

Rand Water
Quarterly Water Quality Status of the Rietspruit Catchment

01 Jul 2018 - 30 Jun 2019



| Sample Points | Sample Point Description | Quarter | Aluminium | Ammonia | Chemical Oxygen Demand | Chloride | Conductivity | Daphnia Toxicity | Dissolved Oxygen | E.coli | Fluoride | Iron | Magnesium | Manganese | Nitrate | pH | Phosphate | Sodium | Sulphate | Suspended Solids | |
|---------------|--|---------|-----------|---------|------------------------|----------|--------------|------------------|------------------|-----------|----------|------|-----------|-----------|---------|-----|-----------|--------|----------|------------------|--|
| LPO | Leeuspruit @ Potchefstroom Road 26° 36.871'S 27° 45.210'E | 1 | 0.08 | 0.07 | 18 | 205 | 162 | | 1.7 | | 0.33 | 0.08 | 59 | 0.23 | 0.85 | 8.0 | 0.22 | 97 | 667 | 29 | |
| | | 2 | | | | | | | | | | | | | | | | | | | |
| | | 3 | 0.03 | 0.24 | 25 | 112 | 126 | | 4.0 | | 1.20 | 0.17 | 42 | 0.14 | 0.50 | 7.9 | 0.28 | 73 | 375 | 22 | |
| | | 4 | 0.16 | 0.03 | 23 | 67 | 82 | | 4.4 | | 0.87 | 0.30 | 25 | 0.27 | 0.50 | 7.8 | 0.25 | 46 | 211 | 37 | |
| LWA | Leeuspruit @ Westonaria 26° 25.362'S 27° 40.881'E | 1 | 0.03 | 2.33 | 19 | 125 | 170 | | 2.5 | | 0.21 | 0.09 | 37 | 2.19 | 8.93 | 7.5 | 0.26 | 128 | 998 | 30 | |
| | | 2 | | | | | | | | | | | | | | | | | | | |
| | | 3 | 0.03 | 0.72 | 27 | 55 | 116 | | 3.6 | | 1.05 | 0.04 | 31 | 0.52 | 0.65 | 7.6 | 0.28 | 62 | 417 | 19 | |
| | | 4 | 0.03 | 1.67 | 11 | 52 | 102 | | 5.9 | | 1.09 | 0.07 | 32 | 0.41 | 1.93 | 7.5 | 0.27 | 57 | 363 | 15 | |
| REN | Rietspruit above Ennerdale 26° 22.068'S 27° 44.334'E | 1 | 0.03 | 0.04 | 10 | 20 | 96 | | 2.0 | | 0.29 | 0.02 | 37 | 0.02 | 0.71 | 7.8 | 0.22 | 32 | 512 | 15 | |
| | | 2 | 0.03 | 0.04 | 10 | 20 | 87 | | 2.6 | | 0.91 | 0.03 | 38 | 0.05 | 0.50 | 7.5 | 0.25 | 31 | 358 | 15 | |
| | | 3 | 0.03 | 1.92 | 11 | 21 | 88 | | 1.4 | | 0.97 | 0.03 | 31 | 0.04 | 0.57 | 7.9 | 0.25 | 28 | 347 | 15 | |
| | | 4 | 0.03 | 0.03 | 10 | 21 | 70 | | 5.0 | | 1.17 | 0.03 | 37 | 0.03 | 0.77 | 7.6 | 0.25 | 30 | 372 | 15 | |
| RV1 | Rietspruit @ Sebokeng 26° 32.767'S 27° 49.803'E | 1 | 0.07 | 12.67 | 72 | 38 | 61 | | 9.9 | 1,939,833 | 0.20 | 0.34 | 15 | 0.45 | 0.46 | 7.4 | 1.10 | 33 | 28 | 58 | |
| | | 2 | 0.15 | 5.35 | 72 | 31 | 48 | | 1.0 | 1,444,067 | 0.44 | 0.41 | 11 | 0.43 | 0.50 | 7.4 | 0.72 | 29 | 32 | 86 | |
| | | 3 | 0.04 | 17.00 | 48 | 35 | 57 | | 1.0 | 6,539,700 | 0.51 | 0.39 | 11 | 0.49 | 0.50 | 7.2 | 1.53 | 31 | 34 | 50 | |
| | | 4 | 0.20 | 9.18 | 78 | 34 | 62 | | 1.4 | 4,477,300 | 0.47 | 0.34 | 11 | 0.17 | 0.83 | 7.4 | 0.70 | 27 | 39 | 113 | |
| RV2 | Rietspruit Weir @ Loch Vaal 26° 43.719'S 27° 43.077'E | 1 | 0.04 | 11.93 | 40 | 38 | 62 | 92 | 1.1 | 229,945 | 0.21 | 0.23 | 16 | 0.20 | 0.52 | 7.3 | 1.35 | 41 | 93 | 31 | |
| | | 2 | 0.03 | 8.78 | 41 | 36 | 57 | 99 | 1.7 | 19,358 | 0.48 | 0.16 | 15 | 0.12 | 2.87 | 7.2 | 1.22 | 44 | 80 | 35 | |
| | | 3 | 0.12 | 3.56 | 28 | 34 | 52 | 100 | 1.2 | 217,085 | 0.60 | 0.30 | 13 | 0.13 | 2.30 | 7.1 | 0.73 | 31 | 76 | 72 | |
| | | 4 | 0.08 | 8.00 | 33 | 36 | 59 | 100 | 2.4 | 143,113 | 0.70 | 0.25 | 19 | 0.23 | 0.63 | 7.6 | 0.81 | 43 | 83 | 37 | |
| RV3 | Rietspruit @ Westonaria 26° 32.627'S 27° 48.402'E | 1 | 0.15 | 0.05 | 13 | 31 | 83 | | 0.5 | | 0.25 | 0.14 | 32 | 0.11 | 1.23 | 7.8 | 0.22 | 39 | 315 | 19 | |
| | | 2 | 0.23 | 0.11 | 20 | 37 | 87 | | 2.8 | | 0.87 | 0.26 | 33 | 0.15 | 1.70 | 7.7 | 0.25 | 42 | 288 | 83 | |
| | | 3 | 0.03 | 0.14 | 14 | 31 | 81 | | 2.7 | | 0.88 | 0.05 | 31 | 0.06 | 1.19 | 7.8 | 0.25 | 36 | 257 | 42 | |
| | | 4 | 0.66 | 3.47 | 18 | 25 | 69 | | 3.8 | | 0.91 | 0.45 | 18 | 0.09 | 1.80 | 7.4 | 0.45 | 20 | 229 | 63 | |

