



RAND WATER

Quarterly Water Quality Status of the Wilge River Catchment

1 April 2012 - 31 March 2012

Sample Points	Sample Point Description	Ammonia (NH4)	Chloride (Cl)	Fluoride (F)	M-Alkalinity (M-Alk)	Nitrate (NO3)	Phosphate (PO4)	Sulphate (SO4)	Chemical Oxygen Demand (COD)	Conductivity (EC)	pH	E. coli
WLA	Lesotho Highlands Ash River Outfall 28°26'22.13"S 28°23'49.64"E	0.12	<10	0.29	44	0.76	<0.05	<5.0	<10	22	7.20	3
		0.12	<10	<0.05	37	0.46	0.08	<5.0	<10	9	6.60	2
		0.12	<10	0.17	40	0.40	0.12	<5.0	<10	16	6.90	99
		0.11	<10	0.08	49	0.42	0.06	5.60	18	10	6.90	370
WLS	Ash River - Soulsport Dam 28°16'20.27"S 28°22'22.10"E	0.12	<10	0.11	41	0.36	0.07	<5.0	<10	6	7.40	
		0.19	<10	0.14	38	0.74	<0.05	9	<10	8	6.80	
		0.19	<10	0.09	51	0.12	0.22	7	14	16	7.20	
		0.11	<10	0.08	51	0.36	0.07	<5.0	13	10	6.90	
WLB	Wilge Liebenbergsvlei @ Bethlehem 28°11'27.05"S 28°20'37.05"E	0.12	<10	0.07	45	0.54	<0.05	<5.0	11	21	7.40	
		0.12	<10	<0.05	42	0.42	<0.05	<5.0	<10	12	6.80	
		0.17	<10	0.12	90	0.13	0.09	8	<10	25	7.40	
		0.11	<10	0.08	54	0.57	0.10	6	14	10	6.90	
WJA	Jordaanspruit above Bethlehem 28°15'1.05"S 28°18'31.85"E	0.12	11	0.21	120	4.70	<0.05	9	21	36	8.20	
		0.12	11	0.23	115	0.17	<0.05	10	18	28	7.20	
		0.12	21	0.26	125	0.12	3.00	12	20	35	8.10	
		0.11	<10	0.26	95	0.40	<0.05	9	19	26	7.90	
WJ	Jordaanspruit below Bethlehem 28°10'0.45"S 28°18'38.66"E	0.82	36	0.24	150	0.77	0.19	27	34	48	8.10	
		2.50	37	0.20	125	1.80	0.37	30	35	46	7.10	
		0.12	35	0.22	115	1.90	0.14	35	32	47	7.30	
		0.11	14	0.26	91	0.55	0.23	16	34	34	7.20	
WLB	Wilge River below Bethlehem 28° 6'11.72"S 28°17'49.43"E	0.12	<10	0.34	44	0.05	<0.05	<5.0	<10	25	7.40	
		0.12	<10	<0.05	38	0.22	0.10	<5.0	<10	10	6.60	
		0.19	12	0.18	82	0.34	0.14	18	16	29	7.50	
		0.11	<10	0.08	57	0.36	0.23	6	12	12	6.90	
WLR	Wilge River @ Reitz 27°45'28.18"S 28°19'39.05"E	0.12	<10	0.30	47	0.34	0.07	<5.0	<10	25	7.40	
		0.12	<10	0.10	40	0.22	<0.05	6	<10	10	6.80	
		0.16	<10	0.22	70	0.29	0.12	16	19	23	7.30	
		0.11	<10	0.08	57	0.16	0.08	6	10	12	6.90	
WL	Liebenbergsvlei River between Tweeling & Frankfort 27°25'51.31"S 28°31'35.66"E	0.12	<10	0.36	82	2.20	<0.05	<5.0	<10	33	7.60	
		0.12	<10	<0.05	39	0.30	<0.05	<5.0	<10	11	6.60	
		0.12	13	0.27	105	0.15	0.68	18	15	31	7.50	
		0.11	<10	0.14	57	0.42	0.06	7	23	13	6.90	
EQQ	Elands River below Qwa-Qwa 28°22'33.68"S 28°51'38.22"E	0.42	10	0.14	105	3.80	0.74	11	15	33	7.10	
		0.12	<10	0.14	67	1.30	0.19	11	11	22	7.00	
		0.11	<10	0.12	68	0.46	0.05	7	<10	16	7.00	
		0.12	13	0.15	145	3.00	0.24	13	11	44	7.80	
WE	Elands River @ Aberfeldy 28°13'48.53"S 28°51'3.03"E	0.27	13	0.17	120	3.20	0.48	14	14	31	7.30	
		0.12	<10	0.15	84	0.95	0.16	12	13	25	7.30	
		0.11	<10	0.11	74	0.38	0.09	7	17	18	7.00	
		0.12	<10	0.11	105	0.70	<0.05	6	<10	32	7.30	
STERK	Sterkfontein Dam 28°24'30.30"S 29° 2'15.00"E	0.12	<10	0.14	43	0.28	<0.05	<5.0	<10	11	6.60	
		0.12	<10	0.19	42	<0.10	<0.05	<5.0	<10	14	7.10	
		0.11	<10	0.17	56	0.25	<0.05	<5.0	<10	10	6.90	
		0.12	<10	0.06	63	<0.10	0.05	<5.0	<10	25	7.40	
WN	Nuewjaarspruit d/s of Sterkfontein Dam 28°17'19.39"S 29° 5'28.26"E	0.12	<10	0.17	50	0.10	<0.05	<5.0	<10	12	6.60	
		0.12	<10	0.24	45	0.10	0.11	9	<10	17	7.00	
		0.11	<10	0.16	38	<0.10	0.07	<5.0	16	15	6.80	
		0.12	<10	0.09	80	0.11	<0.05	<5.0	<10	32	7.00	
WAH	Wilge above Harrismith 28°18'27.90"S 29° 7'52.48"E	0.12	<10	0.26	48	<0.10	<0.05	<5.0	<10	13	6.50	
		0.12	<10	0.12	22	0.13	0.06	<5.0	14	9	6.60	
		0.16	<10	0.08	42	0.10	<0.05	<5.0	16	8	6.60	
		1.10	<10	0.45	88	2.10	0.18	9	17	30	7.50	
WH	Wilge River below Harrismith 28°13'20.10"S 28°57'56.96"E	1.70	12	0.22	85	2.20	0.30	10	2	27	6.80	
		0.12	<10	0.12	30	0.54	0.10	6	18	14	6.70	
		0.11	<10	0.08	46	0.53	0.08	<5.0	18	9	6.60	
		0.12	<10	0.26	82	<0.10	0.07	10	<10	21	7.50	
MR	Meul River downstream of Ribbokspruit 28° 1'35.48"S 29°15'0.51"E	0.12	<10	0.24	160	<0.10	0.19	12	<10	34	7.60	
		0.12	<10	0.22	50	0.12	0.09	12	14	18	7.00	
		0.11	<10	0.22	74	0.20	<0.05	10	12	15	7.00	
		0.12	<10	0.57	130	0.13	0.06	11	<10	40	7.90	
WM	Mollen River @ Letuka 28° 1'24.18"S 28°59'41.27"E	0.02	<10	0.28	145	0.31	0.06	15	12	34	8.30	
		0.12	<10	0.17	57	<0.10	0.18	7	15	25	7.20	
		0.11	<10	0.24	59	0.13	0.10	8	17	18	7.10	
		0.12	12	0.17	125	1.10	<0.05	11	15	40	7.90	
WMW	Wilge Meul @ Waaiwater 27°54'11.90"S 28°48'27.91"E	0.13	<10	0.12	125	1.20	0.11	10	14	35	7.90	
		0.12	<10	0.18	56	0.35	0.07	10	12	23	7.20	
		0.11	<10	0.13	44	0.83	0.09	5	16	13	6.90	
WC	Cornelis River below Warden 27°50'36.89"S 28°57'42.03"E											
		0.11	<10	0.28	83	0.14	0.09	12	22	24	7.30	
		0.12	<10	0.19	120	0.11	<0.05	14	10	44	7.50	
		0.12	13	0.18	145	0.82	<0.05	18	17	37	7.40	
WAF	Wilge above Frankfort 27°18'36.42"S 28°31'58.65"E	0.12	<10	0.20	64	0.21	0.05	14	16	21	7.10	
		0.11	<10	0.16	69	0.30	<0.05	7	14	18	7.00	
		0.12	<10	0.34	52	0.62	<0.05	6	<10	19	7.40	9
		0.21	<10	<0.05	42	0.50	0.11	6	<10	11	6.70	88
WF	Wilge River @ Frankfort 27°16'18.00"S 28°29'28.41"E	0.12	<10	0.22	72	0.35	0.09	17	17	23	7.30	95
		0.11	<10	0.16	69	0.36	0.06	7	15	16	7.00	155

