

Elver-1 Survey Report

Report Date: January 9, 2009 Client: Apache Energy Ltd Field: Apache - Elver-1 Structure / Slot: Gippsland Basin / Slot 1 Well: Elver-1 Borehole: Elver - 1 UWI/API#: _____ Survey Name / Date: Elver-1 Surveys / December 20, 2008 Tort / AHD / DDI / ERD ratio: 169.639° / 2759.09 m / 6.315 / 0.802 Grid Coordinate System: GDA94/MGA94 Zone 55 Location Lat/Long: S 38 43 9.133, E 148 30 41.316 Location Grid N/E Y/X: N 5713298.685 m, E 631400.498 m Grid Convergence Angle: -0.94557016° Grid Scale Factor: 0.99981262	Survey / DLS Computation Method: Minimum Curvature / Lubinski Vertical Section Azimuth: 191.240° Vertical Section Origin: N 0.000 m, E 0.000 m TVD Reference Datum: RKB TVD Reference Elevation: 21.5 m relative to MSL Sea Bed / Ground Level Elevation: -510.000 m relative to MSL Magnetic Declination: 13.488° Total Field Strength: 60049.835 nT Magnetic Dip: -69.087° Declination Date: December 20, 2008 Magnetic Declination Model: BGGM 2008 North Reference: Grid North Total Corr Mag North -> Grid North: +14.434° Local Coordinates Referenced To: Well Head
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Comments	Measured Depth (m)	Inclination (deg)	Azimuth Grid (deg)	TVD (m)	Vertical Section (m)	NS Grid North (m)	EW Grid North (m)	DLS (deg/30 m)	Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5713298.69	631400.50	S 38 43 9.133	E 148 30 41.316
Seabed	525.37	0.00	0.00	525.37	0.00	0.00	0.00	0.00	5713298.69	631400.50	S 38 43 9.133	E 148 30 41.316
	554.25	0.49	285.86	554.25	-0.01	0.03	-0.12	0.51	5713298.72	631400.38	S 38 43 9.132	E 148 30 41.311
	607.72	1.25	215.61	607.71	0.50	-0.38	-0.68	0.66	5713298.31	631399.82	S 38 43 9.146	E 148 30 41.288
	636.20	2.69	198.79	636.18	1.45	-1.26	-1.07	1.62	5713297.42	631399.42	S 38 43 9.175	E 148 30 41.272
	654.71	3.59	194.36	654.66	2.46	-2.24	-1.36	1.51	5713296.45	631399.14	S 38 43 9.206	E 148 30 41.261
	665.02	4.20	195.11	664.95	3.16	-2.91	-1.54	1.78	5713295.77	631398.96	S 38 43 9.228	E 148 30 41.254
	683.35	5.50	193.27	683.21	4.70	-4.42	-1.91	2.14	5713294.27	631398.59	S 38 43 9.277	E 148 30 41.240
	693.33	6.32	191.54	693.14	5.73	-5.42	-2.13	2.52	5713293.27	631398.37	S 38 43 9.310	E 148 30 41.231
	722.44	8.89	187.05	721.99	9.58	-9.22	-2.73	2.72	5713289.46	631397.77	S 38 43 9.434	E 148 30 41.209
	750.81	11.95	182.38	749.89	14.67	-14.33	-3.12	3.35	5713284.35	631397.38	S 38 43 9.599	E 148 30 41.197
	779.60	13.43	183.88	777.97	20.93	-20.65	-3.47	1.58	5713278.04	631397.03	S 38 43 9.804	E 148 30 41.186
	814.19	15.56	190.67	811.46	29.55	-29.22	-4.60	2.36	5713269.47	631395.90	S 38 43 10.083	E 148 30 41.146
	842.98	19.16	193.49	838.94	38.14	-37.61	-6.42	3.85	5713261.08	631394.08	S 38 43 10.356	E 148 30 41.076
	871.68	20.59	194.24	865.93	47.88	-47.08	-8.76	1.52	5713251.61	631391.74	S 38 43 10.664	E 148 30 40.986
