



MWD Survey Report
for
ENCANA OIL AND GAS (USA) INC

Well Location	McCONAHAY
Well Name	McCONAHAY 4D-34H-P266
Rig Number	ENSIGN 124
Survey Date	2/23/2014
Latitude	40°5'21.228"N
B Total	52683 NT
Dip	66.71 deg
Magnetic Declination	8.47 deg
North Reference	True North
Grid Correction	None
Depth Reference	RKB (13.00 ft)
Calculation Method	Minimum Curvature
Section (VS) Ref	0.00N (ft), 0.00E (ft), 270.00Azim (deg)
Definitive Survey	McCONAHAY 4D-34H-P266
Operator(s)	ALI NEJAD, JEFFREY SMITH, MARK SMITH

Well Notes

Survey Report

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Survey: McCONAHAY 4D-34H-P266
Survey Date: 2/23/2014

MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Direction deg	Closure Distance ft	DLS °/100ft
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid
268.00	2.30	5.88	267.93	-0.55	5.35	0.55	5.88	5.38	0.86
546.00	6.07	33.33	545.16	-9.20	23.18	9.20	21.64	24.93	1.50
639.00	7.36	31.39	637.52	-15.00	32.37	15.00	24.86	35.67	1.41
732.00	9.01	37.05	729.57	-22.49	43.26	22.49	27.46	48.76	1.97
918.00	11.60	36.17	912.56	-42.30	69.99	42.30	31.15	81.78	1.40
1011.00	12.53	33.43	1003.50	-53.38	85.95	53.38	31.84	101.18	1.17
1075.00	11.99	29.66	1066.04	-60.49	97.52	60.49	31.81	114.76	1.51
1186.00	10.73	28.00	1174.87	-71.05	116.67	71.05	31.34	136.60	1.17
1372.00	8.69	29.70	1358.19	-86.15	144.17	86.15	30.86	167.95	1.11
1558.00	10.30	34.50	1541.64	-102.53	170.08	102.53	31.08	198.59	0.96
1744.00	14.08	49.32	1723.46	-129.11	198.55	129.11	33.04	236.84	2.63
1930.00	14.44	45.84	1903.73	-162.91	229.45	162.91	35.37	281.40	0.50
2121.00	11.99	38.58	2089.67	-192.37	261.55	192.37	36.33	324.68	1.55
2311.00	9.42	34.44	2276.35	-213.48	289.81	213.48	36.38	359.95	1.41
2502.00	8.80	35.55	2464.94	-230.82	314.60	230.82	36.27	390.19	0.34
2693.00	8.67	37.93	2653.73	-248.16	337.84	248.16	36.30	419.19	0.20
2883.00	9.65	44.59	2841.31	-268.15	360.47	268.15	36.64	449.27	0.76
3074.00	9.60	38.96	3029.62	-289.41	384.26	289.41	36.99	481.05	0.49
3264.00	10.50	36.62	3216.70	-309.70	410.48	309.70	37.03	514.20	0.52
3455.00	9.14	30.72	3404.90	-327.83	437.49	327.83	36.85	546.69	0.88
3645.00	8.18	34.04	3592.74	-343.11	461.67	343.11	36.62	575.21	0.57
3836.00	10.43	33.12	3781.21	-360.17	487.42	360.17	36.46	606.05	1.18
4026.00	9.36	31.32	3968.38	-377.59	515.02	377.59	36.25	638.61	0.59
4217.00	10.88	40.13	4156.42	-397.28	542.06	397.28	36.24	672.06	1.13
4407.00	13.06	39.41	4342.28	-422.46	572.36	422.46	36.43	711.39	1.15
4598.00	9.28	33.93	4529.63	-444.77	601.83	444.77	36.47	748.34	2.05
4788.00	10.41	32.54	4716.83	-462.55	629.01	462.55	36.33	780.77	0.61
4979.00	12.10	34.70	4904.15	-483.23	660.01	483.23	36.21	818.01	0.92
5169.00	10.04	28.25	5090.61	-502.42	690.99	502.42	36.02	854.34	1.26
5360.00	11.06	32.95	5278.38	-520.26	721.03	520.26	35.81	889.13	0.70
5550.00	10.08	44.64	5465.18	-541.86	748.15	541.86	35.91	923.76	1.24
5741.00	8.92	37.21	5653.56	-562.56	771.84	562.56	36.09	955.10	0.88
5931.00	8.55	35.59	5841.36	-579.69	795.06	579.69	36.10	983.95	0.23
6122.00	9.24	31.06	6030.06	-595.86	819.74	595.86	36.01	1013.42	0.51
6312.00	9.84	35.82	6217.44	-613.23	845.97	613.23	35.94	1044.85	0.52

