

PLEASE NOTE

Due to the Covid-19 pandemic, Rand Water undertook reduced sampling of sites during this time.

In this regard, some water quality data in the following report is not available for this quarter (Apr-Jun 2020).

Following the lifting of lockdown restrictions, the reinstating of normal sampling procedures will take place.

| Sample Points | Sample Point Description | Quarter | Ammonia | Chemical Oxygen Demand | Chloride | Conductivity | E.coli | Fluoride | M-Alkalinity | Nitrate | pH | Phosphate | Sulphate |
|---------------|--|---------|---------|------------------------|----------|--------------|--------|----------|--------------|---------|-----|-----------|----------|
| VSS | Sandspruit below Vaal River @ Klipplaatsdrift 27° 12.508'S 29° 26.225'E | 1 | 0.02 | 15 | 16 | 122 | | 0.51 | 158 | <0.50 | 5.9 | <0.25 | 39 |
| | | 2 | 0.09 | 220 | 8 | 22 | | 0.85 | 65 | 2.60 | 7.1 | <0.25 | 39 |
| | | 3 | 0.26 | 26 | 9 | 24 | | 0.34 | 96 | <0.50 | 7.7 | <0.25 | 18 |
| | | 4 | | | | | | | | | | | |
| KB | Klip River @ Barnardskop 27° 28.203'S 29° 36.032'E | 1 | 0.02 | 27 | 6 | 18 | | 0.24 | 52 | <0.50 | 7.5 | <0.25 | 5 |
| | | 2 | 0.11 | 60 | 12 | 20 | | 0.39 | 51 | <0.50 | 7.3 | <0.25 | 24 |
| | | 3 | 0.13 | 28 | 8 | 12 | | 0.31 | 50 | <0.50 | 7.5 | 0.27 | 13 |
| | | 4 | | | | | | | | | | | |
| KW | Klip @ Winkelhaak 27° 14.694'S 29° 23.996'E | 1 | | | | | | | | | | | |
| | | 2 | 0.19 | 28 | 12 | 53 | | 0.48 | 134 | <0.50 | 7.5 | <0.25 | 18 |
| | | 3 | 0.08 | 28 | 4 | 12 | | 0.28 | 52 | <0.50 | 7.3 | 0.51 | 10 |
| | | 4 | | | | | | | | | | | |
| KD | Klip River @ De Langesdrift 27° 10.964'S 29° 14.097'E | 1 | 0.04 | 22 | 10 | 41 | | 0.37 | 163 | <0.50 | 8.1 | <0.25 | 15 |
| | | 2 | 0.10 | 36 | 9 | 41 | | 0.68 | 155 | 1.70 | 7.3 | <0.25 | 32 |
| | | 3 | 0.06 | 30 | 7 | 14 | | 0.39 | 61 | 0.62 | 7.6 | <0.25 | 13 |
| | | 4 | 0.03 | 18 | 19 | 39 | | 0.49 | 102 | 3.90 | 7.5 | <0.25 | 46 |
| KSV | Spruitsonderdrift downstream of Vrede 27° 21.137'S 29° 10.281'E | 1 | 0.05 | 30 | 57 | 83 | | 0.76 | 118 | 1.93 | 8.5 | 0.56 | 62 |
| | | 2 | 1.73 | 42 | 57 | 63 | | 1.36 | 138 | 0.80 | 7.7 | 2.23 | 40 |
| | | 3 | 0.11 | 30 | 33 | 56 | | 0.45 | 237 | 1.90 | 8.0 | 0.94 | 35 |
| | | 4 | 0.31 | 37 | 63 | 58 | | 0.70 | 197 | 1.14 | 8.1 | 0.60 | 49 |
| VDS | Vaal River downstream of Standerton 27° 0.933'S 29° 1.488'E | 1 | 0.09 | 35 | 24 | 44 | | 0.53 | 162 | <0.50 | 8.2 | <0.25 | 35 |
