



# REPORTS FOR ROYAL BAFOKENG MUNICIPALITY

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

## Royal Bafokeng Municipality Water Quality Report

21 November 2015 to 22 December 2015

Date generated : 05 January 2016

Parameter	Units of measure	Specifications (based on SANS241: 2005)		No of results	Achieved compliance levels	
		Required compliance			Class I	Class II
		95% min to Class I	99% min to Class II			
<b>SPECIFICATIONS</b>						
<b>Chemical and Physical properties</b>						
Colour	(mg / l as Pt)	< 20	≤ 50	10	90.0%	90.0%
Conductivity	(mS / m)	< 150	≤ 370	12	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	12	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	12	91.7%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	12	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	10	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	10	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	10	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	3	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	10	100.0%	100.0%
<b>Micro Elements</b>						
Antimony	(ug / l as Sb)	< 10	≤ 50	10	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	10	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	10	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	10	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	10	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	10	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	10	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	10	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	10	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	10	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	10	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	10	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	12	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	10	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	10	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	10	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	10	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	10	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	10	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	10	60.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	12	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	10	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	10	100.0%	100.0%
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	≤ 600	10	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	10	100.0%	100.0%
<b>Microbiological</b>						
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	minimum of 99% of the original and repeat/consecutive results shall be non-detected	10	90.0%	90.0%
<b>Other Determinants as required by supply contract (3),(4)</b>						
Free chlorine and monochloramine	(mg / l)	Chloraminated system: ≥ 0.1 min 95% compliance; Chlorinated system: ≥ 0.2 min 95% compliance		10	100.0%	

**Notes :**

- (1) Specification date of effect : July 2006
- (2) Guideline derived from SANS 241: 2005 operations alert and industry practices
- (3) Compliance for Free and monochloramine is against 0.2 mg/l for areas in the chlorinated system
- (4) Compliance for Free and monochloramine is against 0.1 mg/l for areas in the chloraminated system after 30 June 2014
- (5) Compliance for Standard Plate Count is against 100 cfu per 1ml before 30 June 2014 and 500 cfu per 1ml after 30 June 2014 mg/l for areas in the chloraminated system

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Parameter	Units of measure	Specification	No of samples	Mean - 3 SD	Mean - 1 SD	Mean	Mean + 1 SD	Mean + 3 SD	Standard Deviation
<b>Chemical and Physical properties</b>									
Colour	(mg / l as Pt)	< 20	10	5.00	5.00	11.10	28.00	59.00	16.90
Conductivity	(mS / m)	< 150	12	21.00	43.59	63.67	78.00	78.00	20.08
pH	(pH units)	≥ 5 to ≤ 9.5	12	7.85	7.95	8.22	8.48	8.78	0.27
Turbidity	(NTU)	< 1	12	0.25	0.25	0.48	0.84	1.56	0.36
Total Dissolved Solids	(mg / l)	< 1000	12	145.00	277.28	395.00	480.00	480.00	117.72
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	10	140.00	153.54	180.00	206.46	245.00	26.46
Taste	(FTN)	< 5	10	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	10	1.00	1.00	1.00	1.00	1.00	0.00
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	10	19.00	23.51	34.30	45.09	50.00	10.79
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	3	2.50	2.50	2.50	2.50	2.50	0.00
Dissolved Organic Carbon	(mg / l)	< 10	10	3.90	3.98	4.89	5.80	6.60	0.91
<b>Micro Elements</b>									
Antimony	(ug / l as Sb)	< 10	10	0.25	0.25	0.25	0.25	0.25	0.00
Arsenic	(ug / l as As)	< 10	10	0.20	0.40	0.75	1.11	1.30	0.36
Cadmium	(ug / l as Cd)	< 5	10	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	10	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	10	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	10	2.50	2.50	1.00	2.50	2.50	0.00
Lead	(ug / l as Pb)	< 20	10	0.10	0.10	0.10	0.10	0.10	0.00
Mercury	(ug / l as Hg)	< 1	10	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	10	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	10	1.20	2.76	4.97	7.18	7.40	2.21
Vanadium	(ug / l as V)	< 200	10	5.00	5.00	5.00	5.00	5.00	0.00
<b>Macro Elements &amp; Miscellaneous Determinants</b>									
Aluminium	(mg / l as Al)	< 0.3	10	0.013	0.025	0.043	0.060	0.065	0.017
Ammonia	(mg / l as N)	< 1	12	0.050	0.087	0.186	0.285	0.347	0.099
Calcium	(mg / l as Ca)	< 150	10	21.000	22.598	32.500	42.402	59.000	9.902
Chloride	(mg / l as Cl)	< 200	10	5.500	23.303	57.750	92.197	96.000	34.447
Copper	(mg / l as Cu)	< 1	10	0.005	0.005	0.010	0.018	0.032	0.008
Fluoride	(mg / l as F)	< 1	10	0.075	0.124	0.300	0.475	0.530	0.175
Iron	(mg / l as Fe)	< 0.2	10	0.003	0.003	0.020	0.037	0.059	0.017
Magnesium	(mg / l as Mg)	< 70	10	25.000	26.533	28.300	30.000	30.000	1.767
Manganese	(mg / l as Mn)	< 0.1	10	0.016	0.016	0.109	0.202	0.285	0.093
Nitrate & Nitrite	(mg / l as N)	< 10	12	0.050	0.050	0.085	0.155	0.250	0.070
Potassium	(mg / l as K)	< 50	10	8.400	8.400	10.210	12.646	17.000	2.436
Sodium	(mg / l as Na)	< 200	10	15.000	46.576	64.200	74.000	74.000	17.624
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	10	7.600	33.222	66.710	98.000	98.000	33.488
Zinc	( mg / l as Zn)	< 5	10	0.008	0.008	0.012	0.020	0.030	0.008
<b>Microbiological</b>									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	10	0.0	0.0	0.6	2.5	6.0	1.9
<b>Other Determinants as required by supply contract (3),(4)</b>									
Free chlorine and monochloramine	(mg / l)	Chloraminated system: ≥ 0.1 min 95% compliance; Chlorinated system: ≥ 0.2 min 95% compliance	10	0.12	0.41	0.76	1.12	1.32	0.35
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									