Water Quality Report

TSHWANE SUPPLY SYSTEMS

Reporting period: 01 Jan 2013 to 31 Dec 2013

Parameter	Risk	Unit of Measure	Specification	Rietvlei		Findley		Temba		Roodeplaat		Klipdrift		Walmansthal		Cullinan		Onverwacht		Bronkhorstspruit		Bronkhorstbaai		Summerplace		Sokhulumi	
				No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level	No of results	Achieved compliance level
Physical and Aesthetic determinands																											
Colour	Aesthetic	mg/L	> 0.0 to < 15.0	38	86.84	31	100.00	61	96.72	45	97.78	26	92.31	29	72.41	79	98.73	10	100.00	43	93.02	34	91.18	34	73.53	13	46.15
Conductivity	Aesthetic	mS/m	> 0.0 to < 170.0	84	100.00	86	100.00	133	100.00	48	100.00	31	100.00	35	100.00	183	100.00	23	100.00	47	100.00	42	100.00	42	100.00	41	100.00
Free Chlorine	Chronic Health	mg/L	> 0.01 to < 5.0	69	100.00	103	100.00	172	89.53	48	100.00	30	83.33	35	100.00	204	99.51	26	100.00	44	100.00	42	69.05	42	80.95	36	97.22
Odour	Aesthetic	%	> 0.0 to < 4.0	2	100.00	0		0		2	100.00	0		1	100.00	0		0		2	100.00	1	100.00	1	100.00	0	
pH at 25ºC	Operational	pH units	> 5.0 to < 9.7	85	100.00	104	100.00	163	100.00	49	100.00	31	100.00	35	100.00	200	100.00	24	100.00	47	100.00	44	100.00	43	100.00	46	100.00
Residual Chlorine	Operational	mg/L	> 0.01 to < 5.0	59	100.00	96	100.00	172	88.37	42	100.00	30	83.33	35	51.43	204	100.00	26	100.00	38	100.00	42	66.67	42	76.19	30	96.67
Taste	Aesthetic	mg/L	> 0.0 to < 4.0	2	100.00	0		0		2	100.00	0		1	100.00	0		0		2	100.00	1	100.00	1	100.00	0	
Total Chlorine (field test)	Chronic Health	mg/L	> 0.0 to < 5.0	69	100.00	103	100.00	172	88.95	48	100.00	30	83.33	35	57.14	204	100.00	26	100.00	44	100.00	42	66.67	42	76.19	33	100.00
Total Dissolved Solids	Aesthetic	mg/L	> 0.0 to < 999.0	85	100.00	86	100.00	134	100.00	48	100.00	31	100.00	35	100.00	183	100.00	24	100.00	47	100.00	41	100.00	43	100.00	41	100.00
Turbidity Aesthetic NTU <5	Aesthetic	NTU	> 0.0 to < 5.0	0		0		163	86.50	0		0		0		0		0		0		0		0		0	
Turbidity Operational NTU <	Operational	NTU	> 0.0 to < 1.0	85	98.82	104	98.08			49	95.92	30	36.67	35	68.57	200	96.50	25	100.00	47	89.36	44	18.18	43	53.49	46	0.00
Chemical determinands - organic determinands																											
Bromoform-THM	Chronic Health	µg/L	> 0.0 to < 100.0	2	100.00	3	100.00			6	100.00	1	100.00	2	100.00	9	100.00	0		0		3	100.00	3	100.00	0	
Chloroform-THM	Chronic Health	µg/L	> 0.0 to < 300.0	2	100.00	3	100.00			6	100.00	1	100.00	2	100.00	9	100.00	0		0		3	100.00	3	100.00	0	
Dibromochloromethane-TH	Chronic Health	µg/L	> 0.0 to < 100.0	2	100.00	3	100.00			6	100.00	1	100.00	2	100.00	9	100.00	0		0		3	100.00	3	100.00	0	
Dichlorobromomethane-TH	Chronic Health	µg/L	> 0.0 to < 60.0	2	100.00	3	100.00			6	100.00	1	100.00	2	100.00	9	100.00	0		0		3	100.00	3	66.67	0	
Microcystin as LR	Chemical Health	µg/L	> 0.0 to < 1.0	23	100.00	0				24	100.00	15	100.00	17	35.29	0		0		17	100.00	23	100.00	23	100.00	0	
Phenols	Aesthetic	µg/L	> 0.0 to < 10.0	1	100.00	1	100.00			1	100.00	0		0		0		0		1	100.00	1	100.00	1	100.00	0	
Total Organic Carbon as C	Chronic Health	mg/L	> 0.0 to < 9.99	2	100.00	1	100.00			4	100.00	3	100.00	3	100.00	18	100.00	1	100.00	0		2	100.00	2	100.00	0	