| | | 2 | 0.49 | 38 | 30 | 45 | | 0.71 | 148 | 0.67 | 7.6 | <0.25 | 46 |
| | | 3 | 0.09 | 28 | 10 | 22 | | 0.29 | 66 | 0.88 | 7.6 | <0.25 | 29 |
| | | 4 | 2.89 | 23 | 15 | 30 | | 0.38 | 94 | 0.84 | 6.7 | 1.30 | 28 |
| VGB | Gladdedrift Bridge @ Villiers 26° 59.521'S 28° 43.786'E | 1 | 8.52 | 16 | 20 | 40 | | 0.46 | 145 | <0.50 | 7.9 | 1.23 | 35 |
| | | 2 | 0.07 | 20 | 40 | 61 | | 0.69 | 225 | <0.50 | 8.0 | <0.25 | 54 |
| | | 3 | 0.08 | 23 | 11 | 26 | | 0.34 | 67 | 0.93 | 7.9 | 0.82 | 35 |
| | | 4 | 0.06 | 23 | 13 | 24 | | 0.35 | 80 | <0.50 | 7.9 | <0.25 | 29 |
| VV | Vaal @ Villiers 27° 1.389'S 28° 35.631'E | 1 | 0.38 | 27 | 29 | 42 | 8 | 0.55 | 143 | <0.50 | 8.3 | <0.25 | 41 |
| | | 2 | 0.51 | 27 | 30 | 41 | 596 | 0.72 | 112 | 1.93 | 7.4 | 0.32 | 44 |
| | | 3 | 0.06 | 27 | 19 | 41 | 1 241 | 0.34 | 92 | 0.91 | 8.1 | <0.25 | 46 |
| | | 4 | 0.19 | 29 | 29 | 39 | 473 | 0.47 | 111 | 1.37 | 8.0 | <0.25 | 46 |
| VD4I | Vaal Dam 4 Integrated - Vaal River upstream of Vaal Marina 26° 55.366'S 28° 17.219'E | 1 | 0.03 | 18 | 18 | 38 | 0 | 0.49 | 114 | <0.50 | 8.0 | <0.25 | 32 |
| | | 2 | 0.06 | 23 | 22 | 39 | 68 | 0.64 | 130 | 0.62 | 8.2 | 0.27 | 49 |
| | | 3 | 0.10 | 24 | 13 | 25 | 30 | 0.34 | 64 | 0.75 | 7.6 | 0.53 | 39 |
| | | 4 | 0.06 | 18 | 16 | 29 | 4 | 0.49 | 74 | 0.70 | 7.8 | <0.25 | 47 |
| WF | Wilge River @ Frankfort 27° 16.311'S 28° 29.489'E | 1 | 0.30 | 11 | 3 | 14 | 597 | 0.21 | 53 | <0.50 | 7.6 | <0.25 | 7 |
| | | 2 | 0.09 | 22 | 9 | 21 | 537 | 0.20 | 91 | <0.50 | 7.7 | <0.25 | 14 |
| | | 3 | 0.08 | 21 | 4 | 15 | 593 | 0.29 | 48 | 0.79 | 7.5 | <0.25 | 22 |
| | | 4 | 0.13 | 23 | 3 | 11 | 797 | 0.28 | 42 | 0.52 | 7.6 | <0.25 | 7 |
| VD3I | Vaal Dam 3 Integrated - Wilge River downstream of Oranjeville 26° 56.208'S 28° 12.699'E | 1 | 0.03 | 16 | 20 | 17 | 0 | 0.39 | 65 | 1.03 | 7.8 | <0.25 | 22 |
| | | 2 | 0.05 | 21 | 5 | 16 | 4 | 0.25 | 59 | <0.50 | 8.0 | <0.25 | 15 |
| | | 3 | 1.05 | 19 | 5 | 18 | 10 | 0.30 | 63 | <0.50 | 8.3 | 0.82 | 16 |
| | | 4 | 0.03 | 17 | 4 | 16 | 1 | 0.27 | 55 | 0.64 | 7.7 | <0.25 | 16 |
| VD2I | Vaal Dam 2 Integrated - Confluence of Vaal & Wilge 26° 54.484'S 28° 11.933'E | 1 | 1.13 | 31 | 6 | 15 | 1 | 0.29 | 59 | <0.50 | 7.8 | <0.25 | 14 |
| | | 2 | 0.07 | 29 | 8 | 19 | 7 | 0.36 | 65 | 0.72 | 7.9 | <0.25 | 22 |
| | | 3 | 0.09 | 18 | 15 | 22 | 11 | 0.31 | 66 | 1.20 | 7.9 | 1.20 | 37 |
| | | 4 | 0.05 | 16 | 8 | 19 | 13 | 0.36 | 61 | 0.55 | 7.8 | <0.25 | 24 |