	895.45	22.54	192.98	888.03	56.61	-55.57	-10.81	2.53	5713243.12	631389.69	S 38 43 10.941	E 148 30 40.907
	924.90	24.17	197.67	915.07	68.25	-66.82	-13.91	2.52	5713231.88	631386.59	S 38 43 11.307	E 148 30 40.786
	952.68	25.43	194.75	940.29	79.85	-78.01	-17.15	1.90	5713220.69	631383.35	S 38 43 11.672	E 148 30 40.659
	981.86	28.33	192.25	966.31	93.03	-90.83	-20.22	3.20	5713207.87	631380.28	S 38 43 12.089	E 148 30 40.541
	1009.78	30.89	192.87	990.59	106.82	-104.30	-23.22	2.77	5713194.41	631377.28	S 38 43 12.527	E 148 30 40.426
	1039.49	33.00	194.59	1015.80	122.53	-119.56	-26.96	2.32	5713179.14	631373.54	S 38 43 13.024	E 148 30 40.282
	1067.30	35.27	196.94	1038.81	138.08	-134.58	-31.21	2.83	5713164.13	631369.30	S 38 43 13.513	E 148 30 40.116
	1097.02	36.45	198.93	1062.90	155.37	-151.14	-36.57	1.67	5713147.58	631363.93	S 38 43 14.053	E 148 30 39.906
	1125.42	37.84	194.76	1085.54	172.43	-167.54	-41.53	3.04	5713131.17	631358.98	S 38 43 14.588	E 148 30 39.712
	1159.87	38.80	196.50	1112.57	193.72	-188.11	-47.29	1.26	5713110.61	631353.22	S 38 43 15.258	E 148 30 39.487
	1188.66	42.22	197.27	1134.46	212.33	-206.00	-52.72	3.60	5713092.72	631347.79	S 38 43 15.841	E 148 30 39.275
	1217.27	48.00	197.87	1154.64	232.46	-225.32	-58.84	6.08	5713073.41	631341.67	S 38 43 16.470	E 148 30 39.034
	1238.31	50.18	196.12	1168.42	248.28	-240.52	-63.49	3.64	5713058.21	631337.02	S 38 43 16.966	E 148 30 38.853
	1270.80	50.76	196.28	1189.10	273.25	-264.59	-70.48	0.55	5713034.15	631330.03	S 38 43 17.750	E 148 30 38.580
	1299.61	51.35	196.03	1207.21	295.57	-286.11	-76.71	0.65	5713012.63	631323.80	S 38 43 18.451	E 148 30 38.336
	1328.78	51.81	196.26	1225.33	318.34	-308.06	-83.07	0.51	5712990.68	631317.45	S 38 43 19.166	E 148 30 38.088
	1353.89	52.32	196.05	1240.77	338.07	-327.08	-88.58	0.64	5712971.66	631311.94	S 38 43 19.786	E 148 30 37.873
	1384.89	51.23	195.60	1259.95	362.35	-350.51	-95.22	1.11	5712948.24	631305.30	S 38 43 20.549	E 148 30 37.614
	1415.19	51.86	195.80	1278.79	386.01	-373.36	-101.64	0.64	5712925.40	631298.88	S 38 43 21.293	E 148 30 37.364
	1443.77	52.76	195.36	1296.27	408.56	-395.14	-107.71	1.01	5712903.62	631292.80	S 38 43 22.003	E 148 30 37.128
	1472.48	49.48	194.11	1314.29	430.86	-416.75	-113.40	3.57	5712882.01	631287.12	S 38 43 22.707	E 148 30 36.907
	1501.31	50.19	194.07	1332.88	452.86	-438.12	-118.77	0.74	5712860.65	631281.75	S 38 43 23.403	E 148 30 36.699
	1530.05	50.97	193.61	1351.13	475.04	-459.68	-124.08	0.89	5712839.10	631276.44	S 38 43 24.104	E 148 30 36.494
	1558.72	51.56	193.54	1369.07	497.39	-481.41	-129.33	0.62	5712817.36	631271.20	S 38 43 24.812	E 148 30 36.292
	1587.68	52.03	193.35	1386.98	520.13	-503.55	-134.62	0.51	5712795.23	631265.91	S 38 43 25.533	E 148 30 36.088
	1616.26	49.02	192.15	1405.15	542.18	-525.06	-139.49	3.31	5712773.72	631261.03	S 38 43 26.233	E 148 30 35.901

