

Madibeng Municipality Water Quality Report - 1 Month

22 December 2018 to 22 January 2019 Date generated: 11 February 2019

| Determinand | Measurement units | Risk | Required compliance to SANS 241: 2015 standard (%) | SANS 241: 2015 standard limits (1) | No of results | Achieved Compliance to SANS 241: 2015 Spec(%) | Descriptive statistics | | |
|---|--------------------------------|----------------|--|-------------------------------------|---------------|---|------------------------|--------------------|------------------------------|
| | | | | | | | Mean | Standard Deviation | Mean + 3 standard deviations |
| Microbiological determinands | | | | | | | | | |
| <i>E. coli</i> | (mpn per 100 mL) | Acute health | 99.0% | 0 | 31 | 93.5% | 0 | 1.86 | 6 |
| Total Coliforms | (mpn per 100 mL) | Operational | 95.0% | 10 | 31 | 93.5% | 13 | 50.13 | 164 |
| Heterotrophic Plate Count | (cfu per 1 mL) | Operational | 95.0% | ≤1000 | 31 | 100.0% | 2 | 2.49 | 9 |
| <i>Cryptosporidium spp</i> (5) | (org / 10 Litre) | Acute health | 99.0% | 0 | 16 | 100.0% | 0 | 0.00 | 0 |
| <i>Giardia spp</i> (5) | (org / 10 Litre) | Acute health | 99.0% | 0 | 16 | 100.0% | 0 | 0.00 | 0 |
| Somatic Coliphages (5) | (count per 10 mL) | Operational | 95.0% | 0 | 79 | 100.0% | 0 | 0.00 | 0 |
| Physical and Aesthetic determinands | | | | | | | | | |
| Colour | (mg / L as Pt-Co) | Aesthetic | 95.0% | ≤15 | 4 | 100.0% | 5.00 | 0.00 | 5.00 |
| Conductivity | (mS / m) | Aesthetic | 95.0% | ≤170 | 31 | 100.0% | 20.65 | 0.98 | 23.60 |
| Total Dissolved Solids | (mg / L) | Aesthetic | 95.0% | ≤1200 | 4 | 100.0% | 146.25 | 9.46 | 174.64 |
| Turbidity | (NTU) | Operational | 95.0% | ≤1 | 31 | 100.0% | 0.34 | 0.07 | 0.54 |
| Turbidity | (NTU) | Aesthetic | 95.0% | ≤5 | 31 | 100.0% | 0.34 | 0.07 | 0.54 |
| pH | (pH units) | Operational | 95.0% | ≥ 5 to ≤ 9.7 | 31 | 100.0% | 7.99 | 0.10 | 8.30 |
| Chemical Properties | | | | | | | | | |
| Macro determinands | | | | | | | | | |
| Ammonia | (mg / L as N) | Aesthetic | 95.0% | ≤1.5 | 31 | 100.0% | 0.22 | 0.12 | 0.57 |
| Chloride | (mg / L as Cl) | Aesthetic | 95.0% | ≤300 | 3 | 100.0% | 11.00 | 0.00 | 11.00 |
| Free chlorine (2) | (mg / L as Cl ₂) | Chronic health | 97.0% | ≤5 | 31 | 100.0% | 0.08 | 0.05 | 0.24 |
| Monochloramine (3) | (mg / L as Cl ₂) | Chronic health | 97.0% | ≤4.1 | 31 | 100.0% | 0.89 | 0.26 | 1.67 |
| Fluoride | (mg / L as F) | Chronic health | 97.0% | ≤1.5 | 3 | 100.0% | 0.20 | 0.00 | 0.20 |
| Nitrate | (mg / L as N) | Acute health | 99.0% | ≤11 | 31 | 100.0% | 0.50 | 0.00 | 0.50 |
| Nitrite | (mg / L as N) | Acute health | 99.0% | ≤0.9 | 31 | 100.0% | 0.07 | 0.05 | 0.22 |
| Combined nitrate plus nitrite (7) | (mg / L as N) | Acute health | 99.0% | ≤1 | 31 | 100.0% | 0.12 | 0.06 | 0.29 |
| Residual disinfectant (4) | (mg / L) | Operational | 95.0% | ≥0.1 Sum of Free and Monochloramine | 31 | 100.0% | 0.97 | 0.27 | 1.77 |
| Sodium | (mg / L as Na) | Aesthetic | 95.0% | ≤200 | 4 | 100.0% | 7.93 | 0.17 | 8.44 |
| Sulphate | (mg / L as SO ₄) | Aesthetic | 95.0% | ≤250 | 3 | 100.0% | 14.00 | 0.00 | 14.00 |
| Sulphate | (mg / L as SO ₄) | Acute health | 99.0% | ≤500 | 3 | 100.0% | 14.00 | 0.00 | 14.00 |
| Zinc | (mg / L as Zn) | Aesthetic | 95.0% | ≤5 | 4 | 100.0% | 0.02 | 0.00 | 0.02 |
| Micro determinands | | | | | | | | | |
| Aluminium | (µg / L as Al) | Operational | 95.0% | ≤300 | 4 | 100.0% | 25.00 | 0.00 | 25.00 |
| Antimony | (µg / L as Sb) | Chronic health | 97.0% | ≤20 | 15 | 100.0% | 0.60 | 0.00 | 0.60 |
| Arsenic | (µg / L as As) | Chronic health | 97.0% | ≤10 | 4 | 100.0% | 1.25 | 0.90 | 3.95 |
| Barium | (µg / L as Ba) | Chronic health | 97.0% | ≤700 | 4 | 100.0% | 34.75 | 3.77 | 46.07 |
