

**CERTIFICATE OF ANALYSES**

**GENERAL WATER QUALITY PARAMETERS**

Date received: 2019-11-12

Project number: 1000

Date completed: 2019-11-20

Report number: 87915

Order number:

Client name: Afri Forum

Address: P.O. Box 17216, Lyttleton, Pretoria

Telephone: 012 644 4300

Facsimile: 012 664 1281

Contact person: Mr. S. Steinberg

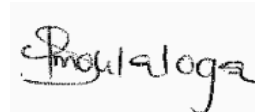
e-mail: sampie.steinberg@afriforum.co.za

Mobile: 081 217 6568

| Analyses in mg/ℓ<br>(Unless specified otherwise) | Method Identification | Risk    | SANS<br>241 : 2015<br>Limits | Sample Identification |              |      |
|--|-----------------------|---------|------------------------------|-----------------------|--------------|------|
|  |                       |         |                              | SAPS                  | Jubilee Mall |      |
| Sample Number                                    |                       |         |                              | 080854                | 080855       |      |
| Date/Time Sampled                                |                       |         |                              | N/A                   | N/A          |      |
| pH - Value @ 25 °C                               | A                     | WLAB065 | Operational                  | ≥5 to ≤ 9.7           | 7.7          | 7.4  |
| Electrical Conductivity in mS/m @ 25°C           | A                     | WLAB002 | Aesthetic                    | ≤170                  | 90.0         | 75.4 |
| Total Dissolved Solids @ 180°C                   | A                     | WLAB003 | Aesthetic                    | ≤1200                 | 528          | 424  |
| Colour in PtCo Units                             | N                     | WLAB006 | Aesthetic                    | ≤15                   | 22↓          | 29↓  |
| Turbidity in N.T.U                               | A                     | WLAB005 | Operational/Aest             | ≤1 / ≤5               | 0.8          | 2.2↓ |
| Total Alkalinity as CaCO <sub>3</sub>            | A                     | WLAB007 | ---                          | ---                   | 280          | 168  |
| Langelier Index at 25°C                          | A                     | WLAB053 | ---                          | ---                   | 0.2          | -0.3 |
| Chloride as Cl                                   | A                     | WLAB046 | Aesthetic                    | ≤300                  | 91           | 78   |
| Sulphate as SO <sub>4</sub>                      | A                     | WLAB046 | Acute health/Aest            | ≤500 / ≤250           | 39           | 37   |
| Fluoride as F                                    | A                     | WLAB014 | Chronic health               | ≤1.5                  | 0.3          | 0.9  |
| Nitrate as N                                     | A                     | WLAB046 | Acute health                 | ≤11                   | 2.4          | 4.4  |
| Nitrite as N                                     | A                     | WLAB046 | Acute health                 | ≤0.9                  | 0.2          | 7.5↓ |
| Combined Nitrate & Nitrite                       | A                     | WLAB046 | Acute health                 | ≤1                    | 0.4          | 8.8↓ |
| Silica as SiO <sub>2</sub>                       | N                     | WLAB046 | ---                          | ---                   | 17.4         | 17.6 |
| Total Organic Carbon as C                        | N                     | WLAB060 | Chronic health               | ≤10                   | 8.7          | 4.7  |
| E. coli / (100 ml)                               | A                     | WLAB021 | Acute health                 | Not detected          | 0            | 0    |
| Free and Saline Ammonia as N                     | A                     | WLAB046 | Aesthetic                    | ≤1.5                  | 20↓          | 3.8↓ |
| Sodium as Na                                     | A                     | WLAB015 | Aesthetic                    | ≤200                  | 87           | 81   |
| Potassium as K                                   | A                     | WLAB015 | ---                          | ---                   | 17.0         | 13.9 |
| Calcium as Ca                                    | A                     | WLAB015 | ---                          | ---                   | 43           | 43   |
| Magnesium as Mg                                  | A                     | WLAB015 | ---                          | ---                   | 16           | 17   |
| Aluminium as Al (µg/l)                           | A                     | WLAB015 | Operational                  | ≤300                  | <100         | <100 |
| Antimony as Sb (µg/l)                            | A                     | WLAB050 | Chronic health               | ≤20                   | 1            | 1    |
| Arsenic as As (µg/l)                             | A                     | WLAB050 | Chronic health               | ≤10                   | <1           | <1   |
| Barium as Ba (µg/l)                              | A                     | WLAB015 | Chronic health               | ≤700                  | <25          | 48   |
| Boron as B (µg/l)                                | A                     | WLAB015 | Chronic health               | ≤2400                 | 130          | 123  |
| Cadmium as Cd (µg/l)                             | A                     | WLAB015 | Chronic health               | ≤3                    | <1           | <1   |
| Total Chromium as Cr (µg/l)                      | A                     | WLAB015 | Chronic health               | ≤50                   | <25          | <25  |
| Copper as Cu (µg/l)                              | A                     | WLAB015 | Chronic health               | ≤2000                 | <10          | 147  |



