

Ngwathe Municipality Water Quality Report

23 August 2011 to 21 September 2011

Date generated : 29 September 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 | 12 | 100.0% | 100.0% |
| Conductivity | (mS / m) | < 150 | ≤ 370 | 12 | 100.0% | 100.0% |
| pH | (pH units) | ≥ 5 to ≤ 9.5 | ≥ 4 to ≤ 10 | 12 | 100.0% | 100.0% |
| Turbidity | (NTU) | < 1 | ≤ 5 | 12 | 100.0% | 100.0% |
| Total Dissolved Solids | (mg / l) | < 1000 | ≤ 2400 | 12 | 100.0% | 100.0% |
| Taste | (FTN) | < 5 | ≤ 10 | 11 | 100.0% | 100.0% |
| Odour | (TON) | < 5 | ≤ 10 | 11 | 100.0% | 100.0% |
| Organic Determinants | | | | | | |
| Total Trihalomethanes | (ug / l) | < 200 | ≤ 300 | 12 | 100.0% | 100.0% |
| Phenols as C6H5OH | (ug / l) | < 10 | ≤ 70 | 4 | 100.0% | 100.0% |
| Dissolved Organic Carbon | (mg / l) | < 10 | ≤ 20 | 8 | 100.0% | 100.0% |
| Micro Elements | | | | | | |
| Antimony | (ug / l as Sb) | < 10 | ≤ 50 | 12 | 100.0% | 100.0% |
| Arsenic | (ug / l as As) | < 10 | ≤ 50 | 12 | 100.0% | 100.0% |
| Cadmium | (ug / l as Cd) | < 5 | ≤ 10 | 12 | 100.0% | 100.0% |
| Chromium (Total) | (ug / l as Cr) | < 100 | ≤ 500 | 12 | 100.0% | 100.0% |
| Cobalt | (ug / l as Co) | < 500 | ≤ 1000 | 12 | 100.0% | 100.0% |
| Cyanide (Recoverable) | (ug / l as CN) | < 50 | ≤ 70 | 12 | 100.0% | 100.0% |
| Lead | (ug / l as Pb) | < 20 | ≤ 50 | 12 | 100.0% | 100.0% |
| Mercury | (ug / l as Hg) | < 1 | ≤ 5 | 12 | 100.0% | 100.0% |
| Nickel | (ug / l as Ni) | < 150 | ≤ 350 | 12 | 100.0% | 100.0% |
| Selenium | (ug / l as Se) | < 20 | ≤ 50 | 12 | 100.0% | 100.0% |
| Vanadium | (ug / l as V) | < 200 | ≤ 500 | 12 | 100.0% | 100.0% |
| Macro Elements & Miscellaneous Determinants | | | | | | |
| Aluminium | (mg / l as Al) | < 0.3 | ≤ 0.5 | 12 | 100.0% | 100.0% |
| Ammonia | (mg / l as N) | < 1 | ≤ 2 | 12 | 100.0% | 100.0% |
| Calcium | (mg / l as Ca) | < 150 | ≤ 300 | 12 | 100.0% | 100.0% |
| Chloride | (mg / l as Cl) | < 200 | ≤ 600 | 12 | 100.0% | 100.0% |
| Copper | (mg / l as Cu) | < 1 | ≤ 2 | 12 | 100.0% | 100.0% |
| Fluoride | (mg / l as F) | < 1 | ≤ 1.5 | 12 | 100.0% | 100.0% |
| Iron | (mg / l as Fe) | < 0.2 | ≤ 2 | 12 | 100.0% | 100.0% |
| Magnesium | (mg / l as Mg) | < 70 | ≤ 100 | 12 | 100.0% | 100.0% |
| Manganese | (mg / l as Mn) | < 0.1 | ≤ 1 | 12 | 100.0% | 100.0% |
| Nitrate & Nitrite | (mg / l as N) | < 10 | ≤ 20 | 12 | 100.0% | 100.0% |
| Potassium | (mg / l as K) | < 50 | ≤ 100 | 12 | 100.0% | 100.0% |
| Sodium | (mg / l as Na) | < 200 | ≤ 400 | 12 | 100.0% | 100.0% |
| Sulphate | (mg / l as SO4) | < 400 | ≤ 600 | 12 | 100.0% | 100.0% |
| Zinc | (mg / l as Zn) | < 5 | ≤ 10 | 12 | 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 | 12 | 100.0% | 100.0% |
| Other Determinants as required by supply contract | | | | | | |
| Free chlorine and monochloramine | (mg / l) | ≥ 0.2 min 95% compliance | | 12 | 100.0% | |