Total trihalomethanes as TH	Chronic Health	µg/L	> 0.0 to < 199.0	2	100.00	3	100.00			6	100.00	1	100.00	2	100.00	9	100.00	0		0		3	100.00	3	33.33	0	
Chemical determinands - micro determinands																											
Aluminium as Al	Operational	µg/L	> 0.0 to < 300.0	39	100.00	32	100.00	60	98.33	44	100.00	26	96.15	30	100.00	74	100.00	10	100.00	41	100.00	34	44.12	33	84.85	11	45.45
Antimony as Sb	Chronic Health	µg/L	> 0.0 to < 20.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Arsenic as As	Chronic Health	µg/L	> 0.0 to < 10.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	97.06	33	100.00	11	100.00
Cadmium as Cd	Chronic Health	µg/L	> 0.0 to < 5.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	33	100.00	32	100.00	11	100.00
Cobalt as Co	Chronic Health	µg/L	> 0.0 to < 499.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Copper as Cu	Chronic Health	µg/L	> 0.0 to < 2000.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Cyanide (recoverable) as C	Acute health - 1	µg/L	> 0.0 to < 200.0	3	100.00	1	100.00	0		4	100.00	2	100.00	2	100.00	0		0		1	100.00	2	100.00	2	100.00	0	
Iron as Fe	Aesthetic	µg/L	> 0.0 to < 300.0	39	100.00	32	96.88	60	86.67	44	97.73	26	100.00	30	96.67	74	100.00	10	100.00	41	95.12	34	100.00	33	96.97	11	100.00
Lead as Pb	Chronic Health	µg/L	> 0.0 to < 20.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	33	100.00	32	100.00	11	100.00
Manganese as Mn	Aesthetic	µg/L	> 0.0 to < 100.0	39	92.31	32	100.00	60	98.33	44	100.00	26	100.00	30	90.00	74	100.00	10	100.00	41	100.00	34	100.00	33	63.64	11	100.00
Mercury as Hg	Chronic Health	µg/L	> 0.0 to < 6.0	1	100.00	1	100.00	0		1	100.00	0		0		0		0		1	100.00	1	100.00	1	100.00	0	
Nickel as Ni	Chronic Health	µg/L	> 0.0 to < 70.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Selenium as Se	Chronic Health	µg/L	> 0.0 to < 20.0	37	100.00	28	64.29	60	100.00	40	100.00	24	100.00	29	100.00	70	100.00	10	70.00	40	95.00	33	93.94	32	93.75	11	100.00
Uranium as U	Chronic health	µg/L	> 0.0 to < 30.0	38	100.00	32	100.00	60	100.00	44	100.00	26	100.00	29	100.00	74	100.00	10	100.00	41	100.00	34	100.00	32	100.00	11	100.00
Vanadium as V	Chronic Health	µg/L	> 0.0 to < 200.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Chemical determinands - macro determinands																											
Ammonia as N	Aesthetic	mg/L	> 0.0 to < 1.5	38	100.00	31	100.00	61	100.00	45	97.78	26	100.00	29	58.62	79	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Chloride as Cl	Aesthetic	mg/L	> 0.0 to < 300.0	38	100.00	31	100.00	61	100.00	45	100.00	26	100.00	29	100.00	79	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Fluoride as F	Chronic Health	mg/L	> 0.0 to < 1.5	53	100.00	41	100.00	60	95.00	44	100.00	27	100.00	33	100.00	83	100.00	9	100.00	39	100.00	33	100.00	37	100.00	9	100.00
Nitrate as N	Acute health - 1	mg/L	> 0.0 to < 11.0	38	100.00	31	100.00	61	100.00	45	100.00	26	100.00	29	100.00	79	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Nitrite as N	Acute health - 1	mg/L	> 0.0 to < 0.9	38	100.00	31	100.00	61	100.00	45	100.00	26	100.00	29	100.00	79	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Sodium as Na	Aesthetic	mg/L	> 0.0 to < 200.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Sulphate as SO4	Acute health - 1	mg/L	> 0.0 to < 250.0	38	100.00	31	100.00	61	100.00	45	100.00	26	100.00	29	100.00	79	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Microbiological determinands																											
