



REPORTS FOR NGWATHE MUNICIPALITY (HEILBRON SUPPLY)

21 NOVEMBER 2015 TO 22 DECEMBER 2015

DATE GENERATED : 05 JANUARY 2016

Ngwathe Municipality (Heilbron Supply) 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	24	100.0%	100.0%
Conductivity	(mS / m)	< 150	≤ 370	27	100.0%	100.0%
pH	(pH units)	≥ 5 to ≤ 9.5	≥ 4 to ≤ 10	27	100.0%	100.0%
Turbidity	(NTU)	< 1	≤ 5	27	100.0%	100.0%
Total Dissolved Solids	(mg / l)	< 1000	≤ 2400	27	100.0%	100.0%
Taste	(FTN)	< 5	≤ 10	24	100.0%	100.0%
Odour	(TON)	< 5	≤ 10	24	100.0%	100.0%
Organic Determinants						
Total Trihalomethanes	(ug / l)	< 200	≤ 300	24	100.0%	100.0%
Phenols as C6H5OH	(ug / l)	< 10	≤ 70	12	100.0%	100.0%
Dissolved Organic Carbon	(mg / l)	< 10	≤ 20	24	100.0%	100.0%
Micro Elements						
Antimony	(ug / l as Sb)	< 10	≤ 50	24	100.0%	100.0%
Arsenic	(ug / l as As)	< 10	≤ 50	24	100.0%	100.0%
Cadmium	(ug / l as Cd)	< 5	≤ 10	24	100.0%	100.0%
Chromium (Total)	(ug / l as Cr)	< 100	≤ 500	24	100.0%	100.0%
Cobalt	(ug / l as Co)	< 500	≤ 1000	24	100.0%	100.0%
Cyanide (Recoverable)	(ug / l as CN)	< 50	≤ 70	24	100.0%	100.0%
Lead	(ug / l as Pb)	< 20	≤ 50	24	100.0%	100.0%
Mercury	(ug / l as Hg)	< 1	≤ 5	24	100.0%	100.0%
Nickel	(ug / l as Ni)	< 150	≤ 350	24	100.0%	100.0%
Selenium	(ug / l as Se)	< 20	≤ 50	24	100.0%	100.0%
Vanadium	(ug / l as V)	< 200	≤ 500	24	100.0%	100.0%
Macro Elements & Miscellaneous Determinants						
Aluminium	(mg / l as Al)	< 0.3	≤ 0.5	24	100.0%	100.0%
Ammonia	(mg / l as N)	< 1	≤ 2	27	100.0%	100.0%
Calcium	(mg / l as Ca)	< 150	≤ 300	24	100.0%	100.0%
Chloride	(mg / l as Cl)	< 200	≤ 600	24	100.0%	100.0%
Copper	(mg / l as Cu)	< 1	≤ 2	24	100.0%	100.0%
Fluoride	(mg / l as F)	< 1	≤ 1.5	24	100.0%	100.0%
Iron	(mg / l as Fe)	< 0.2	≤ 2	24	100.0%	100.0%
Magnesium	(mg / l as Mg)	< 70	≤ 100	24	100.0%	100.0%
Manganese	(mg / l as Mn)	< 0.1	≤ 1	24	100.0%	100.0%
Nitrate & Nitrite	(mg / l as N)	< 10	≤ 20	27	100.0%	100.0%
Potassium	(mg / l as K)	< 50	≤ 100	24	100.0%	100.0%
Sodium	(mg / l as Na)	< 200	≤ 400	24	100.0%	100.0%
Sulphate	(mg / l as SO ₄)	< 400	≤ 600	24	100.0%	100.0%
Zinc	(mg / l as Zn)	< 5	≤ 10	24	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	27	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		27	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	24	5.00	5.00	5.04	5.25	5.65	0.20
Conductivity	(mS / m)	< 150	27	19.00	19.47	22.41	25.35	31.22	2.94
pH	(pH units)	≥ 5 to ≤ 9.5	27	7.67	7.97	8.13	8.28	8.35	0.15
Turbidity	(NTU)	< 1	27	0.13	0.19	0.27	0.35	0.42	0.08
Total Dissolved Solids	(mg / l)	< 1000	27	135.00	136.10	153.15	170.20	204.30	17.05