| Boron | (µg / L as B) | Chronic health | 97.0% | ≤2400 | 4 | 100.0% | 9.00 | 6.93 | 29.78 |
| Cadmium | (µg / L as Cd) | Chronic health | 97.0% | ≤3 | 4 | 100.0% | 1.00 | 0.00 | 1.00 |
| Chromium (Total) | (µg / L as Cr) | Chronic health | 97.0% | ≤50 | 4 | 100.0% | 5.00 | 0.00 | 5.00 |
| Copper | (µg / L as Cu) | Chronic health | 97.0% | ≤2000 | 4 | 100.0% | 13.75 | 11.50 | 48.25 |
| Cyanide (Recoverable) | (µg / L as CN) | Acute health | 99.0% | ≤200 | 4 | 100.0% | 20.00 | 0.00 | 20.00 |
| Iron | (µg / L as Fe) | Chronic health | 97.0% | ≤2000 | 4 | 100.0% | 12.13 | 2.46 | 19.51 |
| Iron | (µg / L as Fe) | Aesthetic | 95.0% | ≤300 | 4 | 100.0% | 12.13 | 2.46 | 19.51 |
| Lead | (µg / L as Pb) | Chronic health | 97.0% | ≤10 | 4 | 100.0% | 2.00 | 0.00 | 2.00 |
| Manganese | (µg / L as Mn) | Chronic health | 97.0% | ≤400 | 4 | 100.0% | 3.00 | 0.00 | 3.00 |
| Manganese | (µg / L as Mn) | Aesthetic | 95.0% | ≤100 | 4 | 100.0% | 3.00 | 0.00 | 3.00 |
| Mercury | (µg / L as Hg) | Chronic health | 97.0% | ≤6 | 15 | 100.0% | 0.80 | 0.00 | 0.80 |
| Nickel | (µg / L as Ni) | Chronic health | 97.0% | ≤70 | 4 | 100.0% | 5.00 | 0.00 | 5.00 |
| Selenium | (µg / L as Se) | Chronic health | 97.0% | ≤40 | 4 | 100.0% | 4.00 | 0.00 | 4.00 |
| Uranium | (µg / L as U) | Chronic health | 97.0% | ≤30 | 15 | 100.0% | 0.50 | 0.01 | 0.54 |
| Organic determinands | | | | | | | | | |
| Total Organic Carbon | (mg / L) | Chronic health | 97.0% | ≤10 | 4 | 100.0% | 3.75 | 0.19 | 4.32 |
| Phenols as C ₆ H ₅ OH | (µg / L) | Aesthetic | 95.0% | ≤10 | 4 | 100.0% | 3.00 | 0.00 | 3.00 |
| Chloroform - CHCl ₃ | (µg / L) | Chronic health | 97.0% | ≤300 | 4 | 100.0% | 34.50 | 2.65 | 42.44 |
| Bromoform - CHBr ₃ | (µg / L) | Chronic health | 97.0% | ≤100 | 4 | 100.0% | 10.00 | 0.00 | 10.00 |
| Dibromochloromethane - CHBr ₂ Cl | (µg / L) | Chronic health | 97.0% | ≤100 | 4 | 100.0% | 10.00 | 0.00 | 10.00 |
| Bromodichloromethane - CHBrCl ₂ | (µg / L) | Chronic health | 97.0% | ≤60 | 4 | 100.0% | 10.75 | 0.96 | 13.62 |
| Combined trihalomethanes (8) | (µg / L) | Chronic health | 97.0% | ≤1 | 4 | 100.0% | 0.49 | 0.03 | 0.57 |
| Total Microcystin (5) | (µg / L) | Chronic health | 97.0% | ≤1 | 16 | 100.0% | 0.31 | 0.00 | 0.31 |
| For monitoring/reporting purposes only (6) | | | | | | | | | |
| Calcium | (mg / L as Ca) | Aesthetic | not applicable | ≤150 | 4 | 100.0% | 13.75 | 0.50 | 15.25 |
| Hardness | (mg / L as CaCO ₃) | Operational | not applicable | ≥ 20 to ≤ 200 | 4 | 100.0% | 52.25 | 1.50 | 56.75 |
| Magnesium | (mg / L as Mg) | Aesthetic | not applicable | ≤70 | 4 | 100.0% | 5.17 | 0.05 | 5.32 |
| Potassium | (mg / L as K) | Aesthetic | not applicable | ≤50 | 4 | 100.0% | 2.67 | 0.10 | 2.96 |
| Rand Water Risk Determinands (RWRD) | | | | | | | | | |
| Odour | TON | RWRD | 95.0% | ≤2 | 10 | 100.0% | 1.00 | 0.00 | 1.00 |
| Taste | FTN | RWRD | 95.0% | ≤2 | 10 | 100.0% | 1.00 | 0.00 | 1.00 |

| Risk | Required compliance to SANS 241: 2015 standard | Overall Compliance-SANS 241 |
|------------------------------|--|-----------------------------|
| Acute health microbiological | 99.00% | 96.83% |
| Acute health chemical | 99.00% | 100.00% |
| Chronic health | 97.00% | 100.00% |
| Aesthetic | 95.00% | 100.00% |
| Operational | 95.00% | 99.16% |

- Notes:**
- (1) Specification date of effect : 1 July 2016
 - (2) Free chlorine : Results from chloraminated system
 - (3) Monochloramine : Results are from the chloraminated systems
 - (4) Residual disinfectant : Results from chloraminated system
 - (5) Measured at water treatment works exit points
 - (6) Customer request: Results not included in the risk indices compliance calculations
 - (7) (NO₂/0.9 + NO₃/11)
 - (8) (CHCl₃/300 + CHBr₃/100 + CHBr₂Cl/100 + CHBrCl₂/60)