Confirmed E. Coli	Acute health - 1	CFU/100mL	> 0.0 to < 0.0	105	100.00	105	100.00	168	96.43	50	100.00	31	96.77	35	100.00	201	98.01	34	82.35	47	100.00	43	100.00	43	100.00	50	98.00
Cryptosporidium species	Acute health - 2	mg/L	> 0.0 to < 0.0	1	100.00	1	100.00	0		1	100.00	0		0		0		0		1	100.00	1	100.00	1	100.00	0	
Cytopathogenic Viruses	Acute health - 2	mg/L	> 0.0 to < 0.0	0		0		0		0		0		0		0		0		0		0		0		0	
Faecal Coliforms	Acute health - 1	CFU/100mL	> 0.0 to < 1.0	103	100.00	94	100.00	142	100.00	46	100.00	28	100.00	30	100.00	152	100.00	26	100.00	40	100.00	41	100.00	38	100.00	23	100.00
Giardia species	Acute health - 2	mg/L	> 0.0 to < 0.0	1	100.00	1	100.00	0		1	100.00	0		0		0		0		1	100.00	1	100.00	1	100.00	0	
Heterotrophic plate count	Operational	CFU/1mL	> 0.0 to < 1000.0	100	100.00	105	100.00	168	100.00	48	100.00	31	96.77	34	100.00	200	98.50	33	100.00	42	100.00	43	100.00	43	100.00	47	100.00
Somatic Coliphages	Operational	CFU/100mL	> 0.0 to < 0.0	1	100.00	1	100.00	0		1	100.00	0		0		0		0		1	100.00	1	100.00	1	100.00	0	
Total Coliforms	Operational	CFU/100mL	> 0.0 to < 10.0	106	100.00	105	97.14	166	94.58	50	96.00	31	100.00	35	100.00	200	92.00	34	76.47	46	93.48	43	97.67	42	97.62	49	71.43
Other determinands as required by supply contract																											
Alkalinity as CaCO3		mg/L		38	100.00	31	100.00	61	100.00	44	100.00	26	100.00	29	100.00	78	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Bromide		mg/L	> 0.0 to < 4.0	4	100.00	4	100.00	4	100.00	2	100.00	2	100.00	4	100.00	6	100.00	0		0		2	100.00	2	100.00	0	
Calcium as Ca		mg/L	> 0.0 to < 150.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Calcium Hardness as CaC		mg/L	> 0.0 to < 370.0	38	100.00	31	100.00	60	100.00	42	100.00	23	100.00	28	100.00	69	100.00	7	100.00	40	100.00	32	100.00	32	100.00	9	100.00
Magnesium as Mg		mg/L	> 0.0 to < 70.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Magnesium Hardness as C		mg/L	> 0.0 to < 280.0	38	100.00	31	100.00	60	100.00	42	100.00	23	100.00	28	100.00	69	100.00	7	100.00	40	100.00	32	100.00	32	100.00	11	100.00
Orthophosphate as PO4		mg/L	> 0.0 to < 1.0	38	100.00	31	100.00	61	31.15	45	100.00	26	100.00	29	100.00	79	100.00	10	100.00	43	100.00	34	100.00	34	100.00	13	100.00
Pottasium as K		mg/L	> 0.0 to < 50.0	39	100.00	32	100.00	60	100.00	44	100.00	26	100.00	30	100.00	74	100.00	10	100.00	41	100.00	34	100.00	33	100.00	11	100.00
Silica as Si		mg/L	> 0.0 to < 25.0	38	100.00	30	100.00	61	100.00	44	100.00	26	100.00	29	100.00	79	100.00	10	0.00	42	100.00	34	100.00	34	100.00	13	100.00
Total Hardness as CaCO3		mg/L	> 0.0 to < 660.0	38	100.00	31	100.00	60	100.00	42	100.00	23	100.00	28	100.00	69	100.00	7	100.00	40	100.00	32	100.00	32	100.00	9	100.00
Total number of results:				2252		2069		3566		2010		1192		1376		4454		592		1839		1609		1596		784	
Total compliance %:					**99.46**		**99.18**		**96.27**		**99.74**		**97.15**		**94.38**		**99.55**		**95.82**		**99.31**		**95.44**		**94.59**		**93.82**