Hardness	(mg / l as CaCO ₃)	> 20 to < 200	24	68.00	68.55	71.71	74.86	78.00	3.16
Taste	(FTN)	< 5	24	1.00	1.00	1.00	1.00	1.00	0.00
Odour	(TON)	< 5	24	1.00	1.00	1.00	1.00	1.00	0.00
Organic Determinants									
Total Trihalomethanes	(ug / l)	< 200	24	45.00	56.96	70.21	83.46	89.00	13.25
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	24	3.40	3.40	3.90	4.54	5.82	0.64
Micro Elements									
Antimony	(ug / l as Sb)	< 10	24	0.25	0.25	0.25	0.25	0.25	0.00
Arsenic	(ug / l as As)	< 10	24	0.05	0.14	0.35	0.56	0.76	0.21
Cadmium	(ug / l as Cd)	< 5	24	1.25	1.25	1.25	1.25	1.25	0.00
Chromium (Total)	(ug / l as Cr)	< 100	24	7.50	7.50	7.50	7.50	7.50	0.00
Cobalt	(ug / l as Co)	< 500	24	5.00	5.00	5.00	5.00	5.00	0.00
Cyanide (Recoverable)	(ug / l as CN)	< 50	24	2.50	2.50	1.00	2.50	2.50	0.00
Lead	(ug / l as Pb)	< 20	24	0.10	0.10	0.10	0.10	0.10	0.00
Mercury	(ug / l as Hg)	< 1	24	0.40	0.40	0.40	0.40	0.40	0.00
Nickel	(ug / l as Ni)	< 150	24	5.00	5.00	5.00	5.00	5.00	0.00
Selenium	(ug / l as Se)	< 20	24	0.98	1.20	3.03	4.87	6.40	1.84
Vanadium	(ug / l as V)	< 200	24	5.00	5.00	5.00	5.00	5.00	0.00
Macro Elements & Miscellaneous Determinants									
Aluminium	(mg / l as Al)	< 0.3	24	0.013	0.013	0.016	0.027	0.049	0.011
Ammonia	(mg / l as N)	< 1	27	0.025	0.029	0.043	0.056	0.076	0.014
Calcium	(mg / l as Ca)	< 150	24	17.000	17.362	18.375	19.388	20.000	1.013
Chloride	(mg / l as Cl)	< 200	24	10.000	11.433	12.292	13.150	14.000	0.859
Copper	(mg / l as Cu)	< 1	24	0.005	0.005	0.007	0.015	0.032	0.008
Fluoride	(mg / l as F)	< 1	24	0.075	0.146	0.183	0.220	0.220	0.037
Iron	(mg / l as Fe)	< 0.2	24	0.003	0.003	0.018	0.037	0.073	0.018
Magnesium	(mg / l as Mg)	< 70	24	6.900	7.187	7.458	7.730	8.000	0.272
Manganese	(mg / l as Mn)	< 0.1	24	0.005	0.005	0.005	0.006	0.009	0.001
Nitrate & Nitrite	(mg / l as N)	< 10	27	0.050	0.050	0.094	0.144	0.240	0.050
Potassium	(mg / l as K)	< 50	24	2.400	2.603	2.792	2.980	3.200	0.189
Sodium	(mg / l as Na)	< 200	24	9.800	10.576	11.283	11.991	12.000	0.708
Sulphate	(mg / l as SO ₄)	< 400	24	12.000	12.316	14.083	15.851	18.000	1.767
Zinc	(mg / l as Zn)	< 5	24	0.008	0.008	0.010	0.017	0.031	0.007
Microbiological									
E. Coli	(cfu per 100 ml)	minimum of 95% of the original results shall be non-detected	27	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	27	0.52	0.72	1.03	1.33	1.70	0.31
Notes :									
(1) Specification date of effect : July 2006									
(2) Guideline derived from SANS 241: 2005 operations alert and industry practices									