1645.25	49.77	191.73	1424.02	564.19	-546.59	-144.04	0.84	5712752.19	631256.48	S 38 43 26.933	E 148 30 35.727
1674.25	50.37	191.91	1442.63	586.42	-568.36	-148.60	0.64	5712730.43	631251.93	S 38 43 27.642	E 148 30 35.554
1703.46	50.90	191.79	1461.16	609.00	-590.46	-153.24	0.55	5712708.33	631247.29	S 38 43 28.361	E 148 30 35.377
1753.96	51.82	191.69	1492.69	648.45	-629.08	-161.26	0.55	5712669.72	631239.27	S 38 43 29.617	E 148 30 35.071
1783.97	51.02	190.81	1511.41	671.91	-652.09	-165.84	1.05	5712646.72	631234.69	S 38 43 30.366	E 148 30 34.897
1812.87	50.88	189.81	1529.61	694.35	-674.17	-169.86	0.82	5712624.64	631230.67	S 38 43 31.084	E 148 30 34.746
1843.32	50.68	188.99	1548.87	717.92	-697.44	-173.71	0.66	5712601.37	631226.82	S 38 43 31.841	E 148 30 34.602
1872.41	49.78	188.23	1567.48	740.26	-719.55	-177.06	1.11	5712579.27	631223.47	S 38 43 32.559	E 148 30 34.479
1901.15	48.47	187.41	1586.28	761.95	-741.08	-180.02	1.51	5712557.75	631220.52	S 38 43 33.259	E 148 30 34.371
1930.37	47.91	185.84	1605.76	783.66	-762.71	-182.53	1.33	5712536.12	631218.00	S 38 43 33.962	E 148 30 34.282
1959.22	47.61	185.67	1625.16	804.92	-783.96	-184.67	0.34	5712514.87	631215.86	S 38 43 34.652	E 148 30 34.208
1988.27	48.06	185.60	1644.66	826.35	-805.39	-186.78	0.47	5712493.45	631213.75	S 38 43 35.348	E 148 30 34.135
2017.72	47.39	184.80	1664.47	848.02	-827.09	-188.76	0.91	5712471.75	631211.77	S 38 43 36.052	E 148 30 34.068
2046.54	47.51	184.35	1683.96	869.11	-848.25	-190.45	0.37	5712450.59	631210.08	S 38 43 36.740	E 148 30 34.012
2074.71	47.75	185.12	1702.94	889.78	-868.99	-192.17	0.66	5712429.85	631208.36	S 38 43 37.413	E 148 30 33.955
2103.75	47.80	184.62	1722.46	911.16	-890.42	-194.00	0.39	5712408.43	631206.54	S 38 43 38.109	E 148 30 33.894
2133.30	47.80	184.02	1742.31	932.89	-912.25	-195.65	0.45	5712386.61	631204.89	S 38 43 38.817	E 148 30 33.841
2162.82	47.68	184.06	1762.16	954.56	-934.04	-197.19	0.13	5712364.82	631203.35	S 38 43 39.525	E 148 30 33.792
2191.69	47.71	185.00	1781.59	975.77	-955.33	-198.87	0.72	5712343.54	631201.66	S 38 43 40.216	E 148 30 33.737
2220.09	47.67	186.56	1800.71	996.67	-976.22	-200.99	1.22	5712322.65	631199.55	S 38 43 40.895	E 148 30 33.663
2248.12	47.64	188.19	1819.59	1017.34	-996.77	-203.65	1.29	5712302.11	631196.89	S 38 43 41.562	E 148 30 33.567
