

Randfontein Municipality Water Quality Report

22 June 2011 to 22 July 2011

Date generated : 01 August 2011

| Parameter | Units of measure | Specifications (based on SANS241: 2005) | | No of results | Achieved compliance levels | |
|---|------------------------------|--|---|---------------|----------------------------|----------|
| | | Required compliance | | | Class I | Class II |
| | | 95% min to Class I | 99% min to Class II | | | |
| SPECIFICATIONS | | | | | | |
| Chemical and Physical properties | | | | | | |
| Colour | (mg / l as Pt) | < 20 | ≤ 50 | 6 | 100.0% | 100.0% |
| Conductivity | (mS / m) | < 150 | ≤ 370 | 34 | 100.0% | 100.0% |
| pH | (pH units) | ≥ 5 to ≤ 9.5 | ≥ 4 to ≤ 10 | 34 | 100.0% | 100.0% |
| Turbidity | (NTU) | < 1 | ≤ 5 | 70 | 100.0% | 100.0% |
| Total Dissolved Solids | (mg / l) | < 1000 | ≤ 2400 | 6 | 100.0% | 100.0% |
| Taste | (FTN) | < 5 | ≤ 10 | 6 | 100.0% | 100.0% |
| Odour | (TON) | < 5 | ≤ 10 | 6 | 100.0% | 100.0% |
| Organic Determinants | | | | | | |
| Total Trihalomethanes | (ug / l) | < 200 | ≤ 300 | 6 | 100.0% | 100.0% |
| Phenols as C6H5OH | (ug / l) | < 10 | ≤ 70 | 4 | 100.0% | 100.0% |
| Dissolved Organic Carbon | (mg / l) | < 10 | ≤ 20 | 6 | 100.0% | 100.0% |
| Micro Elements | | | | | | |
| Antimony | (ug / l as Sb) | < 10 | ≤ 50 | 6 | 100.0% | 100.0% |
| Arsenic | (ug / l as As) | < 10 | ≤ 50 | 6 | 100.0% | 100.0% |
| Cadmium | (ug / l as Cd) | < 5 | ≤ 10 | 6 | 100.0% | 100.0% |
| Chromium (Total) | (ug / l as Cr) | < 100 | ≤ 500 | 6 | 100.0% | 100.0% |
| Cobalt | (ug / l as Co) | < 500 | ≤ 1000 | 6 | 100.0% | 100.0% |
| Cyanide (Recoverable) | (ug / l as CN) | < 50 | ≤ 70 | 6 | 100.0% | 100.0% |
| Lead | (ug / l as Pb) | < 20 | ≤ 50 | 6 | 100.0% | 100.0% |
| Mercury | (ug / l as Hg) | < 1 | ≤ 5 | 5 | 100.0% | 100.0% |
| Nickel | (ug / l as Ni) | < 150 | ≤ 350 | 6 | 100.0% | 100.0% |
| Selenium | (ug / l as Se) | < 20 | ≤ 50 | 6 | 100.0% | 100.0% |
| Vanadium | (ug / l as V) | < 200 | ≤ 500 | 6 | 100.0% | 100.0% |
| Macro Elements & Miscellaneous Determinants | | | | | | |
| Aluminium | (mg / l as Al) | < 0.3 | ≤ 0.5 | 6 | 100.0% | 100.0% |
| Ammonia | (mg / l as N) | < 1 | ≤ 2 | 6 | 100.0% | 100.0% |
| Calcium | (mg / l as Ca) | < 150 | ≤ 300 | 6 | 100.0% | 100.0% |
| Chloride | (mg / l as Cl) | < 200 | ≤ 600 | 4 | 100.0% | 100.0% |
| Copper | (mg / l as Cu) | < 1 | ≤ 2 | 6 | 100.0% | 100.0% |
| Fluoride | (mg / l as F) | < 1 | ≤ 1.5 | 4 | 100.0% | 100.0% |
| Iron | (mg / l as Fe) | < 0.2 | ≤ 2 | 6 | 100.0% | 100.0% |
| Magnesium | (mg / l as Mg) | < 70 | ≤ 100 | 6 | 100.0% | 100.0% |
| Manganese | (mg / l as Mn) | < 0.1 | ≤ 1 | 6 | 100.0% | 100.0% |
| Nitrate & Nitrite | (mg / l as N) | < 10 | ≤ 20 | 6 | 100.0% | 100.0% |
| Potassium | (mg / l as K) | < 50 | ≤ 100 | 6 | 100.0% | 100.0% |
| Sodium | (mg / l as Na) | < 200 | ≤ 400 | 6 | 100.0% | 100.0% |
| Sulphate | (mg / l as SO ₄) | < 400 | ≤ 600 | 4 | 100.0% | 100.0% |
| Zinc | (mg / l as Zn) | < 5 | ≤ 10 | 6 | 100.0% | 100.0% |
| Microbiological | | | | | | |
| E. Coli | (cfu per 100 ml) | minimum of 95% of the original results shall be non-detected | minimum of 99% of the original and repeat/consecutive results shall be non-detected | 70 | 100.0% | 100.0% |
| Other Determinants as required by supply contract | | | | | | |
| Free chlorine and monochloramine | (mg / l) | ≥ 0.2 min 95% compliance | | 70 | 95.7% | |
| Notes : | | | | | | |
| (1) Specification date of effect : July 2006 | | | | | | |
| (2) Guideline derived from SANS 241: 2005 operations alert and industry practices | | | | | | |

