



RAND WATER
Customer Bulk Water Quality Report
1 Month

20 February 2020 to 20 March 2020

Date generated: 13 April 2020

| | | | | | | | Descriptive Statistics | | |
|--|--------------------------------|----------------|-----------------------------------|---------------|---|---|------------------------|--------------------|-------------------------|
| Determinands | Measurement Units | Risks | SANS 241:2015 standard limits (1) | No of results | Required compliances to SANS 241:2015 spec(%) | Achieved compliances to SANS 241:2015 spec(%) | Mean | Standard Deviation | Mean + 3 Std deviations |
| Microbiological determinands | | | | | | | | | |
| <i>E. coli</i> | (mpn per 100 mL) | Acute health | Non-detect | 1,286 | 99.0% | 99.84% | 0 | 0.09 | 0 |
| Total Coliforms | (mpn per 100 mL) | Operational | ≤ 10 | 1,286 | 95.0% | 99.77% | 0 | 4.24 | 13 |
| Heterotrophic Plate Count | (cfu per 1 mL) | Operational | ≤ 1000 | 1,286 | 95.0% | 99.38% | 27 | 378.69 | 1163 |
| <i>Cryptosporidium spp</i> (2) | (org / 10 Litre) | Acute health | Non-detect | 18 | 99.0% | 100% | 0 | 0.00 | 0 |
| <i>Giardia spp</i> (2) | (org / 10 Litre) | Acute health | Non-detect | 18 | 99.0% | 100% | 0 | 0.00 | 0 |
| Somatic Coliphages (2) | (count per 10 mL) | Operational | Non-detect | 91 | 95.0% | 98.90% | 0 | 0.10 | 0 |
| Physical and Aesthetic determinands | | | | | | | | | |
| Colour | (mg / L as Pt-Co) | Aesthetic | ≤ 15 | 127 | 95.0% | 99.21% | 5.20 | 1.76 | 10.49 |
| Conductivity | (mS / m) | Aesthetic | ≤ 170 | 1,033 | 95.0% | 100% | 24.47 | 5.46 | 40.85 |
| Total Dissolved Solids | (mg / L) | Aesthetic | ≤ 1200 | 140 | 95.0% | 100% | 176.11 | 52.65 | 334.06 |
| Turbidity | (NTU) | Operational | ≤ 1 | 1,097 | 95.0% | 99.73% | 0.31 | 0.33 | 1.30 |
| Turbidity | (NTU) | Aesthetic | ≤ 5 | 1,097 | 95.0% | 99.91% | 0.31 | 0.33 | 1.30 |
| pH | (pH units) | Operational | ≥ 5 to ≤ 9.7 | 1,036 | 95.0% | 100% | 7.99 | 0.14 | 8.39 |
| Chemical Properties: Macro determinands | | | | | | | | | |
| Ammonia | (mg / L as N) | Aesthetic | ≤ 1.5 | 1,024 | 95.0% | 100% | 0.18 | 0.17 | 0.68 |
| Chloride | (mg / L as Cl) | Aesthetic | ≤ 300 | 131 | 95.0% | 100% | 18.79 | 18.62 | 74.66 |
| Free chlorine | (mg / L as Cl ₂) | Chronic health | ≤ 5 | 1,286 | 97.0% | 100% | 0.32 | 0.44 | 1.63 |
| Monochloramine | (mg / L as Cl ₂) | Chronic health | ≤ 4.1 | 936 | 97.0% | 100% | 1.13 | 0.64 | 3.05 |
| Fluoride | (mg / L as F) | Chronic health | ≤ 1.5 | 131 | 97.0% | 100% | 0.21 | 0.02 | 0.27 |
| Nitrate | (mg / L as N) | Acute health | ≤ 11 | 1,032 | 99.0% | 100% | 0.62 | 0.12 | 0.97 |
| Nitrite | (mg / L as N) | Acute health | ≤ 0.9 | 1,037 | 99.0% | 100% | 0.04 | 0.06 | 0.23 |
| Combined nitrate plus nitrite (3) | (mg / L as N) | Acute health | ≤ 1 | 1,001 | 99.0% | 100% | 0.22 | 0.25 | 0.96 |
| Residual disinfectant (4) | (mg / L as Cl ₂) | Operational | ≥ (0.1 and 0.2) | 1,286 | 95.0% | 95.88% | 1.13 | 0.62 | 2.98 |
| Sodium | (mg / L as Na) | Aesthetic | ≤ 200 | 137 | 95.0% | 100% | 15.20 | 12.18 | 51.73 |
| Sulphate | (mg / L as SO ₄) | Aesthetic | ≤ 250 | 131 | 95.0% | 100% | 25.63 | 8.83 | 52.12 |
| Sulphate | (mg / L as SO ₄) | Acute health | ≤ 500 | 131 | 99.0% | 100% | 25.63 | 8.83 | 52.12 |
| Zinc | (mg / L as Zn) | Aesthetic | ≤ 5 | 137 | 95.0% | 100% | 0.02 | 0.02 | 0.07 |
| Chemical Properties: Micro determinands | | | | | | | | | |
| Aluminium | (µg / L as Al) | Operational | ≤ 300 | 137 | 95.0% | 100% | 31.70 | 20.04 | 91.81 |
| Antimony | (µg / L as Sb) | Chronic health | ≤ 20 | no data | 97.0% | no data | . | no data | . |
| Arsenic | (µg / L as As) | Chronic health | ≤ 10 | 106 | 97.0% | 100% | 1.03 | 0.63 | 2.91 |
| Barium | (µg / L as Ba) | Chronic health | ≤ 700 | 137 | 97.0% | 100% | 42.24 | 4.68 | 56.27 |
| Boron | (µg / L as B) | Chronic health | ≤ 2400 | 137 | 97.0% | 100% | 12.42 | 8.63 | 38.33 |