2276.75	47.48	189.09	1838.91	1038.45	-1017.65	-206.82	0.72	5712281.22	631193.72	S 38 43 42.241	E 148 30 33.450
2306.28	47.61	190.38	1858.84	1060.23	-1039.13	-210.50	0.98	5712259.75	631190.03	S 38 43 42.939	E 148 30 33.312
2335.22	47.55	192.06	1878.37	1081.59	-1060.08	-214.66	1.29	5712238.80	631185.88	S 38 43 43.621	E 148 30 33.155
2364.15	47.47	194.28	1897.91	1102.91	-1080.85	-219.52	1.70	5712218.04	631181.02	S 38 43 44.297	E 148 30 32.968
2393.50	47.44	194.22	1917.76	1124.50	-1101.81	-224.84	0.05	5712197.08	631175.70	S 38 43 44.979	E 148 30 32.762
2421.02	47.67	193.00	1936.33	1144.79	-1121.55	-229.62	1.01	5712177.35	631170.92	S 38 43 45.622	E 148 30 32.577
2478.84	48.10	188.61	1975.11	1187.66	-1163.66	-237.65	1.70	5712135.25	631162.89	S 38 43 46.992	E 148 30 32.273
2508.14	47.94	186.95	1994.71	1209.40	-1185.24	-240.60	1.27	5712113.67	631159.94	S 38 43 47.693	E 148 30 32.166
2536.37	47.51	185.61	2013.70	1230.21	-1206.00	-242.89	1.15	5712092.91	631157.66	S 38 43 48.367	E 148 30 32.086
2565.82	47.20	185.04	2033.65	1251.76	-1227.57	-244.90	0.53	5712071.35	631155.65	S 38 43 49.068	E 148 30 32.017
2593.04	47.16	184.77	2052.16	1271.60	-1247.46	-246.60	0.22	5712051.46	631153.94	S 38 43 49.714	E 148 30 31.960
2621.78	46.95	185.03	2071.74	1292.51	-1268.42	-248.40	0.30	5712030.50	631152.14	S 38 43 50.394	E 148 30 31.900
2652.25	46.94	185.69	2092.54	1314.66	-1290.59	-250.48	0.47	5712008.34	631150.06	S 38 43 51.114	E 148 30 31.829
2681.03	47.22	185.81	2112.14	1335.64	-1311.56	-252.59	0.31	5711987.37	631147.95	S 38 43 51.795	E 148 30 31.756
2709.84	46.83	186.05	2131.78	1356.62	-1332.52	-254.77	0.45	5711966.41	631145.78	S 38 43 52.476	E 148 30 31.680
2739.48	46.85	187.84	2152.05	1378.18	-1353.98	-257.38	1.32	5711944.96	631143.16	S 38 43 53.174	E 148 30 31.587
2796.37	47.00	190.90	2190.91	1419.71	-1394.98	-264.15	1.18	5711903.97	631136.40	S 38 43 54.506	E 148 30 31.334
2824.69	47.29	191.91	2210.17	1440.47	-1415.33	-268.26	0.84	5711883.62	631132.29	S 38 43 55.168	E 148 30 31.178
2854.10	47.11	191.50	2230.15	1462.05	-1436.46	-272.63	0.36	5711862.50	631127.92	S 38 43 55.856	E 148 30 31.012
2883.26	47.10	190.89	2250.00	1483.41	-1457.41	-276.78	0.46	5711841.55	631123.77	S 38 43 56.538	E 148 30 30.854