RAND WATER

Quarterly Water Quality Status of the Vaal Dam Reservoir Catchment

01 July 2019 - 30 June 2020

| Sample Points | Sample Point Description | Quarter | Ammonia | Chemical Oxygen Demand | Chloride | Conductivity | <i>E.coli</i> | Fluoride | M-Alkalinity | Nitrate | pH | Phosphate | Sulphate |
|---------------|-----------------------------------|---------|---------|------------------------|----------|--------------|---------------|----------|--------------|---------|-----|-----------|----------|
| VD11 | Vaal Dam 1 Integrated @ RW Intake | 1 | 0.04 | 11 | 5 | 15 | 0 | 0.30 | 62 | <0.5 | 7.7 | <0.25 | 15 |
| | | 2 | 2.82 | 11 | 6 | 17 | 3 | 0.31 | 62 | <0.5 | 7.9 | <0.25 | 18 |
| | | 3 | 0.19 | 17 | 9 | 27 | 9 | 0.28 | 71 | 0.69 | 7.8 | <0.25 | 24 |
| | 26° 53.075'S 28° 7.329'E | 4 | 0.05 | 18 | 9 | 22 | 2 | 0.36 | 67 | 0.54 | 7.9 | <0.25 | 26 |
| KLIPR_VDAM | Klip River inflow to Vaal Dam | 1 | 0.04 | 36 | 10 | 28 | | 0.37 | 103 | <0.5 | 7.7 | <0.25 | 19 |
| | | 2 | 0.10 | 34 | 17 | 36 | | 0.42 | 125 | 0.60 | 7.6 | <0.25 | 26 |
| | | 3 | 0.32 | 41 | 8 | 20 | | 0.30 | 80 | 0.62 | 7.5 | 0.34 | 16 |
| | 27° 7.735'S 28° 17.028'E | 4 | 0.12 | 40 | 14 | 27 | | 0.44 | 105 | 0.56 | 7.8 | <0.25 | 21 |

Key

| | | | | |
|------|-----------------------------------|---|------|----------------------------|
| VD11 | Vaal Dam 1 Integrated @ RW Intake | 1 | 0.04 | - 1 Jul to 30 Sept 2019 |
| | | 2 | 2.82 | - 1 Oct to 31 Dec 2019 |
| | | 3 | 0.19 | - 1 March to 30 April 2020 |
| | | 4 | 0.05 | - 1 Apr to 30 Jun 2020 |
| | 26° 53.075'S 28° 7.329'E | | | |

Water Quality Guidelines

| | |
|--|----------------|
| | - Ideal |
| | - Acceptable |
| | - Tolerable |
| | - Unacceptable |

Sewage Works Compliance (where applicable) to General Standard (GN 1191 Oct 1999)

| Sample Points | Sample Point Description | Quarter | Ammonia | Chemical Oxygen Demand | Chloride | Conductivity | Faecal coliforms | Fluoride | M-Alkalinity | Nitrate | pH | Phosphate | Sulphate | |
|-----------------|--|---------|---------|------------------------|----------|--------------|------------------|----------|--------------|---------|-----|-----------|----------|--|
| S-ST_NEW | Standerton Sewage Works 26° 58.453'S 28° 12.260'E | 1 | 34.00 | 228 | 70 | 93 | 646 910 | 1.42 | 295 | <0.5 | 7.2 | 2.99 | 31 | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 7.91 | 68 | 51 | 72 | 124 323 | 0.46 | 220 | 4.10 | 7.6 | 1.61 | 64 | |
| | | 4 | | | | | | | | | | | | |
| S-DENEYSVILLE | Final Effluent of Deneysville WWTW 26° 53.103'S 28° 6.692'E | 1 | 7.05 | 121 | 34 | 46 | 115 864 | 1.40 | 130 | 2.65 | 7.4 | 2.30 | 35 | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 0.48 | 42 | 48 | 58 | 8 600 | <0.20 | 150 | 4.90 | 7.4 | <0.25 | 46 | |
| | | 4 | | | | | | | | | | | | |
| S-FRANKF_NAMAHA | Final Effluent of Frankfort Namahadi 27° 15.691'S 28° 29.503'E | 1 | | | | | | | | | | | | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 2.97 | 67 | 24 | 47 | 65 | 0.22 | 74 | 4.84 | 7.3 | 4.20 | 29 | |
| | | 4 | 11.54 | 59 | 41 | 60 | 7 474 | 0.96 | 195 | 2.90 | 7.6 | 3.50 | 40 | |
| S-FRANKF_OXI_P | Final Effluent of Frankfort Oxidation Ponds 27° 17.453'S 28° 29.276'E | 1 | 0.99 | 167 | 70 | 68 | 7 860 | 1.01 | 223 | 1.18 | 8.0 | 1.83 | 38 | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 0.04 | 178 | 12 | 74 | 1 429 | 0.21 | 240 | 0.68 | 8.1 | 2.29 | 22 | |
| | | 4 | | | | | | | | | | | | |
| S-ORANJEVILLE | Final Effluent of Oranjeville WWTW 26° 58.804'S 28° 12.597'E | 1 | 8.07 | 75 | 45 | 58 | 668 424 | 1.14 | 121 | 18.00 | 7.6 | 2.87 | 33 | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 7.00 | 48 | 29 | 52 | 438 200 | 0.69 | 147 | 11.25 | 7.5 | 3.14 | 27 | |
| | | 4 | 6.29 | 50 | 33 | 52 | 2 591 725 | 0.69 | 166 | 3.80 | 7.4 | 2.77 | 25 | |
| S-VAAL_MARINA | Final Effluent of Vaal Marina WWTW 26° 53.324'S 28° 12.838'E | 1 | 5.00 | 68 | 61 | 65 | 22 | 1.10 | 153 | 6.90 | 7.6 | 3.71 | 60 | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 8.22 | 45 | 42 | 66 | 267 | 0.40 | 159 | 4.86 | 7.5 | 4.17 | 35 | |
| | | 4 | 7.65 | 58 | 57 | 62 | 388 | 0.89 | 117 | 12.85 | 7.6 | 2.84 | 52 | |
| S-VILLIERS | Final Effluent of Villiers WWTW 27° 1.908'S 28° 35.366'E | 1 | 12.70 | 208 | 90 | 104 | 26 663 | 0.47 | 315 | 0.56 | 7.7 | 3.76 | 57 | |
| | | 2 | | | | | | | | | | | | |
| | | 3 | 19.20 | 181 | 97 | 91 | 31 099 | 0.32 | 434 | 3.70 | 7.7 | 3.68 | 70 | |
| | | 4 | 35.25 | 106 | 75 | 93 | 308 | 0.44 | 263 | 8.26 | 7.7 | 14.42 | 68 | |

