287.8	1,288.9	1.76	-1.72	3.44	
5,360.0	2.50	235.50	5,180.8	-55.3	-1,294.1	1,295.3	3.96	-3.40	-30.96	
5,453.0	0.70	210.10	5,273.7	-56.9	-1,296.1	1,297.3	2.03	-1.94	-27.31	
5,547.0	0.60	215.70	5,367.7	-57.8	-1,296.7	1,297.9	0.13	-0.11	5.96	
5,641.0	0.60	204.10	5,461.7	-58.7	-1,297.1	1,298.5	0.13	0.00	-12.34	
5,734.0	0.70	205.70	5,554.7	-59.6	-1,297.6	1,298.9	0.11	0.11	1.72	
5,828.0	0.70	194.90	5,648.7	-60.7	-1,298.0	1,299.4	0.14	0.00	-11.49	
5,879.2	0.75	186.40	5,699.9	-61.3	-1,298.1	1,299.5	0.23	0.09	-16.59	
DRILL TARGET BHL 1225'FSL, 2565'FEL - PERMIT TARGET BHL 1225'FSL, 2590'FEL										
5,922.0	0.80	180.20	5,742.7	-61.9	-1,298.1	1,299.6	0.23	0.12	-14.50	

Company:	EnCana Oil & Gas Weld County CO	Local Co-ordinate Reference:	Well lone 4-6-2
Project:	SEC.2-T2N-R66W	TVD Reference:	WELL @ 5064.0ft (Original Well Elev)
Site:	lone 8-4-2 Pad Sec.2-T2N-R66W	MD Reference:	WELL @ 5064.0ft (Original Well Elev)
Well:	lone 4-6-2	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)	
6,015.0	1.00	175.80	5,835.7	-63.4	-1,298.1	1,299.6	0.23	0.22	-4.73	
6,109.0	1.10	178.20	5,929.7	-65.1	-1,298.0	1,299.6	0.12	0.11	2.55	
6,203.0	1.40	164.20	6,023.6	-67.1	-1,297.6	1,299.3	0.45	0.32	-14.89	
6,297.0	0.70	131.00	6,117.6	-68.6	-1,296.9	1,298.6	0.96	-0.74	-35.32	
6,391.0	0.50	110.10	6,211.6	-69.1	-1,296.1	1,297.8	0.31	-0.21	-22.23	
6,485.0	0.50	105.50	6,305.6	-69.3	-1,295.3	1,297.1	0.04	0.00	-4.89	
6,580.0	0.40	101.60	6,400.6	-69.5	-1,294.6	1,296.4	0.11	-0.11	-4.11	
6,674.0	0.50	69.20	6,494.6	-69.4	-1,293.9	1,295.7	0.29	0.11	-34.47	
6,768.0	0.50	67.90	6,588.6	-69.1	-1,293.1	1,294.9	0.01	0.00	-1.38	
6,862.0	0.50	77.50	6,682.6	-68.9	-1,292.3	1,294.1	0.09	0.00	10.21	
6,957.0	0.50	71.60	6,777.6	-68.7	-1,291.5	1,293.3	0.05	0.00	-6.21	
7,051.0	0.50	71.10	6,871.6	-68.4	-1,290.8	1,292.5	0.00	0.00	-0.53	
7,145.0	0.60	84.80	6,965.6	-68.2	-1,289.9	1,291.6	0.18	0.11	14.57	
7,240.0	0.40	132.40	7,060.6	-68.4	-1,289.1	1,290.9	0.47	-0.21	50.11	
7,334.0	0.20	112.00	7,154.6	-68.7	-1,288.7	1,290.5	0.24	-0.21	-21.70	
7,428.0	0.10	113.40	7,248.6	-68.8	-1,288.5	1,290.3	0.11	-0.11	1.49	
7,522.0	0.20	94.10	7,342.6	-68.8	-1,288.3	1,290.0	0.12	0.11	-20.53	
7,617.0	0.30	95.00	7,437.6	-68.9	-1,287.9	1,289.6	0.11	0.11	0.95	
7,711.0	0.40	91.20	7,531.6	-68.9	-1,287.3	1,289.0	0.11	0.11	-4.04	
7,805.0	0.40	113.20	7,625.6	-69.0	-1,286.7	1,288.4	0.16	0.00	23.40	
7,900.0	0.30	147.60	7,720.6	-69.4	-1,286.2	1,288.0	0.24	-0.11	36.21	
7,994.0	0.40	158.10	7,814.6	-69.9	-1,286.0	1,287.8	0.13	0.11	11.17	
8,088.0	0.40	155.30	7,908.6	-70.5	-1,285.7	1,287.5	0.02	0.00	-2.98	
8,204.0	0.80	211.00	8,024.6	-71.6	-1,286.0	1,287.8	0.57	0.34	48.02	
8,249.0	0.80	211.00	8,069.6	-72.1	-1,286.3	1,288.2	0.00	0.00	0.00	
HARD LINE 75'W OF DRILL TARGET BHL										

Checked By: _____ Approved By: _____ Date: _____