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| Parameter | Units of measure | Specification | No of samples | Mean - 3 SD | Mean - 1 SD | Mean | Mean + 1 SD | Mean + 3 SD | Standard Deviation |
|---|--------------------------------|--|---------------|-------------|-------------|--------|-------------|-------------|--------------------|
| Chemical and Physical properties | | | | | | | | | |
| Colour | (mg / l as Pt) | < 20 | 6 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 |
| Conductivity | (mS / m) | < 150 | 34 | 17.00 | 17.75 | 22.68 | 27.60 | 35.00 | 4.92 |
| pH | (pH units) | ≥ 5 to ≤ 9.5 | 34 | 7.09 | 7.35 | 7.57 | 7.79 | 8.08 | 0.22 |
| Turbidity | (NTU) | < 1 | 70 | 0.21 | 0.23 | 0.30 | 0.37 | 0.43 | 0.07 |
| Total Dissolved Solids | (mg / l) | < 1000 | 6 | 135.00 | 140.25 | 160.00 | 175.00 | 175.00 | 19.75 |
| Hardness | (mg / l as CaCO ₃) | > 20 to < 200 | 6 | 54.00 | 58.38 | 74.00 | 89.62 | 90.00 | 15.62 |
| Taste | (FTN) | < 5 | 6 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Odour | (TON) | < 5 | 6 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Organic Determinants | | | | | | | | | |
| Total Trihalomethanes | (ug / l) | < 200 | 6 | 57.41 | 57.41 | 65.46 | 74.96 | 79.37 | 9.50 |
| Phenols as C ₆ H ₅ OH | (ug / l) | < 10 | 4 | 2.00 | 2.00 | 2.88 | 3.81 | 4.10 | 0.94 |
| Dissolved Organic Carbon | (mg / l) | < 10 | 6 | 5.00 | 5.06 | 5.27 | 5.47 | 5.50 | 0.21 |
| Micro Elements | | | | | | | | | |
| Antimony | (ug / l as Sb) | < 10 | 6 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Arsenic | (ug / l as As) | < 10 | 6 | 1.00 | 1.00 | 1.17 | 1.57 | 2.00 | 0.41 |
| Cadmium | (ug / l as Cd) | < 5 | 6 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 0.00 |
| Chromium (Total) | (ug / l as Cr) | < 100 | 6 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 |
| Cobalt | (ug / l as Co) | < 500 | 6 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 0.00 |
| Cyanide (Recoverable) | (ug / l as CN) | < 50 | 6 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 |
| Lead | (ug / l as Pb) | < 20 | 6 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 0.00 |
| Mercury | (ug / l as Hg) | < 1 | 5 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.00 |
| Nickel | (ug / l as Ni) | < 150 | 6 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 0.00 |
| Selenium | (ug / l as Se) | < 20 | 6 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Vanadium | (ug / l as V) | < 200 | 6 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 0.00 |
| Macro Elements & Miscellaneous Determinants | | | | | | | | | |
| Aluminium | (mg / l as Al) | < 0.3 | 6 | 0.005 | 0.009 | 0.023 | 0.036 | 0.040 | 0.013 |
| Ammonia | (mg / l as N) | < 1 | 6 | 0.122 | 0.142 | 0.231 | 0.319 | 0.330 | 0.088 |
| Calcium | (mg / l as Ca) | < 150 | 6 | 14.000 | 15.953 | 22.667 | 29.000 | 29.000 | 6.713 |
| Chloride | (mg / l as Cl) | < 200 | 4 | 11.000 | 11.000 | 11.000 | 11.000 | 11.000 | 0.000 |
| Copper | (mg / l as Cu) | < 1 | 6 | 0.005 | 0.005 | 0.008 | 0.010 | 0.010 | 0.003 |
| Fluoride | (mg / l as F) | < 1 | 4 | 0.160 | 0.162 | 0.170 | 0.178 | 0.180 | 0.008 |
| Iron | (mg / l as Fe) | < 0.2 | 6 | 0.010 | 0.010 | 0.023 | 0.038 | 0.050 | 0.015 |
| Magnesium | (mg / l as Mg) | < 70 | 6 | 3.900 | 3.901 | 4.233 | 4.566 | 4.700 | 0.333 |
| Manganese | (mg / l as Mn) | < 0.1 | 6 | 0.002 | 0.002 | 0.002 | 0.002 | 0.002 | 0.000 |
| Nitrate & Nitrite | (mg / l as N) | < 10 | 6 | 0.020 | 0.089 | 0.312 | 0.480 | 0.480 | 0.223 |
| Potassium | (mg / l as K) | < 50 | 6 | 0.310 | 0.418 | 1.573 | 2.729 | 2.900 | 1.155 |
| Sodium | (mg / l as Na) | < 200 | 6 | 6.000 | 6.308 | 7.317 | 8.200 | 8.200 | 1.009 |
| Sulphate | (mg / l as SO ₄) | < 400 | 4 | 14.000 | 14.000 | 15.000 | 16.000 | 16.000 | 1.155 |
| Zinc | (mg / l as Zn) | < 5 | 6 | 0.004 | 0.004 | 0.005 | 0.007 | 0.010 | 0.002 |
| Microbiological | | | | | | | | | |
| E. Coli | (cfu per 100 ml) | minimum of 95% of the original results shall be non-detected | 70 | 0.0 | 0.0 | 0 | 0.0 | 0.0 | 0.0 |
| Other Determinants as required by supply contract | | | | | | | | | |
| Free chlorine and monochloramine | (mg / l) | ≥ 0.2 min 95% compliance | 70 | 0.04 | 0.33 | 0.73 | 1.13 | 1.93 | 0.40 |
| Notes : | | | | | | | | | |
| (1) Specification date of effect : July 2006 | | | | | | | | | |
| (2) Guideline derived from SANS 241: 2005 operations alert and industry practices | | | | | | | | | |