2911.89	47.08	192.03	2269.50	1504.38	-1477.96	-280.95	0.88	5711821.00	631119.60	S 38 43 57.206	E 148 30 30.696
2940.84	47.29	192.22	2289.17	1525.61	-1498.72	-285.41	0.26	5711800.24	631115.14	S 38 43 57.882	E 148 30 30.525
2970.00	47.44	190.87	2308.92	1547.06	-1519.74	-289.70	1.03	5711779.23	631110.85	S 38 43 58.566	E 148 30 30.362
3026.15	47.23	191.55	2346.98	1588.35	-1560.24	-297.73	0.29	5711738.73	631102.83	S 38 43 59.883	E 148 30 30.057
3055.92	46.90	192.68	2367.25	1610.14	-1581.55	-302.30	0.90	5711717.43	631098.25	S 38 44 0.577	E 148 30 29.882
3084.82	47.15	192.29	2386.96	1631.28	-1602.20	-306.87	0.39	5711696.79	631093.68	S 38 44 1.248	E 148 30 29.707
3142.18	47.27	192.87	2425.92	1673.36	-1643.28	-316.04	0.23	5711655.71	631084.52	S 38 44 2.585	E 148 30 29.356
3171.47	47.35	193.07	2445.78	1694.88	-1664.26	-320.87	0.17	5711634.74	631079.69	S 38 44 3.268	E 148 30 29.170
3199.83	47.71	192.78	2464.93	1715.79	-1684.65	-325.55	0.44	5711614.35	631075.01	S 38 44 3.932	E 148 30 28.990
3225.02	47.61	192.02	2481.90	1734.41	-1702.83	-329.55	0.68	5711596.17	631071.01	S 38 44 4.524	E 148 30 28.837
3258.55	47.16	192.38	2504.60	1759.08	-1726.95	-334.76	0.47	5711572.06	631065.80	S 38 44 5.308	E 148 30 28.638
3289.21	46.61	190.79	2525.55	1781.46	-1748.88	-339.26	1.26	5711550.14	631061.30	S 38 44 6.022	E 148 30 28.466
3318.02	45.91	191.02	2545.47	1802.27	-1769.31	-343.20	0.75	5711529.70	631057.37	S 38 44 6.687	E 148 30 28.317
3347.09	46.79	194.11	2565.54	1823.30	-1789.84	-347.78	2.48	5711509.18	631052.79	S 38 44 7.355	E 148 30 28.142
3376.02	47.46	192.81	2585.22	1844.48	-1810.46	-352.71	1.21	5711488.57	631047.86	S 38 44 8.026	E 148 30 27.952
3405.08	47.00	190.86	2604.96	1865.81	-1831.33	-357.09	1.55	5711467.69	631043.48	S 38 44 8.705	E 148 30 27.785
3434.01	46.67	191.49	2624.75	1886.91	-1852.03	-361.17	0.59	5711447.00	631039.39	S 38 44 9.378	E 148 30 27.630
3462.99	46.70	194.75	2644.63	1907.98	-1872.56	-365.96	2.46	5711426.47	631034.61	S 38 44 10.047	E 148 30 27.445
3493.07	46.86	196.61	2665.23	1929.83	-1893.67	-371.88	1.36	5711405.37	631028.68	S 38 44 10.734	E 148 30 27.215
3520.17	47.22	193.23	2683.70	1949.62	-1912.83	-376.99	2.77	5711386.22	631023.58	S 38 44 11.358	E 148 30 27.016

