



REPORTS FOR RANDFONTEIN MUNICIPALITY

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

Randfontein 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			
SPECIFICATIONS						
Chemical and Physical properties						
Colour	(mg / l as Pt)	< 20	≤ 50	11	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	14	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	14	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	14	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	14	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	11	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	11	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	11	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	5	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	11	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	11	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	11	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	11	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	11	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	11	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	11	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	11	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	11	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	11	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	11	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	11	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	11	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	14	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	11	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	11	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	11	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	11	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	11	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	11	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	11	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	14	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	11	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	11	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	11	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	11	100.0%	100.0%
Microbiological						
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	14	100.0%	100.0%
Other Determinants as required by supply contract (3),(4)						
Free chlorine and monochloramine	(mg / l)	Chloraminated system: ≥ 0.1 min 95% compliance; Chlorinated system: ≥ 0.2 min 95% compliance		14	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
Chemical and Physical properties									
Colour	(mg / l as Pt)	< 20	11	5.00	5.00	5.09	5.39	6.00	0.30
Conductivity	(mS / m)	< 150	14	20.00	20.19	21.14	22.09	23.00	0.95
pH	(pH units)	≥ 5 to ≤ 9.5	14	7.80	7.97	8.10	8.22	8.26	0.13
Turbidity	(NTU)	< 1	14	0.13	0.21	0.29	0.36	0.38	0.08
Total Dissolved Solids	(mg / l)	< 1000	14	140.00	140.10	146.43	152.76	160.00	6.33
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	11	70.00	70.00	72.00	74.61	76.00	2.61
Taste	(FTN)	< 5	11	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	11	1.00	1.00	1.00	1.00	1.00	0.00
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	11	43.00	45.25	47.55	49.84	51.00	2.30
Phenols as C ₆ H ₅ OH	(ug / l)	< 10	5	2.50	2.50	2.50	2.50	2.50	0.00
Dissolved Organic Carbon	(mg / l)	< 10	11	3.40	3.42	3.68	3.94	4.40	0.26
Micro Elements									
Antimony	(ug / l as Sb)	< 10	11	0.25	0.25	0.25	0.25	0.25	0.00
Arsenic	(ug / l as As)	< 10	11	0.05	0.19	0.35	0.52	0.53	0.17
Cadmium	(ug / l as Cd)	< 5	11	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	11	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	11	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	11	2.50	2.50	1.00	3.83	5.88	1.03
Lead	(ug / l as Pb)	< 20	11	0.10	0.10	0.10	0.10	0.10	0.00
Mercury	(ug / l as Hg)	< 1	11	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	11	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	11	0.25	1.82	3.72	5.63	7.30	1.91
Vanadium	(ug / l as V)	< 200	11	5.00	5.00	5.00	5.00	5.00	0.00
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	11	0.013	0.013	0.014	0.017	0.025	0.004
Ammonia	(mg / l as N)	< 1	14	0.050	0.171	0.291	0.411	0.420	0.120
Calcium	(mg / l as Ca)	< 150	11	18.000	18.000	18.545	19.480	20.000	0.934
Chloride	(mg / l as Cl)	< 200	11	9.800	10.339	11.073	11.806	12.000	0.734
Copper	(mg / l as Cu)	< 1	11	0.005	0.005	0.005	0.005	0.005	0.000
Fluoride	(mg / l as F)	< 1	11	0.150	0.161	0.182	0.203	0.210	0.021
Iron	(mg / l as Fe)	< 0.2	11	0.003	0.003	0.019	0.035	0.058	0.016
Magnesium	(mg / l as Mg)	< 70	11	7.200	7.245	7.400	7.555	7.600	0.155
Manganese	(mg / l as Mn)	< 0.1	11	0.005	0.005	0.005	0.005	0.005	0.000
Nitrate & Nitrite	(mg / l as N)	< 10	14	0.100	0.100	0.111	0.121	0.130	0.011
Potassium	(mg / l as K)	< 50	11	2.600	2.686	2.791	2.895	2.900	0.104
Sodium	(mg / l as Na)	< 200	11	9.700	9.700	10.282	10.865	11.000	0.583
Sulphate	(mg / l as SO ₄)	< 400	11	12.000	12.014	13.182	14.350	16.000	1.168
Zinc	(mg / l as Zn)	< 5	11	0.008	0.008	0.009	0.014	0.025	0.005
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	14	0.0	0.0	0.0	0.0	0.0	0.0
Other Determinants as required by supply contract (3),(4)									
Free chlorine and monochloramine	(mg / l)	Chloraminated system: ≥ 0.1 min 95% compliance; Chlorinated system: ≥ 0.2 min 95% compliance	14	1.62	1.74	1.87	1.99	2.04	0.13
Notes : (1) Specification date of effect : July 2006 (2) Guideline derived from SANS 241: 2005 operations alert and industry practices									