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**Directorate: Utility Services** **Scientific Services**

**Department: Water & Sanitation**

# WATER QUALITY MONITORING OF RIVERS AND WETLANDS: CHEMICAL ANALYSIS REPORT

**Sampled Date:** 08 August 2016

## ZEEKOE - ZEEKOEVLEI AND BIG PRINCESSVLEI

| Determinand | Units | POC01 | POC02 | PP01 | PP02 | PV03 | PVWEIR | SCV | ZEV1S | ZEV3S | ZEV5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Temperature* | °C | 14.5 | 12.5 | 13.3 | 12.5 | 15.0 | 14.7 | 16.7 | 15.0 | 15.0 | 16.9 |
| Dissolved Oxygen* | mg/l O | 5.06 | 6.64 | 8.17 | 12.73 | 8.67 | 8.38 | 8.49 | 9.43 | 8.89 | 2.21 |
| Oxygen Saturation* | % | 50 | 62 | 78 | 119 | 86 | 82 | 87 | 93 | 88 | 23 |
| Total Suspended Solids @ 105 °C | mg/l | 20 | 6 | 16 | 5 | 26 | 28 | 5 | 6 | 7 | <5 |
| pH @ 25 °C | - | 7.6 | 7.9 | 7.8 | 8.0 | 8.3 | 8.3 | 8.0 | 8.3 | 8.2 | 7.5 |
| Conductivity @ 25 °C | mS/m | 164 | 162 | 92 | 95 | 42 | 42 | 68 | 83 | 85 | 142 |
| COD | mg/l O | 52 | 48 | 46 | 46 | 45 | 38 | 39 | 39 | 39 | 29 |
| Total Nitrogen* | mg/l N | 11.50 | 2.188 | 1.033 | 1.168 | 1.640 | 1.385 | 7.635 | 7.967 | 8.215 | 16.85 |
| Soluble Ammonia* | mg/l N | 1.802 | 0.010 | 0.024 | 0.044 | 0.022 | 0.026 | 0.076 | 5.576 | 5.765 | 16.14 |
| Un-Ionised Ammonia* | mg/l N | 0.022 | 0.000 | 0.000 | 0.001 | 0.001 | 0.001 | 0.003 | 0.328 | 0.273 | 0.184 |
| Soluble Nitrite + Nitrate* | mg/l N | 8.954 | 1.250 | <0.050 | <0.050 | <0.050 | 0.127 | 6.196 | 0.718 | 0.722 | 0.376 |
| Total Phosphorus* | mg/l P | 0.165 | 0.164 | 0.153 | 0.089 | 0.157 | 0.162 | 0.836 | 1.090 | 1.080 | 6.380 |
| Orthophosphate* | mg/l P | 0.114 | 0.139 | 0.012 | 0.017 | <0.010 | <0.010 | 0.127 | 0.989 | 0.972 | 6.406 |
| Secchi* | cm | - | - | - | - | 25 | 25 | - | 25 | 25 | - |

## Sampling Point Key

PV03 - Princessvlei-centre
SCV - Southfield Canal at Victoria Road
POC02 - End of Philippi Stormwater Outlet Channel
PP02 - Pelican Park North Pond near Zeekoevlei
ZEV3S - In front of Cape Peninsula Aquatic Club
PVWEIR - Princessvlei near outlet weir
POC01 - Top of Philippi Stormwater Outlet Channel
PP01 - Pelican Park South Pond near Zeekoevlei
ZEV1S - Home Bay in front of Zeekoevlei Yacht Club
ZEV5 - At cutoff drain outfall into the zeekoe canal

**Weather:**

**COMMENTS:**

**COD** = Chemical Oxygen Demand
**Un-ionised Ammonia**: Calculated using the measured soluble ammonia, temperature, pH and conductivity values. A value of 0.000 means that the un-ionised ammonia concentration is <0.004 mg/l N. DWAF Target Water Quality Range =<0.007 mg/l N.

**Technical Signatory:** **Name:** Ismail Halday **Signature:**

**Laboratory Head: Analytical Laboratory:** *(In absence Deputy signature)* **Name:** Swastika Surujlal-Naicker **Signature:**

## APPENDIX 1: TEST METHODS

| Parameter | Test Method | Uncertainty of Measurement (Worst case UoM for a confidence level of 95%) |
|---|---|---|
| Turbidity | MM/WL_TM/03 | 7% |
| pH @ 25℃ | MM/CCH_TM/01 | 12% |
| Conductivity @ 25℃ | MM/CCH_TM/02 | 17% |
| Chemical Oxygen Demand | MM/AL_TM/01 | 11% |
| Total Suspended Solids @ 105℃ | MM/CCH_TM/21 | 11% |
| Chloride | ISO 15682 | See Note 5 |
| Nitrite | ISO 10304 | See Note 5 |
| Nitrate & Nitrite | ISO 13395 | See Note 5 |
| Free Chlorine | ISO 7393 | See Note 5 |
| Alkalinity | ISO 9963 | See Note 5 |
| Ammonia | ISO 5664 | See Note 5 |
| Biological Oxygen Demand | ISO 5815 | See Note 5 |
| Colour | ISO 7887 | See Note 5 |
| Cyanide | ISO 6703 | See Note 5 |
| Fluoride | ISO 10359 | See Note 5 |
| ICP-MS for Metals | ISO 17294 | See Note 5 |
| ICP-OES for Metals | ISO 11885 | See Note 5 |
| Phenols | ISO 14402 | See Note 5 |
| Silica | ISO 16264 | See Note 5 |
| Sulphate | ISO 22743 | See Note 5 |
| Sulphide | ISO 33358 | See Note 5 |
| Total Kjeldahl Nitrogen | ISO 5663 | See Note 5 |
| Total & Ortho Phosphate | ISO 15681 | See Note 5 |
| Total Persulfate Oxidizable Nitrogen | ISO 11905 | See Note 5 |
| Total Organic Carbon | ISO 8245 | See Note 5 |

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