Sample Points	Sample Point Description	Ammonia (NH4)	Chloride (Cl)	Fluoride (F)	M-Alkalinity (M-Alk)	Nitrate (NO3)	Phosphate (PO4)	Sulphate (SO4)	Chemical Oxygen Demand (COD)	Conductivity (EC)	pH	E. coli
S- BETH	Bethlehem Sewage Works 28°12'49.19"S 28°18'35.16"E	13.00	31	0.16	135	2.40	2.00	23	34	53	7.60	323,900
		5.80	34	0.14	80	4.00	2.40	28	45	32	6.60	21560
		12.00	32	0.12	150	1.40	3.30	27	72	54	7.10	69630
		5.70	30	0.11	89	1.80	0.63	28	35	42	6.90	153030
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	18.00	34	0.26	225	0.24	2.70	13	130	60	7.60	380,030
		2.50	34	0.22	295	8.60	7.80	9	220	50	7.20	4109100
		16.00	41	0.20	285	0.12	4.10	31	265	80	7.30	226950
		27.00	36	0.13	210	<0.10	1.90	28	77	67	7.50	480940
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	3.00	25	0.10	41	20.00	3.20	20	44	43	6.70	330
		11.00	26	0.18	21	14.00	5.10	25	48	40	6.30	82
		1.50	25	0.09	10	12.00	3.60	32	42	42	6.00	1071
		0.22	30	0.08	15	16.00	3.10	27	44	32	6.40	8,6530
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	6.20	37	0.21	75	0.39	1.10	29	85	41	7.40	52,780
		8.70	37	0.18	125	0.37	4.60	28	22	47	7.20	12210
		4.90	34	0.17	105	0.25	3.20	29	49	53	7.10	1780
		0.12	42	0.08	61	0.19	1.50	26	45	43	6.80	98