3578.15	47.07	189.29	2723.15	1992.11	-1954.49	-385.28	1.50	5711344.56	631015.29	S 38 44 12.714	E 148 30 26.701
3634.59	47.03	190.08	2761.60	2033.40	-1995.22	-392.23	0.31	5711303.84	631008.34	S 38 44 14.038	E 148 30 26.441
3665.11	46.98	191.85	2782.42	2055.72	-2017.13	-396.48	1.27	5711281.93	631004.09	S 38 44 14.750	E 148 30 26.280
3722.36	48.02	194.05	2821.10	2097.91	-2058.26	-405.94	1.01	5711240.81	630994.63	S 38 44 16.089	E 148 30 25.917
3751.42	46.43	192.94	2840.83	2119.22	-2079.00	-410.92	1.84	5711220.08	630989.65	S 38 44 16.764	E 148 30 25.725
3808.75	47.09	192.19	2880.11	2160.97	-2119.76	-420.01	0.45	5711179.32	630980.57	S 38 44 18.091	E 148 30 25.376
3837.28	46.67	191.82	2899.61	2181.79	-2140.13	-424.34	0.53	5711158.95	630976.24	S 38 44 18.754	E 148 30 25.211
3866.96	46.73	191.65	2919.96	2203.39	-2161.28	-428.73	0.14	5711137.81	630971.85	S 38 44 19.442	E 148 30 25.043
3895.32	46.55	192.96	2939.43	2224.01	-2181.43	-433.13	1.03	5711117.67	630967.45	S 38 44 20.097	E 148 30 24.875
3924.44	46.55	196.50	2959.46	2245.10	-2201.86	-438.50	2.65	5711097.23	630962.08	S 38 44 20.763	E 148 30 24.667
3952.66	46.69	197.57	2978.85	2265.51	-2221.47	-444.51	0.84	5711077.63	630956.07	S 38 44 21.402	E 148 30 24.431
3981.42	46.83	196.30	2998.55	2286.36	-2241.52	-450.61	0.98	5711057.59	630949.97	S 38 44 22.055	E 148 30 24.192
4010.32	46.94	192.12	3018.31	2307.42	-2261.96	-455.79	3.17	5711037.15	630944.80	S 38 44 22.721	E 148 30 23.992
4068.66	46.65	189.68	3058.25	2349.93	-2303.71	-463.83	0.93	5710995.41	630936.76	S 38 44 24.079	E 148 30 23.687
4096.94	46.67	191.58	3077.66	2370.50	-2323.92	-467.62	1.47	5710975.20	630932.96	S 38 44 24.736	E 148 30 23.544
4126.70	46.65	193.29	3098.09	2392.14	-2345.06	-472.28	1.25	5710954.07	630928.30	S 38 44 25.424	E 148 30 23.366
4183.93	46.82	191.00	3137.31	2433.80	-2385.79	-481.05	0.88	5710913.34	630919.54	S 38 44 26.750	E 148 30 23.031
4241.84	46.72	182.92	3177.01	2475.81	-2427.61	-486.16	3.05	5710871.53	630914.43	S 38 44 28.108	E 148 30 22.848
4270.08	46.63	179.35	3196.39	2496.03	-2448.14	-486.56	2.76	5710851.00	630914.03	S 38 44 28.774	E 148 30 22.845
4327.69	46.56	183.66	3235.99	2537.26	-2489.96	-487.66	1.63	5710809.19	630912.93	S 38 44 30.131	E 148 30 22.828
4385.94	46.61	189.08	3276.04	2579.39	-2531.98	-492.35	2.03	5710767.17	630908.24	S 38 44 31.496	E 148 30 22.662
4506.38	46.59	190.45	3358.79	2666.87	-2618.22	-507.20	0.25	5710680.95	630893.40	S 38 44 34.300	E 148 30 22.106
4535.67	46.85	191.17	3378.87	2688.19	-2639.17	-511.20	0.60	5710660.01	630889.40	S 38 44 34.981	E 148 30 21.955
4564.36	46.71	193.05	3398.52	2709.09	-2659.61	-515.58	1.44	5710639.57	630885.01	S 38 44 35.646	E 148 30 21.787
4595.29	47.06	194.95	3419.66	2731.65	-2681.52	-521.05	1.39	5710617.67	630879.55	S 38 44 36.360	E 148 30 21.576
4624.10	47.10	195.12	3439.28	2752.70	-2701.90	-526.52	0.14	5710597.30	630874.08	S 38 44 37.023	E 148 30 21.363

Survey Type: Non-Def Survey

Survey Error Model: SLB ISCWSA version 24 *** 3-D 95.00% Confidence 2.7955 sigma

Surveying Prog:

MD From (m)

0.00
531.50
554.25

MD To (m)

531.50
554.25
4624.10

EQU Freq

Act-Stns
Act-Stns
Act-Stns

Survey Tool Type

SLB_MWD-STD-Depth Only
SLB_MWD-STD
SLB_MWD+DMAG

Borehole -> Survey

Elver - 1 -> Elver-1 Surveys
Elver - 1 -> Elver-1 Surveys
Elver - 1 -> Elver-1 Surveys