



# REPORTS FOR METSIMAHOLO MUNICIPALITY

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

## Metsimaholo 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	14	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	28	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	28	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	45	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	28	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	22	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	22	100.0%	100.0%
<b>Organic Determinants</b>						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	19	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	10	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	19	100.0%	100.0%
<b>Micro Elements</b>						
Antimony	(ug / l as Sb)	< 10	≤ 50	14	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	14	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	14	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	14	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	14	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	14	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	14	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	14	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	14	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	14	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	14	100.0%	100.0%
<b>Macro Elements &amp; Miscellaneous Determinants</b>						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	14	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	17	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	14	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	14	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	14	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	14	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	14	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	14	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	14	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	17	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	14	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	14	100.0%	100.0%
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	≤ 600	14	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	14	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	57	100.0%	100.0%
<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		57	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	14	5.00	5.00	5.00	5.00	5.00	0.00
Conductivity	(mS / m)	< 150	28	19.00	20.02	21.50	22.98	25.93	1.48
pH	(pH units)	≥ 5 to ≤ 9.5	28	7.81	7.98	8.12	8.25	8.41	0.14
Turbidity	(NTU)	< 1	45	0.13	0.18	0.26	0.34	0.40	0.08
Total Dissolved Solids	(mg / l)	< 1000	28	135.00	139.29	148.04	156.79	174.28	8.75
Hardness	(mg / l as CaCO <sub>3</sub> )	> 20 to < 200	14	65.00	67.30	70.64	73.99	76.00	3.34
Taste	(FTN)	< 5	22	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	22	1.00	1.00	1.00	1.00	1.00	0.00
<b>Organic Determinants</b>									
Total Trihalomethanes	(ug / l)	< 200	19	14.00	28.36	48.63	68.90	81.00	20.27
Phenols as C <sub>6</sub> H <sub>5</sub> OH	(ug / l)	< 10	10	2.50	2.50	2.50	2.50	2.50	0.00
Dissolved Organic Carbon	(mg / l)	< 10	19	3.40	3.40	3.92	4.61	5.98	0.69
<b>Micro Elements</b>									
Antimony	(ug / l as Sb)	< 10	14	0.25	0.25	0.25	0.25	0.25	0.00
Arsenic	(ug / l as As)	< 10	14	0.05	0.07	0.42	0.77	1.40	0.35
Cadmium	(ug / l as Cd)	< 5	14	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	14	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	14	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	14	2.50	2.50	1.00	9.10	19.53	5.21
Lead	(ug / l as Pb)	< 20	14	0.10	0.10	0.10	0.10	0.10	0.00
Mercury	(ug / l as Hg)	< 1	14	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	14	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	14	0.98	1.59	3.17	4.75	6.10	1.58
Vanadium	(ug / l as V)	< 200	14	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	14	0.013	0.013	0.016	0.027	0.050	0.012
Ammonia	(mg / l as N)	< 1	17	0.025	0.031	0.043	0.050	0.050	0.012
Calcium	(mg / l as Ca)	< 150	14	16.000	16.722	17.929	19.135	20.000	1.207
Chloride	(mg / l as Cl)	< 200	14	9.300	10.462	11.514	12.567	13.000	1.052
Copper	(mg / l as Cu)	< 1	14	0.005	0.005	0.008	0.018	0.038	0.010
Fluoride	(mg / l as F)	< 1	14	0.075	0.128	0.174	0.220	0.220	0.046
Iron	(mg / l as Fe)	< 0.2	14	0.003	0.004	0.016	0.028	0.039	0.012
Magnesium	(mg / l as Mg)	< 70	14	6.900	7.213	7.457	7.701	7.800	0.244
Manganese	(mg / l as Mn)	< 0.1	14	0.005	0.005	0.005	0.005	0.005	0.000
Nitrate & Nitrite	(mg / l as N)	< 10	17	0.050	0.057	0.105	0.154	0.200	0.048
Potassium	(mg / l as K)	< 50	14	2.400	2.663	2.807	2.951	3.000	0.144
Sodium	(mg / l as Na)	< 200	14	10.000	10.373	11.143	11.913	12.000	0.770
Sulphate	(mg / l as SO <sub>4</sub> )	< 400	14	12.000	12.414	13.571	14.729	16.000	1.158
Zinc	(mg / l as Zn)	< 5	14	0.008	0.008	0.011	0.019	0.034	0.009
<b>Microbiological</b>									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	57	0.0	0.0	0.0	0.0	0.0	0.0
<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	57	0.57	1.02	1.47	1.93	2.20	0.46
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									