Key

| | | | | | |
|-----|--|---|------|-------|------------------------|
| RV1 | Rietspruit @ Sebokeng 26° 32.767'S 27° 49.803'E | 1 | 0.07 | 12.67 | - 1 Jul to 30 Sep 2018 |
| | | 2 | 0.15 | 5.35 | - 1 Oct to 31 Dec 2018 |
| | | 3 | 0.04 | 17.00 | - 1 Jan to 31 Mar 2019 |
| | | 4 | 0.20 | 9.18 | - 1 Apr to 30 Jun 2019 |

Water Quality Guidelines

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| | - Ideal |
| | - Acceptable |
| | - Tolerable |
| | - Unacceptable |
| | - Not analysed |



WWTW Description

| Quarter | Aluminium | Ammonia | Chemical Oxygen Demand | Chloride | Conductivity | Dissolved Oxygen | E.coli | Fluoride | Iron | Magnesium | Manganese | Nitrate | pH | Phosphate | Sodium | Sulphate | Suspended Solids | |
|--|-----------|---------|------------------------|----------|--------------|------------------|--------|----------|------|-----------|-----------|---------|------|-----------|--------|----------|------------------|----|
| Ennerdale (S-ENNER) Region: Ennerdale Local Authority: Johannesburg 26° 25.005'S 27° 46.535'E | 1 | 0.03 | 2.95 | 17 | 104 | 72 | 3.2 | 0 | 0.22 | 0.02 | 10 | 0.01 | 2.84 | 7.6 | 0.18 | 62 | 48 | 18 |
| | 2 | 0.03 | 8.80 | 28 | 104 | 73 | 1.6 | 0 | 0.38 | 0.03 | 8 | 0.09 | 2.07 | 7.6 | 0.34 | 83 | 53 | 19 |
| | 3 | 0.03 | 1.85 | 14 | 136 | 81 | 2.8 | 40,327 | 0.38 | 0.06 | 9 | 0.02 | 3.87 | 7.6 | 0.57 | 47 | 44 | 16 |
| | 4 | 0.03 | 1.69 | 10 | 194 | 96 | 5.0 | 0 | 0.31 | 0.03 | 9 | 0.01 | 4.88 | 7.3 | 0.25 | 192 | 42 | 15 |
| Sebokeng (S-SEB_NEW) Region: Sebokeng Local Authority: Emfuleni 26° 34.637'S 27° 48.570'E | 1 | 0.04 | 10.95 | 120 | 31 | 50 | 0.9 | 572,300 | 0.20 | 0.11 | 9 | 0.07 | 0.75 | 7.2 | 1.10 | 33 | 37 | 97 |
| | 2 | 0.03 | 2.90 | 50 | 35 | 44 | 2.1 | 42,995 | 0.47 | 0.08 | 8 | 0.03 | 2.35 | 7.1 | 0.33 | 34 | 41 | 20 |
| | 3 | 0.03 | 3.77 | 28 | 32 | 42 | 1.9 | 56,620 | 0.44 | 0.07 | 10 | 0.04 | 4.53 | 7.1 | 2.45 | 30 | 40 | 45 |
| | 4 | 0.05 | 6.07 | 82 | 30 | 44 | 2.6 | 43,291 | 0.49 | 0.12 | 9 | 0.08 | 5.63 | 7.1 | 1.02 | 37 | 38 | 62 |
| Vanderbijlpark (S-VDB_RIET) Region: Vanderbijlpark Local Authority: Emfuleni 26° 41.670'S 27° 45.292'E | 1 | 0.06 | 14.03 | 56 | 60 | 73 | 2.1 | 705,450 | 0.23 | 0.13 | 11 | 0.18 | 4.36 | 7.3 | 2.50 | 62 | 60 | 23 |
| | 2 | 0.04 | 8.15 | 68 | 60 | 58 | 2.2 | 550,308 | 0.62 | 0.13 | 9 | 0.13 | 5.82 | 7.2 | 1.55 | 53 | 61 | 21 |
| | 3 | 0.03 | 9.68 | 49 | 52 | 60 | 1.5 | 555,800 | 0.72 | 0.09 | 9 | 0.09 | 9.83 | 7.2 | 2.32 | 45 | 68 | 19 |
| | 4 | 0.03 | 9.38 | 107 | 48 | 60 | 1.6 | 817,767 | 0.87 | 0.10 | 10 | 0.11 | 3.90 | 7.2 | 1.12 | 42 | 60 | 31 |