| Cadmium | (µg / L as Cd) | Chronic health | ≤ 3 | 106 | 97.0% | 100% | 1.00 | 0.00 | 1.00 |
| Chromium (Total) | (µg / L as Cr) | Chronic health | ≤ 50 | 137 | 97.0% | 100% | 5.00 | 0.00 | 5.00 |
| Copper | (µg / L as Cu) | Chronic health | ≤ 2000 | 137 | 97.0% | 100% | 9.77 | 4.46 | 23.15 |
| Cyanide (Recoverable) | (µg / L as CN) | Acute health | ≤ 200 | 127 | 99.0% | 100% | 5.00 | 0.00 | 5.00 |
| Iron | (µg / L as Fe) | Chronic health | ≤ 2000 | 137 | 97.0% | 100% | 18.78 | 13.10 | 58.08 |
| Iron | (µg / L as Fe) | Aesthetic | ≤ 300 | 137 | 95.0% | 100% | 18.78 | 13.10 | 58.08 |
| Lead | (µg / L as Pb) | Chronic health | ≤ 10 | 106 | 97.0% | 100% | 2.09 | 0.30 | 2.98 |
| Manganese | (µg / L as Mn) | Chronic health | ≤ 400 | 137 | 97.0% | 100% | 4.87 | 6.71 | 24.99 |
| Manganese | (µg / L as Mn) | Aesthetic | ≤ 100 | 137 | 95.0% | 100% | 4.87 | 6.71 | 24.99 |
| Mercury | (µg / L as Hg) | Chronic health | ≤ 6 | no data | 97.0% | no data | . | no data | . |
| Nickel | (µg / L as Ni) | Chronic health | ≤ 70 | 137 | 97.0% | 100% | 5.00 | 0.00 | 5.00 |
| Selenium | (µg / L as Se) | Chronic health | ≤ 40 | 106 | 97.0% | 100% | 4.00 | 0.00 | 4.00 |
| Uranium | (µg / L as U) | Chronic health | ≤ 30 | no data | 97.0% | no data | . | no data | . |
| Organic determinands | | | | | | | | | |
| Total Organic Carbon | (mg / L) | Chronic health | ≤ 10 | 128 | 97.0% | 100% | 3.91 | 0.47 | 5.32 |
| Phenols as C ₆ H ₅ OH | (µg / L) | Aesthetic | ≤ 10 | 120 | 95.0% | 100% | 3.00 | 0.00 | 3.00 |
| Chloroform - CHCl ₃ | (µg / L) | Chronic health | ≤ 300 | 140 | 97.0% | 100% | 41.25 | 11.07 | 74.47 |
| Bromoform - CHBr ₃ | (µg / L) | Chronic health | ≤ 100 | 140 | 97.0% | 100% | 10.00 | 0.00 | 10.00 |
| Dibromochloromethane - CHBr ₂ Cl | (µg / L) | Chronic health | ≤ 100 | 140 | 97.0% | 100% | 10.32 | 1.53 | 14.92 |
| Bromodichloromethane - CHBrCl ₂ | (µg / L) | Chronic health | ≤ 60 | 140 | 97.0% | 100% | 16.79 | 3.41 | 27.01 |
| Combined trihalomethanes (5) | (µg / L) | Chronic health | ≤ 1 | 140 | 97.0% | 100% | 0.45 | 0.10 | 0.75 |
| Total Microcystin (2) | (µg / L) | Chronic health | ≤ 1 | 23 | 97.0% | 100% | 0.31 | 0.00 | 0.31 |
| For monitoring/reporting purposes only | | | | | | | | | |
| Calcium (6) | (mg / L as Ca) | Aesthetic | ≤ 150 | 137 | not applicable | 100% | 18.17 | 3.49 | 28.64 |
| Hardness (7) | (mg / L as CaCO ₃) | Operational | ≥ 20 to ≤ 200 | 135 | not applicable | 100% | 74.85 | 20.63 | 136.76 |
| Magnesium (6) | (mg / L as Mg) | Aesthetic | ≤ 70 | 137 | not applicable | 100% | 8.49 | 3.49 | 18.95 |
| Potassium (6) | (mg / L as K) | Aesthetic | ≤ 50 | 137 | not applicable | 100% | 3.93 | 1.38 | 8.06 |
| Rand Water Risk Determinands (RWRD) (6) | | | | | | | | | |
| Odour | TON | RWRD | ≤ 2 | 377 | not applicable | 100% | 1.00 | 0.00 | 1.00 |
| Taste | FTN | RWRD | ≤ 2 | 377 | not applicable | 100% | 1.00 | 0.00 | 1.00 |

| Risks | Required compliances to SANS 241: 2015 standard | Overall Compliances - SANS 241: 2015 standard |
|------------------------------|---|---|
| Acute health microbiological | 99.0% | 99.85% |
| Acute health chemical | 99.0% | 100% |
| Chronic health | 97.0% | 100% |
| Aesthetic | 95.0% | 99.95% |
| Operational | 95.0% | 98.91% |

Notes
 (1) Specification_SANS 241 date of effect : 1 July 2016
 (2) Measured at water treatment works exit points
 (3) (NO2/0.9 + NO3/11)
 (4) Residual disinfectant : Results from both the chlorinated and chloraminated systems
 (5) (CHCl3/300 + CHBr3/100 + CHBr2Cl/100 + CHBrCl2/60)
 (6) Customer request: Results not included in the risk indices compliance calculations and limits based on SANS 241:2006
 (7) Customer request: Results not included in the risk indices compliance calculations and limits based on RW Internal Spec
 **** Determinands with no data are due to instrument breakdown****