Key

| | | | | |
|---------------|---|---|------|-------------------------|
| S-VAAL_MARINA | Final Effluent of Vaal Marina WWTW 26° 53.324'S 28° 12.838'E | 1 | 5.00 | - 1 Jul to 30 Sept 2019 |
| | | 2 | | - 1 Oct to 31 Dec 2019 |
| | | 3 | 8.22 | - 1 Jan to 31 Mar 2020 |
| | | 4 | 7.65 | - 1 Apr to 30 Jun 2020 |

Water Quality Guidelines

| | |
|--|----------------|
| | - Acceptable |
| | - Unacceptable |

In-stream Water Quality for the Vaal Dam Catchment

| Variables | Measured as | Ideal Catchment Background | Acceptable Management Target | Tolerable Interim Target | Unacceptable |
|------------------------------|------------------------|-------------------------------|---------------------------------|-----------------------------|--------------|
| Physical | | | | | |
| Conductivity | mS/m | < 10 | 10 - 30 | 30 - 45 | > 45 |
| pH | pH units | 6.5 - 8.5 | | | < 6.5; > 8.5 |
| Organic | | | | | |
| Chemical Oxygen Demand (COD) | mg/l | < 10 | 10 - 15 | 15 - 20 | > 20 |
| Macro Elements | | | | | |
| Ammonia (NH ₄) | mg/l | < 0.2 | 0.2 - 0.5 | 0.5 - 1.0 | > 1.0 |
| Chloride (Cl) | mg/l | < 25 | 25 - 50 | 50 - 75 | > 75 |
| Fluoride (F) | mg/l | < 0.05 | 0.05 - 0.20 | 0.20 - 0.40 | > 0.40 |
| Alkalinity | CaCO ₃ mg/l | < 40 | 40 - 75 | 75 - 120 | > 120 |
| Nitrate (NO ₃) | mg/l | < 0.1 | 0.1 - 0.2 | 0.2 - 0.3 | > 0.3 |
| Phosphate (PO ₄) | mg/l | < 0.05 | 0.05 - 0.25 | 0.25 - 0.50 | > 0.50 |
| Sulphate (SO ₄) | mg/l | < 20 | 20 - 45 | 45 - 70 | > 70 |
| Bacteriological | | | | | |
| <i>E.coli</i> | counts/100ml | < 10 | 10 - 60 | 60 - 120 | > 120 |
| <i>Faecal coliforms</i> | counts/100ml | | < 126 | 126 - 1000 | > 1000 |

Sewage Works Compliance to General Standard (GN 1191 Oct 1999)

| Variables | Measured as | Acceptable Management Target | Unacceptable |
|-------------------------------|--------------|---------------------------------|--------------|
| Physical | | | |
| Conductivity | mS/m | < 150 | >= 150 |
| pH | pH units | 5.5 - 9.5 | < 5.5; > 9.5 |
| Organic | | | |
| Chemical Oxygen Demand (COD)* | mg/l | < 75 | >= 75 |
| Macro Elements | | | |
| Ammonia (NH ₄) | mg/l | < 3 | >= 3 |
| Fluoride (F) | mg/l | < 1 | >= 1 |
| Nitrate (NO ₃) | mg/l | < 15 | >= 15 |
| Phosphate (PO ₄) | mg/l | < 10 | >= 10 |
| Bacteriological | | | |
| <i>Faecal coliforms</i> | counts/100ml | < 1,000 | >= 1,000 |

*After removal of algae

Visit
<http://www.reservoir.co.za/>
 to find the water quality
 status report and forum
 dates