A. van de Wetering - Chemical Technical Signatory



D.O. Mohaloga - Microbiological Technical Signatory

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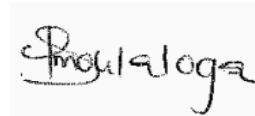
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| Analyses in mg/l<br>(Unless specified otherwise) | Method<br>Identification | Risk    | SANS<br>241 : 2015<br>Limits | Sample Identification |              |       |
|--|--------------------------|---------|------------------------------|-----------------------|--------------|-------|
|  |                          |         |                              | SAPS                  | Jubilee Mall |       |
| Sample Number                                    |                          |         |                              | 080854                | 080855       |       |
| Date/Time Sampled                                |                          |         |                              | N/A                   | N/A          |       |
| Iron as Fe (µg/l)                                | A                        | WLAB015 | Chronic health/Aest          | ≤ 2000 / ≤300         | 78           | 147   |
| Lead as Pb (µg/l)                                | A                        | WLAB015 | Chronic health               | ≤10                   | <1           | <1    |
| Manganese as Mn (µg/l)                           | A                        | WLAB015 | Chronic health/Aest          | ≤ 400 / ≤100          | 136↓         | 149↓  |
| Mercury as Hg (µg/l)                             | A                        | WLAB047 | Chronic health               | ≤6                    | <1           | <1    |
| Nickel as Ni (µg/l)                              | A                        | WLAB015 | Chronic health               | ≤70                   | <25          | <25   |
| Selenium as Se (µg/l)                            | A                        | WLAB050 | Chronic health               | ≤40                   | <1           | <1    |
| Uranium as U (µg/l)                              | A                        | WLAB050 | Chronic health               | ≤ 30                  | <1           | <1    |
| Zinc as Zn                                       | A                        | WLAB015 | Aesthetic                    | ≤5                    | <0.025       | 0.457 |
| % Balancing                                      | N                        | ---     | ---                          | ---                   | 99.7         | 93.0  |



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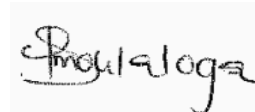
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Information regarding accredited analyses

| Analysis                | Method Identification | Reporting limit | Average Uncertainty |
|-------------------------|-----------------------|-----------------|---------------------|
| pH Value                | WLAB001               | 0.6             | 21%                 |
| Electrical Conductivity | WLAB002               | 0.1 mS/m        | 7%                  |
| Total Alkalinity        | WLAB007               | 5 mg/L          | 10%                 |
| Chemical Oxygen Demand  | WLAB018               | 10 mg/L         | 16%                 |
| Sulphate                | WLAB046               | 2 mg/L          | 14%                 |
| Free & Saline Ammonia   | WLAB046               | 0.1 mg/L        | 14%                 |
| Nitrate                 | WLAB046               | 0.1 mg/L        | 6.2%                |
| Nitrite                 | WLAB046               | 0.05 mg/L       | 10%                 |
| Ortho Phosphate         | WLAB046               | 0.1 mg/L        | 26%                 |
| Chloride                | WLAB046               | 2 mg/L          | 10%                 |
| Fluoride                | WLAB014               | 0.2 mg/L        | 7%                  |
| Turbidity               | WLAB005               | 0.1 NTU         | 8%                  |
| Sodium                  | WLAB015               | 2 mg/L          | 13%                 |
| Potassium               | WLAB015               | 1.0 mg/L        | 7.3%                |
| Calcium                 | WLAB015               | 2 mg/L          | 7.8%                |
| Magnesium               | WLAB015               | 2 mg/L          | 8.0%                |
| Aluminium               | WLAB015               | 0.100 mg/L      | 7.2%                |
| Cadmium                 | WLAB015               | 0.003 mg/L      | 9.1%                |
| Cobalt                  | WLAB015               | 0.025 mg/L      | 4.6%                |
| Chromium                | WLAB015               | 0.025 mg/L      | 6.8%                |
| Copper                  | WLAB015               | 0.025 mg/L      | 36%                 |
| Iron                    | WLAB015               | 0.025 mg/L      | 3.8%                |
| Manganese               | WLAB015               | 0.025 mg/L      | 4.4%                |
| Nickel                  | WLAB015               | 0.025 mg/L      | 14%                 |
| Lead                    | WLAB015               | 0.010 mg/L      | 7.7%                |
| Zinc                    | WLAB015               | 0.025 mg/L      | 23%                 |
| Total Coliform Bacteria | WLAB021               | 0 CFU/100 mL    | 6.1%                |
| E. coli                 | WLAB021               | 0 CFU/100 mL    | 23%                 |



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