Compliance of Sewage Work to General Standard (GN 1191 Oct 1999), where applicable

Sample Points	Sample Point Description	Ammonia (NH4)	Chloride (Cl)	Fluoride (F)	M-Alkalinity (M-Alk)	Nitrate (NO3)	Phosphate (PO4)	Sulphate (SO4)	Chemical Oxygen Demand (COD)	Conductivity (EC)	pH	E. coli
S- BETH	Bethlehem Sewage Works 28°12'49.19"S 28°18'35.16"E	13.00	31	0.16	135	2.40	2.00	23	34.00	53.00	7.60	323,900
		5.80	34	0.14	80	4.00	2.40	28	45.00	32.00	6.60	21560
		12.00	32	0.12	150	1.40	3.30	27	72.00	54.00	7.10	69630
		5.70	30	0.11	89	1.80	0.63	28	35.00	42.00	6.90	153030
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	18.00	34	0.26	225	0.24	2.70	13	130.00	60.00	7.60	380,030
		2.50	34	0.22	295	8.60	7.80	9	220.00	50.00	7.20	4109100
		16.00	41	0.20	285	0.12	4.10	31	265.00	80.00	7.30	226950
		27.00	36	0.13	210	<0.10	1.90	28	77.00	67.00	7.50	480940
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	3.00	25	0.10	41	20.00	3.20	20	44.00	43.00	6.70	330
		11.00	26	0.18	21	14.00	5.10	25	48.00	40.00	6.30	82
		1.50	25	0.09	10	12.00	3.60	32	42.00	42.00	6.00	1071
		0.22	30	0.08	15	16.00	3.10	27	44.00	32.00	6.40	8,6530
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	6.20	37	0.21	75	0.39	1.10	29	85.00	41.00	7.40	52,780
		8.70	37	0.18	125	0.37	4.60	28	22.00	47.00	7.20	12210
		4.90	34	0.17	105	0.25	3.20	29	49.00	53.00	7.10	1780
		0.12	42	0.08	61	0.19	1.50	26	45.00	43.00	6.80	98

Key

WLA	Location	Value	Period
WLA	Lesotho Highlands Ash River Outfall 28°26'22.13"S 28°23'49.64"E	0.12	1 Apr 12 - 30 Jun 12
		0.12	1 July 12 - 30 Sept 12
		0.12	1 Oct 12 - 31 Dec 12
		0.12	1 Jan 13 - 31 Mar 13

Water Quality Guidelines

	- Ideal
	- Acceptable
	- Tolerable
	- Unacceptable
	- No sample or result available

Sewage Works Compliance to General Standard (GN 1191 Oct 1999)			
Variables	Measured as	Acceptable Target Level	Unacceptable
Physical			
Conductivity	mS/m	<150	>=150
pH	pH units	5.5 - 9.5	< 5.5; >9.5
Organic			
Chemical Oxygen Demand (COD)**	mg/l	<75	>=75
Macro Elements			
Ammonia (NH ₄)	mg/l	<3	>=3
Fluoride (F)	mg/l	<1	>=1
Nitrate (NO ₃)	mg/l	<15	>=15
Phosphate (PO ₄)	mg/l	<10	>10
Bacteriological			
Faecal coliforms	counts/100m	<1000	>=1000
** After removal of algae			