

Midvaal Municipality Water Quality Report - 12 Month

24 October 2016 to 23 October 2017

Date generated: 02 November 2017

| 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 | 2 787 | 100.0% | 0 | 0.00 | 0 |
| Total Coliforms | (mpn per 100 mL) | Operational | 95.0% | 10 | 2 787 | 99.9% | 0 | 3.89 | 0 |
| Heterotrophic Plate Count | (cfu per 1 mL) | Operational | 95.0% | ≤1000 | 2 615 | 100.0% | 2 | 14.38 | 21 |
| <i>Cryptosporidium spp</i> (5) | (org / 10 Litre) | Acute health | 99.0% | 0 | 181 | 100.0% | 0 | 0.00 | 0 |
| <i>Giardia spp</i> (5) | (org / 10 Litre) | Acute health | 99.0% | 0 | 181 | 100.0% | 0 | 0.00 | 0 |
| Somatic Coliphages (5) | (count per 10 mL) | Operational | 95.0% | 0 | 784 | 100.0% | 0 | 0.00 | 0 |
| Physical and Aesthetic determinands | | | | | | | | | |
| Colour | (mg / L as Pt-Co) | Aesthetic | 95.0% | ≤15 | 217 | 99.5% | 5.25 | 3.33 | 6.00 |
| Conductivity | (mS / m) | Aesthetic | 95.0% | ≤170 | 1 955 | 100.0% | 18.27 | 2.43 | 23.00 |
| Total Dissolved Solids | (mg / L) | Aesthetic | 95.0% | ≤1200 | 1 955 | 100.0% | 130.14 | 14.15 | 157.70 |
| Turbidity | (NTU) | Operational | 95.0% | ≤1 | 1 941 | 99.7% | 0.30 | 0.49 | 0.48 |
| Turbidity | (NTU) | Aesthetic | 95.0% | ≤5 | 1 941 | 99.9% | 0.30 | 0.49 | 0.48 |
| pH | (pH units) | Operational | 95.0% | ≥ 5 to ≤ 9.7 | 1 955 | 100.0% | 7.99 | 0.18 | 8.45 |
| Chemical Properties | | | | | | | | | |
| Macro determinands | | | | | | | | | |
| Ammonia | (mg / L as N) | Aesthetic | 95.0% | ≤1.5 | 1 954 | 100.0% | 0.05 | 0.04 | 0.29 |
| Chloride | (mg / L as Cl) | Aesthetic | 95.0% | ≤300 | 221 | 100.0% | 8.89 | 2.70 | 12.80 |
| Free chlorine (2) | (mg / L as Cl ₂) | Chronic health | 97.0% | ≤5 | 2 791 | 100.0% | 1.01 | 0.43 | 2.00 |
| Monochloramine (3) | (mg / L as Cl ₂) | Chronic health | 97.0% | ≤4.1 | not applicable | not applicable | not applicable | not applicable | not applicable |
| Fluoride | (mg / L as F) | Chronic health | 97.0% | ≤1.5 | 221 | 100.0% | 0.17 | 0.04 | 0.31 |
| Nitrate | (mg / L as N) | Acute health | 99.0% | ≤11 | 1 949 | 100.0% | 0.49 | 0.12 | 0.81 |
| Nitrite | (mg / L as N) | Acute health | 99.0% | ≤0.9 | 1 953 | 100.0% | 0.03 | 0.03 | 0.12 |
| Combined nitrate plus nitrite (7) | (mg / L as N) | Acute health | 99.0% | ≤1 | 1 949 | 100.0% | 0.08 | 0.03 | 0.18 |
| Residual disinfectant (4) | (mg / L) | Operational | 95.0% | ≥0.2 Free Chlorine | 2 791 | 96.6% | 1.01 | 0.43 | 2.00 |
| Sodium | (mg / L as Na) | Aesthetic | 95.0% | ≤200 | 217 | 100.0% | 7.57 | 1.00 | 9.68 |
| Sulphate | (mg / L as SO ₄) | Aesthetic | 95.0% | ≤250 | 221 | 100.0% | 12.50 | 3.82 | 16.00 |
| Sulphate | (mg / L as SO ₄) | Acute health | 99.0% | ≤500 | 221 | 100.0% | 12.50 | 3.82 | 16.00 |
| Zinc | (mg / L as Zn) | Aesthetic | 95.0% | ≤5 | 217 | 100.0% | 0.03 | 0.03 | 0.14 |
| Micro determinands | | | | | | | | | |
| Aluminium | (µg / L as Al) | Operational | 95.0% | ≤300 | 217 | 100.0% | 28.69 | 9.28 | 77.60 |
| Antimony | (µg / L as Sb) | Chronic health | 97.0% | ≤20 | 217 | 100.0% | 0.54 | 0.34 | 1.86 |
| Arsenic | (µg / L as As) | Chronic health | 97.0% | ≤10 | 216 | 100.0% | 0.94 | 0.73 | 4.42 |
| Barium | (µg / L as Ba) | Chronic health | 97.0% | ≤700 | 217 | 100.0% | 32.06 | 6.26 | 48.84 |
| Boron | (µg / L as B) | Chronic health | 97.0% | ≤2400 | 217 | 100.0% | 25.00 | 0.00 | 25.00 |