Key

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|---|---|------|------|------------------------|
| Ennerdale (S-ENNER) Region: Ennerdale Local Authority: Johannesburg 26° 25.005'S 27° 46.535'E | 1 | 0.03 | 2.95 | - 1 Jul to 30 Sep 2018 |
| | 2 | 0.03 | 8.80 | - 1 Oct to 31 Dec 2018 |
| | 3 | 0.03 | 1.85 | - 1 Jan to 31 Mar 2019 |
| | 4 | 0.03 | 1.69 | - 1 Apr to 30 Jun 2019 |

Water Quality Guidelines

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|--|----------------|
| | - Ideal |
| | - Acceptable |
| | - Tolerable |
| | - Unacceptable |
| | - Not analysed |

| Variables | Measured as | Ideal Catchment Background | Acceptable Management Target | Tolerable Interim Target | Unacceptable |
|------------------------------------|---------------------|-------------------------------|---------------------------------|-----------------------------|--------------|
| Physical | | | | | |
| Conductivity | mS/m | < 45 | 45 - 70 | 70 - 120 | > 120 |
| Dissolved Oxygen (O ₂) | mg/l O ₂ | | > 6.0 | 5.0 - 6.0 | < 5.0 |
| pH | pH units | 6.5 - 8.5 | | | < 6.5; > 8.5 |
| Suspended Solids | mg/l | < 20 | 20 - 30 | 30 - 55 | > 55 |
| Organic | | | | | |
| Chemical Oxygen Demand (COD) | mg/l | < 20 | 20 - 35 | 35 - 55 | > 55 |
| Macro Elements | | | | | |
| Aluminium (Al) | mg/l | < 0.3 | 0.3 - 0.4 | 0.4 - 0.5 | > 0.5 |
| Ammonia (NH ₄) | mg/l | < 0.1 | 0.1 - 1.5 | 1.5 - 5.0 | > 5.0 |
| Chloride (Cl) | mg/l | < 80 | 80 - 150 | 150 - 200 | > 200 |
| Fluoride (F) | mg/l | < 0.19 | 0.19 - 0.70 | 0.70 - 1.00 | > 1.00 |
| Iron (Fe) | mg/l | < 0.1 | 0.1 - 0.5 | 0.5 - 1.0 | > 1.0 |
| Magnesium (Mg) | mg/l | < 8 | 8 - 30 | 30 - 70 | > 70 |
| Manganese (Mn) | mg/l | < 0.2 | 0.2 - 0.5 | 0.5 - 1.0 | > 1.0 |
| Nitrate (NO ₃) | mg/l | < 0.5 | 0.5 - 3.0 | 3.0 - 6.0 | > 6.0 |
| Phosphate (PO ₄) | mg/l | < 0.2 | 0.2 - 0.4 | 0.4 - 0.6 | > 0.6 |
| Sodium (Na) | mg/l | < 70 | 70 - 100 | 100 - 150 | > 150 |
| Sulphate (SO ₄) | mg/l | < 150 | 150 - 300 | 300 - 500 | > 500 |
| Bacteriological | | | | | |
| <i>E. coli</i> | counts/100ml | < 130 | 130 - 200 | 200 - 400 | > 400 |
| Faecal coliforms | counts/100ml | < 126 | 126 - 1,000 | 1,000 - 10,000 | > 10,000 |
| Biological | | | | | |
| <i>Daphnia</i> | % survival | 100 | 90 - 100 | 80 - 90 | < 80 |