**HYDROGEOLOGY JOURNAL – ELECTRONIC SUPPLEMENTARY MATERIAL**

Hydrochemical-geophysical study of saline paleo-water contamination in alluvial aquifers

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Well** | **Electrical conductivity above the transition zone** | | | | **Electrical conductivity below the transition zone** | | | | **Average** | | **Standard Deviation** | |
| **min** | **time** | **max** | **time** | **min** | **time** | **max** | **time** | **up** | **down** | **up** | **down** |
| *4* | 1104 | Mar-09 | 1475 | Dec-08 | 1609 | Dec-08 | 2900 | Jul-08 | 1318 | 2393 | 152.73 | 442.48 |
| *6* | 151 | Dec-08 | 957 | Jul-08 | 1183 | Dec-08 | 2190 | Jul-08 | 678 | 1759 | 456.66 | 518.78 |
| *9* | 828 | Mar-09 | 828 | Mar-09 | 990 | Mar-09 | 990 | Mar-09 | 828 | 990 | - | - |
| *15* | 698 | Mar-09 | 2000 | Jul-08 | 699 | Mar-09 | 4050 | Dec-08 | 1250 | 2132 | 555.60 | 1249.40 |
| *18* | 2630 | Mar-09 | 4680 | Jun-10 | 4780 | May-11 | 6840 | Jul-08 | 3727 | 5914 | 855.49 | 787.10 |
| *26* | 3550 | Mar-09 | 6760 | Jul-08 | 5590 | May-11 | 6880 | Jul-08 | 5441 | 6116 | 1233.04 | 537.37 |
| *27* | 431 | Jun-10 | 5250 | Jun-09 | 2360 | May-11 | 14680 | Oct-08 | 2372 | 10437 | 1708.21 | 3978.96 |
| *31* | 1235 | Oct-08 | 1235 | Oct-08 | 1286 | Oct-08 | 1286 | Oct-08 | 1235 | 1286 | - | - |
| *32* | 1162 | Nov-12 | 1586 | Oct-08 | 1171 | Nov-12 | 1675 | Oct-08 | 1374 | 1423 | 299.81 | 356.38 |
| *33* | 1426 | Oct-08 | 1426 | Oct-08 | 1428 | Oct-08 | 1428 | Oct-08 | 1426 | 1428 | - | - |
| *36* | 645 | Nov-09 | 4820 | May-11 | 2290 | Mar-09 | 5920 | May-11 | 2717 | 3891 | 1188.63 | 1301.61 |
| *39* | 244 | Apr-10 | 2540 | Sep-10 | 6400 | May-11 | 9070 | Nov-09 | 1152 | 7672 | 1073.54 | 1211.76 |
| *40* | 870 | Jun-10 | 1365 | Jul-13 | 4910 | Jul-13 | 9410 | Nov-09 | 1040 | 6444 | 184.73 | 1887.18 |
| *41* | 3010 | Apr-10 | 4400 | Nov-09 | 3750 | Apr-10 | 5070 | Jun-10 | 3820 | 4546 | 520.19 | 553.11 |
| *42* | 690 | Apr-10 | 690 | Apr-10 | 890 | Apr-10 | 890 | Apr-10 | 690 | 890 | - | - |
| *43* | 407 | May-11 | 816 | Sep-10 | 2930 | Sep-10 | 4730 | Jun-10 | 554 | 3568 | 185.93 | 830.60 |
| *44* | 1292 | Jun-10 | 1292 | Jun-10 | 1411 | Jun-10 | 1411 | Jun-10 | 1292 | 1411 | - | - |
| *46* | 984 | Jul-13 | 1320 | Jun-10 | 1103 | Jul-13 | 1573 | Jun-10 | 1233 | 1523 | 123.04 | 70.71 |