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Direction deg	Closure Distance ft	DLS °/100ft
6503.00	9.83	37.83	6405.64	-632.77	872.07	632.77	35.96	1077.46	0.18
6661.00	6.81	36.99	6561.96	-646.68	890.20	646.68	36.00	1100.30	1.91
6693.00	6.26	31.53	6593.75	-648.73	893.21	648.73	35.99	1103.93	2.58
6725.00	5.22	12.40	6625.59	-649.96	896.12	649.96	35.95	1107.01	6.77
6757.00	6.17	344.14	6657.44	-649.80	899.19	649.80	35.85	1109.41	9.14
6789.00	8.44	333.55	6689.18	-648.28	902.95	648.28	35.68	1111.57	8.21
6820.00	10.03	321.57	6719.78	-645.59	907.10	645.59	35.44	1113.38	8.03
6852.00	11.45	310.88	6751.22	-641.46	911.36	641.46	35.14	1114.47	7.63
6884.00	12.72	300.74	6782.51	-636.03	915.24	636.03	34.80	1114.54	7.71
6916.00	14.17	294.65	6813.64	-629.44	918.68	629.44	34.42	1113.62	6.35
6947.00	15.60	288.71	6843.60	-622.04	921.60	622.04	34.02	1111.88	6.74
6979.00	18.34	286.58	6874.20	-613.13	924.41	613.13	33.56	1109.27	8.78
7011.00	21.31	287.49	6904.30	-602.76	927.60	602.76	33.02	1106.24	9.33
7042.00	23.31	289.81	6932.98	-591.61	931.37	591.61	32.42	1103.39	7.05
7074.00	25.32	289.49	6962.14	-579.20	935.80	579.20	31.75	1100.55	6.28
7106.00	28.16	288.76	6990.71	-565.60	940.51	565.60	31.02	1097.48	8.94
7138.00	30.72	286.30	7018.58	-550.60	945.24	550.60	30.22	1093.91	8.83
7169.00	32.37	283.28	7045.00	-534.92	949.37	534.92	29.40	1089.70	7.38
7201.00	35.01	281.25	7071.62	-517.58	953.13	517.58	28.50	1084.59	8.96
7233.00	37.86	281.78	7097.36	-498.96	956.93	498.96	27.54	1079.20	8.96
7265.00	40.07	282.11	7122.24	-479.27	961.09	479.27	26.50	1073.96	6.92
7296.00	42.57	283.48	7145.53	-459.32	965.63	459.32	25.44	1069.30	8.58
7328.00	45.75	283.68	7168.48	-437.65	970.86	437.65	24.27	1064.95	9.96
7360.00	48.68	283.20	7190.21	-414.81	976.32	414.81	23.02	1060.79	9.23
7392.00	52.30	282.96	7210.57	-390.77	981.91	390.77	21.70	1056.81	11.32
7423.00	55.40	282.05	7228.85	-366.33	987.32	366.33	20.36	1053.09	10.28
7455.00	58.09	280.79	7246.40	-340.10	992.62	340.10	18.91	1049.26	9.04
7487.00	59.89	280.08	7262.88	-313.13	997.58	313.13	17.43	1045.57	5.91
7518.00	61.97	278.94	7277.95	-286.41	1002.05	286.41	15.95	1042.18	7.46
7550.00	65.24	277.48	7292.17	-258.04	1006.14	258.04	14.38	1038.70	11.00
7582.00	68.60	276.56	7304.71	-228.83	1009.73	228.83	12.77	1035.34	10.81
7614.00	71.61	275.99	7315.60	-198.92	1013.02	198.92	11.11	1032.37	9.58
7645.00	74.01	275.69	7324.76	-169.46	1016.03	169.46	9.47	1030.07	7.79
7677.00	76.28	275.75	7332.96	-138.69	1019.11	138.69	7.75	1028.51	7.09
7709.00	78.58	275.78	7339.93	-107.62	1022.25	107.62	6.01	1027.90	7.19
7740.00	79.77	275.82	7345.75	-77.32	1025.33	77.32	4.31	1028.24	3.86

