



REPORTS FOR MIDVAAL MUNICIPALITY

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

Midvaal 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	40	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	134	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	134	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	151	98.7%	99.3%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	134	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	20	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	20	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	20	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	12	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	20	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	40	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	40	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	40	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	40	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	40	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	20	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	40	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	40	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	40	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	40	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	40	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	40	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	55	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	40	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	40	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	40	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	40	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	40	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	40	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	40	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	55	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	40	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	40	100.0%	100.0%
Sulphate	(mg / l as SO ₄)	< 400	≤ 600	40	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	40	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	151	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		151	97.4%	

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	40	5.00	5.00	5.03	5.18	5.50	0.16
Conductivity	(mS / m)	< 150	134	19.00	20.08	21.07	22.07	24.05	0.99
pH	(pH units)	≥ 5 to ≤ 9.5	134	7.63	7.92	8.08	8.23	8.46	0.16
Turbidity	(NTU)	< 1	151	0.13	0.13	0.35	1.02	2.36	0.67
Total Dissolved Solids	(mg / l)	< 1000	134	135.00	139.98	145.60	151.22	162.46	5.62
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	40	43.24	61.53	70.68	79.82	88.00	9.15
Taste	(FTN)	< 5	20	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	20	1.00	1.00	1.00	1.00	1.00	0.00
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	20	17.00	20.91	43.90	66.89	98.00	22.99
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	20	3.40	3.59	3.82	4.04	4.20	0.22
Micro Elements									
Antimony	(ug / l as Sb)	< 10	40	0.25	0.25	0.26	0.30	0.40	0.05
Arsenic	(ug / l as As)	< 10	40	0.05	0.05	0.37	0.69	1.10	0.32
Cadmium	(ug / l as Cd)	< 5	40	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	40	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	40	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	20	2.50	2.50	1.00	3.21	4.37	0.58
Lead	(ug / l as Pb)	< 20	40	0.10	0.10	0.11	0.19	0.33	0.07
Mercury	(ug / l as Hg)	< 1	40	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	40	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	40	0.86	1.08	2.61	4.14	6.20	1.53
Vanadium	(ug / l as V)	< 200	40	5.00	5.00	5.00	5.00	5.00	0.00
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	40	0.013	0.013	0.013	0.016	0.021	0.003
Ammonia	(mg / l as N)	< 1	55	0.034	0.044	0.049	0.054	0.063	0.005
Calcium	(mg / l as Ca)	< 150	40	9.837	15.337	18.088	20.838	24.000	2.750
Chloride	(mg / l as Cl)	< 200	40	8.200	9.040	10.140	11.240	13.000	1.100
Copper	(mg / l as Cu)	< 1	40	0.005	0.005	0.006	0.008	0.013	0.002
Fluoride	(mg / l as F)	< 1	40	0.075	0.100	0.152	0.204	0.210	0.052
Iron	(mg / l as Fe)	< 0.2	40	0.003	0.003	0.011	0.026	0.055	0.015
Magnesium	(mg / l as Mg)	< 70	40	4.708	6.461	7.338	8.100	8.100	0.876
Manganese	(mg / l as Mn)	< 0.1	40	0.005	0.005	0.005	0.005	0.005	0.000
Nitrate & Nitrite	(mg / l as N)	< 10	55	0.050	0.050	0.099	0.155	0.268	0.056
Potassium	(mg / l as K)	< 50	40	2.500	2.651	2.783	2.914	3.000	0.132
Sodium	(mg / l as Na)	< 200	40	5.209	8.700	10.445	12.190	13.000	1.745
Sulphate	(mg / l as SO ₄)	< 400	40	12.000	12.194	13.250	14.306	16.000	1.056
Zinc	(mg / l as Zn)	< 5	40	0.008	0.008	0.009	0.012	0.018	0.003
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	151	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	151	0.04	0.85	1.25	1.66	2.11	0.40
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									