| *55* | 1145 | Jul-12 | 1505 | Sep-10 | 1316 | Nov-12 | 1580 | Sep-10 | 1319 | 1412 | 180.33 | 145.74 |
| *56* | 1344 | May-11 | 1628 | Nov-12 | 1629 | Sep-10 | 1866 | Jul-13 | 1536 | 1691 | 125.68 | 77.58 |
| *64* | 792 | Sep-10 | 792 | Sep-10 | 1031 | Sep-10 | 1031 | Sep-10 | 792 | 1031 | - | - |
| *65* | 1243 | Sep-10 | 1243 | Sep-10 | 1355 | Sep-10 | 1355 | Sep-10 | 1243 | 1355 | - | - |
| *67* | 973 | May-11 | 1003 | Sep-10 | 1158 | Sep-10 | 1207 | May-11 | 988 | 1183 | 21.21 | 34.65 |
| *68* | 564 | May-11 | 885 | Sep-10 | 967 | Sep-10 | 974 | May-11 | 725 | 971 | 226.98 | 4.95 |
| *70* | 781 | Sep-10 | 781 | Sep-10 | 817 | Sep-10 | 817 | Sep-10 | 781 | 817 | - | - |
| *71* | 1314 | Sep-10 | 1465 | May-11 | 2270 | May-11 | 2810 | Sep-10 | 1390 | 2540 | 106.77 | 381.84 |
| *72* | 1695 | Sep-10 | 1818 | May-11 | 2280 | Sep-10 | 2320 | May-11 | 1757 | 2300 | 86.97 | 28.28 |
| *73* | 2880 | Sep-10 | 2970 | May-11 | 3180 | May-11 | 3260 | Sep-10 | 2925 | 3220 | 63.64 | 56.57 |
| *76* | 1358 | May-11 | 1440 | Sep-10 | 1499 | May-10 | 1587 | Sep-10 | 1399 | 1543 | 57.98 | 62.23 |
| *77* | 911 | Sep-10 | 911 | Sep-10 | 1270 | Sep-10 | 1270 | Sep-10 | 911 | 1270 | - | - |
| *78* | 856 | Sep-10 | 873 | May-11 | 888 | May-11 | 914 | Sep-10 | 865 | 901 | 12.02 | 18.38 |
| *86* | 887 | Sep-10 | 887 | Sep-10 | 900 | Sep-10 | 900 | Sep-10 | 887 | 900 | - | - |
| *88* | 1520 | Sep-10 | 1520 | Sep-10 | 1577 | Sep-10 | 1577 | Sep-10 | 1520 | 1577 | - | - |
| *93* | 1820 | Sep-10 | 1820 | Sep-10 | 1890 | Sep-10 | 1890 | Sep-10 | 1820 | 1890 | - | - |
| *97* | 3810 | Sep-10 | 3810 | Sep-10 | 4730 | Sep-10 | 4730 | Sep-10 | 3810 | 4730 | - | - |
| *109* | 2530 | May-11 | 3950 | Mar-12 | 6840 | Apr-13 | 19820 | Nov-12 | 3236 | 12820 | 535.33 | 2418.95 |
| *110* | 889 | Mar-12 | 2040 | May-11 | 5220 | May-11 | 8010 | Jul-11 | 1621 | 6256 | 378.12 | 965.09 |
| *113* | 1829 | May-11 | 5570 | Jul-13 | 3000 | Oct-11 | 6860 | Apr-13 | 2906 | 3785 | 781.18 | 951.36 |
| *114* | 424 | May-11 | 828 | Aug-11 | 750 | Mar-12 | 1178 | Sep-11 | 627 | 1021 | 158.21 | 136.10 |
| *115* | 259 | Jul-12 | 3320 | Jun-11 | 7000 | Jun-11 | 17220 | Aug-11 | 1064 | 12411 | 1274.96 | 2961.21 |
| *116* | 801 | Nov-11 | 1248 | Mar-12 | 1238 | Mar-12 | 1325 | Jun-11 | 1122 | 1286 | 139.62 | 27.44 |