| Cadmium | (µg / L as Cd) | Chronic health | 97.0% | ≤3 | 216 | 100.0% | 2.50 | 0.00 | 2.50 |
| Chromium (Total) | (µg / L as Cr) | Chronic health | 97.0% | ≤50 | 217 | 100.0% | 15.00 | 0.00 | 15.00 |
| Copper | (µg / L as Cu) | Chronic health | 97.0% | ≤2000 | 217 | 100.0% | 10.71 | 1.51 | 16.00 |
| Cyanide (Recoverable) | (µg / L as CN) | Acute health | 99.0% | ≤200 | 217 | 100.0% | 5.19 | 1.31 | 11.84 |
| Iron | (µg / L as Fe) | Chronic health | 97.0% | ≤2000 | 217 | 100.0% | 16.52 | 18.90 | 74.04 |
| Iron | (µg / L as Fe) | Aesthetic | 95.0% | ≤300 | 217 | 100.0% | 16.52 | 18.90 | 74.04 |
| Lead | (µg / L as Pb) | Chronic health | 97.0% | ≤10 | 216 | 100.0% | 0.27 | 0.24 | 1.40 |
| Manganese | (µg / L as Mn) | Chronic health | 97.0% | ≤400 | 217 | 100.0% | 10.30 | 1.67 | 21.52 |
| Manganese | (µg / L as Mn) | Aesthetic | 95.0% | ≤100 | 217 | 100.0% | 10.30 | 1.67 | 21.52 |
| Mercury | (µg / L as Hg) | Chronic health | 97.0% | ≤6 | 217 | 100.0% | 0.80 | 0.00 | 0.80 |
| Nickel | (µg / L as Ni) | Chronic health | 97.0% | ≤70 | 217 | 100.0% | 10.00 | 0.00 | 10.00 |
| Selenium | (µg / L as Se) | Chronic health | 97.0% | ≤40 | 216 | 100.0% | 0.97 | 1.14 | 6.67 |
| Uranium | (µg / L as U) | Chronic health | 97.0% | ≤30 | 216 | 100.0% | 0.22 | 0.12 | 0.43 |
| Organic determinands | | | | | | | | | |
| Total Organic Carbon | (mg / L) | Chronic health | 97.0% | ≤10 | 217 | 100.0% | 3.60 | 0.89 | 5.48 |
| Phenols as C ₆ H ₅ OH | (µg / L) | Aesthetic | 95.0% | ≤10 | 217 | 100.0% | 5.00 | 0.00 | 5.00 |
| Chloroform - CHCl ₃ | (µg / L) | Chronic health | 97.0% | ≤300 | 346 | 100.0% | 33.23 | 15.44 | 77.10 |
| Bromoform - CHBr ₃ | (µg / L) | Chronic health | 97.0% | ≤100 | 345 | 100.0% | 0.50 | 0.00 | 0.50 |
| Dibromochloromethane - CHBr ₂ Cl | (µg / L) | Chronic health | 97.0% | ≤100 | 345 | 100.0% | 1.42 | 0.87 | 4.26 |
| Bromodichloromethane - CHBrCl ₂ | (µg / L) | Chronic health | 97.0% | ≤60 | 345 | 100.0% | 10.81 | 3.26 | 17.00 |
| Combined trihalomethanes (8) | (µg / L) | Chronic health | 97.0% | ≤1 | 345 | 100.0% | 0.31 | 0.11 | 0.55 |
| Total Microcystin (5) | (µg / L) | Chronic health | 97.0% | ≤1 | 181 | 100.0% | 0.35 | 0.02 | 0.36 |
| For monitoring/reporting purposes only (6) | | | | | | | | | |
| Calcium | (mg / L as Ca) | Aesthetic | not applicable | ≤150 | 217 | 100.0% | 17.12 | 2.46 | 23 |
| Hardness | (mg / L as CaCO ₃) | Operational | not applicable | ≥ 20 to ≤ 200 | 217 | 100.0% | 61.46 | 7.08 | 77.15 |
| Magnesium | (mg / L as Mg) | Aesthetic | not applicable | ≤70 | 217 | 100.0% | 5.39 | 0.59 | 6.40 |
| Potassium | (mg / L as K) | Aesthetic | not applicable | ≤50 | 217 | 100.0% | 3.05 | 0.81 | 4.28 |
| Rand Water Risk Determinands (RWRD) | | | | | | | | | |
| Odour | TON | RWRD | 95.0% | ≤2 | 287 | 100.0% | 1.00 | 0.00 | 1.00 |
| Taste | FTN | RWRD | 95.0% | ≤2 | 287 | 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% | 100.00% |
| Acute health chemical | 99.00% | 100.00% |
| Chronic health | 97.00% | 100.00% |
| Aesthetic | 95.00% | 99.97% |
| Operational | 95.00% | 99.22% |

Notes:

- (1) Specification date of effect : 1 July 2016
- (2) Free chlorine : Results from chlorinated system
- (3) Monochloramine : Chlorinated system has no monochloramine
- (4) Residual disinfectant : Results from chlorinated 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)