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MD ft	Inc deg	Azim deg	TVD ft	VS ft	+N/-S ft	+E/-W ft	Closure Direction deg	Closure Distance ft	DLS °/100ft
7772.00	80.65	275.97	7351.19	-45.96	1028.57	45.96	2.56	1029.60	2.79
7804.00	82.18	276.09	7355.97	-14.49	1031.90	14.49	0.80	1032.00	4.79
7836.00	84.04	275.31	7359.80	17.12	1035.05	-17.12	359.05	1035.19	6.31
7855.00	85.09	275.65	7361.60	35.95	1036.86	-35.95	358.01	1037.48	5.78
7950.00	88.39	274.96	7367.01	130.37	1045.62	-130.37	352.89	1053.72	3.55
8045.00	89.63	274.59	7368.65	225.03	1053.52	-225.03	347.94	1077.29	1.36
8140.00	89.70	274.03	7369.21	319.76	1060.66	-319.76	343.22	1107.81	0.59
8236.00	88.62	273.62	7370.61	415.53	1067.06	-415.53	338.72	1145.12	1.20
8331.00	89.50	273.72	7372.17	510.32	1073.14	-510.32	334.57	1188.30	0.92
8426.00	90.57	273.47	7372.11	605.13	1079.10	-605.13	330.72	1237.19	1.16
8522.00	90.20	272.87	7371.47	700.98	1084.41	-700.98	327.12	1291.25	0.73
8617.00	89.43	272.12	7371.77	795.89	1088.54	-795.89	323.83	1348.47	1.14
8712.00	90.27	271.58	7372.02	890.84	1091.61	-890.84	320.78	1408.97	1.05
8807.00	89.90	271.07	7371.88	985.82	1093.80	-985.82	317.97	1472.49	0.67
8902.00	89.73	271.61	7372.19	1080.79	1096.02	-1080.79	315.40	1539.27	0.60
8998.00	90.00	270.34	7372.42	1176.77	1097.65	-1176.77	313.01	1609.23	1.35
9093.00	89.73	270.97	7372.64	1271.77	1098.73	-1271.77	310.83	1680.65	0.73
9188.00	90.03	269.15	7372.83	1366.76	1098.83	-1366.76	308.80	1753.70	1.95
9283.00	89.33	268.15	7373.36	1461.73	1096.59	-1461.73	306.88	1827.34	1.28
9378.00	91.44	270.15	7372.72	1556.71	1095.18	-1556.71	305.13	1903.36	3.06
9474.00	91.21	271.68	7370.50	1652.67	1096.72	-1652.67	303.57	1983.46	1.61
9569.00	89.76	271.57	7369.69	1747.62	1099.41	-1747.62	302.17	2064.68	1.53
9664.00	89.36	270.72	7370.42	1842.60	1101.32	-1842.60	300.87	2146.64	0.99
9760.00	89.33	271.42	7371.52	1938.58	1103.11	-1938.58	299.64	2230.46	0.73
9855.00	90.20	271.65	7371.91	2033.54	1105.65	-2033.54	298.53	2314.68	0.95
9950.00	89.50	272.05	7372.16	2128.49	1108.72	-2128.49	297.51	2399.94	0.85
10045.00	88.49	271.46	7373.83	2223.43	1111.63	-2223.43	296.56	2485.83	1.23
10141.00	88.96	270.79	7375.97	2319.39	1113.51	-2319.39	295.65	2572.83	0.85
10236.00	88.59	271.15	7378.00	2414.35	1115.12	-2414.35	294.79	2659.43	0.54
10331.00	90.47	274.05	7378.78	2509.24	1119.42	-2509.24	294.04	2747.61	3.64
10426.00	90.47	273.41	7378.00	2604.03	1125.60	-2604.03	293.38	2836.89	0.67
10522.00	90.87	272.68	7376.88	2699.89	1130.70	-2699.89	292.72	2927.09	0.87
10617.00	89.90	272.18	7376.24	2794.80	1134.72	-2794.80	292.10	3016.37	1.15
10712.00	89.33	273.04	7376.88	2889.70	1139.05	-2889.70	291.51	3106.09	1.09
10807.00	89.50	274.09	7377.85	2984.51	1144.96	-2984.51	290.99	3196.59	1.12
10903.00	89.63	276.38	7378.58	3080.10	1153.72	-3080.10	290.53	3289.08	2.39

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10998.00	89.66	274.73	7379.17	3174.65	1162.92	-3174.65	290.12	3380.94	1.74
11093.00	89.53	270.86	7379.84	3269.51	1167.55	-3269.51	289.65	3471.73	4.08
11188.00	89.26	270.64	7380.84	3364.50	1168.80	-3364.50	289.16	3561.73	0.36
11284.00	89.97	272.15	7381.49	3460.46	1171.14	-3460.46	288.70	3653.27	1.74
11379.00	89.73	271.49	7381.74	3555.41	1174.17	-3555.41	288.28	3744.28	0.74
11474.00	89.16	269.02	7382.66	3650.40	1174.59	-3650.40	287.84	3834.72	2.67
11569.00	89.03	268.81	7384.16	3745.37	1172.78	-3745.37	287.39	3924.70	0.26
11664.00	88.18	267.81	7386.47	3840.30	1169.98	-3840.30	286.94	4014.57	1.37
11760.00	87.85	266.85	7389.79	3936.14	1165.52	-3936.14	286.49	4105.07	1.06
11855.00	87.14	265.86	7393.94	4030.85	1159.49	-4030.85	286.05	4194.31	1.28
11877.00	87.11	266.02	7395.04	4052.77	1157.93	-4052.77	285.95	4214.95	0.71