| *117* | 812 | May-11 | 1012 | Oct-11 | 925 | Mar-12 | 1026 | Oct-11 | 917 | 987 | 81.88 | 45.16 |
| *119* | 516 | Nov-11 | 892 | Oct-11 | 851 | May-11 | 967 | Nov-11 | 794 | 922 | 128.37 | 49.82 |
| *120* | 735 | Nov-11 | 2130 | Aug-11 | 2220 | Jun-11 | 2310 | Mar-12 | 1563 | 2255 | 470.88 | 33.38 |
| *122* | 373 | Dec-11 | 597 | Nov-12 | 792 | May-12 | 4400 | Jul-13 | 454 | 2526 | 71.82 | 1475.69 |
| *123* | 620 | Dec-11 | 1086 | Mar-12 | 962 | Jun-13 | 5520 | Mar-12 | 772 | 3265 | 152.69 | 2041.38 |
| *124* | 437 | Nov-12 | 659 | Apr-13 | 575 | Oct-11 | 1278 | Nov-12 | 490 | 878 | 44.15 | 235.52 |
| *125* | 721 | Oct-11 | 1084 | May-12 | 15270 | May-12 | 23400 | Nov-12 | 952 | 20937 | 129.24 | 2413.98 |
| *127* | 241 | Sep-11 | 1286 | May-11 | 1039 | Nov-12 | 5860 | Sep-11 | 617 | 4233 | 293.47 | 1516.71 |
| *128* | 327 | Jun-13 | 967 | Nov-12 | 950 | Nov-11 | 983 | Apr-13 | 890 | 975 | 76.51 | 2.52 |
| *130* | 925 | Jun-11 | 1196 | Mar-12 | 1610 | Mar-12 | 1810 | Sep-11 | 1076 | 1712 | 93.83 | 81.26 |
| *131* | 451 | Nov-11 | 762 | Mar-12 | 920 | Mar-12 | 1251 | Oct-11 | 581 | 1139 | 161.81 | 189.39 |
| *132* | 521 | Nov-11 | 1145 | Dec-11 | 1388 | Oct-11 | 7430 | Nov-11 | 933 | 5622 | 284.80 | 2836.57 |
| *133* | 681 | Nov-11 | 1071 | Mar-12 | 1093 | Aug-11 | 1126 | Nov-11 | 886 | 1107 | 142.70 | 11.27 |
| *134* | 572 | Sep-11 | 1253 | Aug-11 | 1210 | Mar-12 | 1391 | Aug-11 | 892 | 1338 | 291.67 | 73.60 |
| *135* | 231 | Sep-11 | 948 | Mar-12 | 1048 | Dec-11 | 1106 | Aug-11 | 680 | 1083 | 270.64 | 17.70 |
| *136* | 841 | Nov-11 | 1127 | Mar-11 | 1025 | Nov-11 | 1138 | Mar-11 | 1010 | 1097 | 98.89 | 40.77 |
| *137* | 580 | Mar-12 | 647 | Sep-11 | 724 | Sep-11 | 1376 | Mar-12 | 625 | 1062 | 30.92 | 275.81 |
| *138* | 410 | Nov-11 | 1105 | Aug-11 | 1038 | Mar-12 | 1281 | Aug-11 | 664 | 1229 | 287.51 | 107.13 |
| *139* | 925 | Nov-11 | 1031 | Mar-12 | 1008 | Jul-11 | 1040 | Mar-12 | 991 | 1020 | 32.87 | 10.01 |
| *140* | 849 | Oct-11 | 1018 | Mar-12 | 1006 | Sep-11 | 1022 | Mar-12 | 963 | 1011 | 79.47 | 7.54 |
| *141* | 424 | Nov-11 | 455 | Mar-12 | 992 | Nov-11 | 1000 | Mar-12 | 440 | 996 | 21.92 | 5.66 |
| *142* | 377 | Nov-11 | 420 | Mar-12 | 865 | Mar-12 | 1000 | Nov-11 | 399 | 863 | 30.41 | 2.83 |

**Table S1:** Electrical conductivity (µS/cm) of groundwater measured above and below the transition zone within monitored wells.