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 | 12 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 |
| Conductivity | (mS / m) | < 150 | 12 | 21.00 | 22.31 | 25.33 | 28.36 | 30.00 | 3.03 |
| pH | (pH units) | ≥ 5 to ≤ 9.5 | 12 | 7.39 | 7.66 | 7.90 | 8.13 | 8.17 | 0.23 |
| Turbidity | (NTU) | < 1 | 12 | 0.21 | 0.23 | 0.30 | 0.37 | 0.42 | 0.07 |
| Total Dissolved Solids | (mg / l) | < 1000 | 12 | 145.00 | 153.81 | 172.08 | 190.36 | 200.00 | 18.27 |
| Hardness | (mg / l as CaCO ₃) | > 20 to < 200 | 12 | 72.00 | 77.40 | 90.00 | 102.60 | 115.00 | 12.60 |
| Taste | (FTN) | < 5 | 11 | 1.00 | 1.00 | 1.04 | 1.16 | 1.40 | 0.12 |
| Odour | (TON) | < 5 | 11 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Organic Determinants | | | | | | | | | |
| Total Trihalomethanes | (ug / l) | < 200 | 12 | 61.60 | 68.62 | 90.79 | 112.97 | 121.05 | 22.17 |
| Phenols as C ₆ H ₅ OH | (ug / l) | < 10 | 4 | 1.30 | 1.59 | 2.28 | 2.80 | 2.80 | 0.68 |
| Dissolved Organic Carbon | (mg / l) | < 10 | 8 | 3.80 | 4.15 | 4.63 | 5.10 | 5.10 | 0.47 |
| Micro Elements | | | | | | | | | |
| Antimony | (ug / l as Sb) | < 10 | 12 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Arsenic | (ug / l as As) | < 10 | 12 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Cadmium | (ug / l as Cd) | < 5 | 12 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 0.00 |
| Chromium (Total) | (ug / l as Cr) | < 100 | 12 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 |
| Cobalt | (ug / l as Co) | < 500 | 12 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 0.00 |
| Cyanide (Recoverable) | (ug / l as CN) | < 50 | 12 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 0.00 |
| Lead | (ug / l as Pb) | < 20 | 12 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 0.00 |
| Mercury | (ug / l as Hg) | < 1 | 12 | 0.40 | 0.40 | 0.40 | 0.40 | 0.40 | 0.00 |
| Nickel | (ug / l as Ni) | < 150 | 12 | 7.50 | 7.50 | 7.50 | 7.50 | 7.50 | 0.00 |
| Selenium | (ug / l as Se) | < 20 | 12 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Vanadium | (ug / l as V) | < 200 | 12 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 0.00 |
| Macro Elements & Miscellaneous Determinants | | | | | | | | | |
| Aluminium | (mg / l as Al) | < 0.3 | 12 | 0.005 | 0.005 | 0.012 | 0.020 | 0.030 | 0.009 |
| Ammonia | (mg / l as N) | < 1 | 12 | 0.122 | 0.122 | 0.122 | 0.122 | 0.122 | 0.000 |
| Calcium | (mg / l as Ca) | < 150 | 12 | 19.000 | 20.999 | 26.417 | 31.835 | 34.000 | 5.418 |
| Chloride | (mg / l as Cl) | < 200 | 12 | 12.000 | 12.794 | 14.000 | 15.206 | 17.000 | 1.206 |
| Copper | (mg / l as Cu) | < 1 | 12 | 0.005 | 0.005 | 0.006 | 0.009 | 0.010 | 0.002 |
| Fluoride | (mg / l as F) | < 1 | 12 | 0.140 | 0.164 | 0.188 | 0.212 | 0.220 | 0.024 |
| Iron | (mg / l as Fe) | < 0.2 | 12 | 0.003 | 0.007 | 0.032 | 0.056 | 0.070 | 0.025 |
| Magnesium | (mg / l as Mg) | < 70 | 12 | 3.800 | 4.005 | 5.817 | 7.628 | 8.000 | 1.811 |
| Manganese | (mg / l as Mn) | < 0.1 | 12 | 0.002 | 0.002 | 0.002 | 0.005 | 0.010 | 0.002 |
| Nitrate & Nitrite | (mg / l as N) | < 10 | 12 | 0.390 | 0.399 | 0.444 | 0.490 | 0.560 | 0.045 |
| Potassium | (mg / l as K) | < 50 | 12 | 1.700 | 1.976 | 2.475 | 2.974 | 3.200 | 0.499 |
| Sodium | (mg / l as Na) | < 200 | 12 | 6.400 | 7.567 | 10.050 | 12.533 | 14.000 | 2.483 |
| Sulphate | (mg / l as SO ₄) | < 400 | 12 | 13.000 | 13.169 | 14.667 | 16.164 | 17.000 | 1.497 |
| Zinc | (mg / l as Zn) | < 5 | 12 | 0.004 | 0.004 | 0.004 | 0.004 | 0.004 | 0.000 |
| Microbiological | | | | | | | | | |
| E. Coli | (cfu per 100 ml) | minimum of 95% of the original results shall be non-detected | 12 | 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 | 12 | 0.30 | 0.42 | 1.03 | 1.65 | 1.95 | 0.62 |
| Notes : | | | | | | | | | |
| (1) Specification date of effect : July 2006 | | | | | | | | | |
| (2) Guideline derived from SANS 241: 2005 operations alert and industry practices | | | | | | | | | |