



REPORTS FOR WESTONARIA MUNICIPALITY

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

Westonaria 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	19	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	34	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	34	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	34	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	34	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	19	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	19	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	19	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	12	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	19	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	19	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	19	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	19	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	19	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	19	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	19	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	19	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	19	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	19	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	19	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	19	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	19	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	26	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	19	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	19	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	19	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	19	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	19	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	19	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	19	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	26	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	19	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	19	100.0%	100.0%
Sulphate	(mg / l as SO4)	< 400	≤ 600	19	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	19	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	34	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		34	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	19	5.00	5.00	5.05	5.28	5.74	0.23
Conductivity	(mS / m)	< 150	34	20.00	20.10	21.50	22.90	25.69	1.40
pH	(pH units)	≥ 5 to ≤ 9.5	34	7.75	7.97	8.07	8.18	8.20	0.11
Turbidity	(NTU)	< 1	34	0.13	0.19	0.28	0.37	0.44	0.09
Total Dissolved Solids	(mg / l)	< 1000	34	140.00	140.00	148.68	157.58	175.00	8.90
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	19	68.00	69.96	72.32	74.67	76.00	2.36
Taste	(FTN)	< 5	19	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	19	1.00	1.00	1.00	1.00	1.00	0.00
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	19	45.00	48.22	50.21	52.20	54.00	1.99
Phenols as C ₆ H ₅ OH	(ug / l)	< 10	12	2.50	2.50	2.50	2.50	2.50	0.00
Dissolved Organic Carbon	(mg / l)	< 10	19	3.50	3.53	3.73	3.92	4.20	0.20
Micro Elements									
Antimony	(ug / l as Sb)	< 10	19	0.25	0.25	0.25	0.25	0.25	0.00
Arsenic	(ug / l as As)	< 10	19	0.05	0.19	0.36	0.53	0.66	0.17
Cadmium	(ug / l as Cd)	< 5	19	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	19	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	19	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	19	2.50	2.50	1.00	3.23	4.43	0.60
Lead	(ug / l as Pb)	< 20	19	0.10	0.10	0.10	0.10	0.10	0.00
Mercury	(ug / l as Hg)	< 1	19	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	19	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	19	0.25	1.67	3.53	5.38	5.60	1.86
Vanadium	(ug / l as V)	< 200	19	5.00	5.00	5.00	5.00	5.00	0.00
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	19	0.013	0.013	0.013	0.016	0.023	0.003
Ammonia	(mg / l as N)	< 1	26	0.096	0.162	0.275	0.388	0.430	0.113
Calcium	(mg / l as Ca)	< 150	19	17.000	17.621	18.526	19.431	20.000	0.905
Chloride	(mg / l as Cl)	< 200	19	5.098	8.794	10.642	12.000	12.000	1.848
Copper	(mg / l as Cu)	< 1	19	0.005	0.005	0.005	0.005	0.005	0.000
Fluoride	(mg / l as F)	< 1	19	0.075	0.113	0.163	0.213	0.220	0.050
Iron	(mg / l as Fe)	< 0.2	19	0.003	0.004	0.010	0.016	0.020	0.006
Magnesium	(mg / l as Mg)	< 70	19	7.300	7.399	7.537	7.675	7.800	0.138
Manganese	(mg / l as Mn)	< 0.1	19	0.005	0.005	0.005	0.005	0.005	0.000
Nitrate & Nitrite	(mg / l as N)	< 10	26	0.050	0.050	0.102	0.156	0.264	0.054
Potassium	(mg / l as K)	< 50	19	2.700	2.733	2.826	2.920	3.000	0.093
Sodium	(mg / l as Na)	< 200	19	9.800	9.955	10.500	11.000	11.000	0.545
Sulphate	(mg / l as SO ₄)	< 400	19	6.084	10.302	12.411	13.000	13.000	2.109
Zinc	(mg / l as Zn)	< 5	19	0.008	0.008	0.009	0.013	0.021	0.004
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	34	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	34	1.11	1.49	1.74	1.98	2.05	0.25
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									