



RAND WATER

Quarterly Water Quality Status of the Wilge River Catchment

1 January - 31 December 2015

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	0.08	36	0.52	0.07	6	5	9	7.30	820	
		0.25	<10	0.08	32	0.46	0.10	5	5	7	7.00	110	
		<0.5	1.0	0.15	36	0.33	<0.2	5	11	7	7.14	57	
		<10	1.1	<0.15	35	1.98	<0.15	6	14	8	7.52	67	
WLB	Wilge Liebenbergsvlei @ Bethlehem 28°11'27.05"S 28°20'37.05"E	0.12	<10	0.08	38	2.00	0.10	6	5	9	7.40		
		0.25	<10	0.08	40	0.30	0.10	<5.0	5	9	7.40		
		0.74	1.2	<0.15	39	0.30	<0.2	5	<10	8	7.48		
		<0.5	0.7	<0.15	36	1.57	<0.2	6	<10	8	7.55		
WJA	Jordaanspruit above Bethlehem 28°15'1.05"S 28°18'31.85"E												
WJ	Jordaanspruit below Bethlehem 28°10'0.45"S 28°18'38.66"E	0.61	40	0.20	140	3.20	0.46	34	44	49	7.40		
		0.44	24	0.16	120	0.52	1.20	10	42	33	7.40		
		0.76	23	0.25	118	2.27	0.51	17	35	32	7.63		
		7.03	27	0.36	183	4.77	2.67	15	30	57	7.37		
WLB	Wilge River below Bethlehem 28° 6'11.72"S 28°17'49.43"E	0.12	<10	0.08	40	0.20	0.07	6	5	10	7.40		
		0.25	<10	0.08	42	0.52	0.10	<5.0	5	9	7.30		
		<0.5	14	0.81	39	1.05	<0.2	31	<10	8	7.47		
		<0.5	<10	0.24	36	0.87	<0.2	6	<10	8	7.43		
WLR	Wilge River @ Reitz 27°45'28.18"S 28°19'39.05"E	0.14	<10	0.08	42	2.80	0.07	7	5	10	7.40		
		0.25	<10	0.08	39	0.33	0.40	6	5	10	7.40		
		<0.5	1.9	0.16	39	0.39	0.20	6	<10	8	7.51		
		1.10	1.1	<0.15	37	0.96	<0.2	7	<10	8	7.46		
WL	Liebenbergsvlei River between Tweeling & Frankfort 27°25'51.31"S 28°31'35.66"E	0.14	<10	0.08	44	0.35	0.07	7	5	10	7.30		
		0.25	<10	0.08	40	0.32	0.10	6	5	10	7.40		
		<0.5	1.6	<0.15	40	0.45	<0.2	5	10	9	7.47		
		1.20	24	0.39	38	2.42	<0.2	15	16	9	7.51		
EQQ	Elands River below Qwa-Qwa 28°22'33.68"S 28°51'38.22"E	0.30	10	0.19	54	2.20	0.26	19	12	27	6.80		
		0.25	<10	0.08	64	1.80	0.10	10	10	18	7.20		
		<0.5	14	0.19	105	2.49	0.31	14	13	28	7.60		
		2.80	16	0.24	137	1.45	0.82	11	23	36	7.36		
WE	Elands River @ Aberfeldy 28°13'48.53"S 28°51'3.03"E	0.35	<10	0.15	76	1.40	0.12	16	20	23	7.40		
		0.25	<10	0.08	74	1.20	0.15	10	15	20	7.50		
		<0.5	11	0.16	103	1.43	<0.2	12	11	25	7.80		
		<0.5	16	0.38	145	5.20	0.57	12	22	35	7.61		
STERK	Sterkfontein Dam 28°24'30.30"S 29° 2'15.00"E												
WN	Nuewjaarspruit d/s of Sterkfontein Dam 28°17'19.39"S 29° 5'28.26"E	0.15	<10	0.20	58	0.15	0.07	5	5	14	7.50		
		0.25	17	0.13	60	0.12	0.30	5	26	19	7.30		
		<0.5	3	0.20	59	0.20	<0.2	5	12	12	7.47		
		<0.5	9	0.29	74	1.29	<0.2	9	14	17	7.55		
WAH	Wilge above Harrismith 28°18'27.90"S 29° 7'52.48"E	0.19	<10	0.19	33	0.32	0.07	13	16	12	7.00		
		0.25	13	0.45	22	1.50	0.17	38	10	6	6.80		
		<0.5	15	0.45	31	0.44	<0.2	22	13	7	7.12		
		<0.5	3	0.40	58	0.39	<0.2	6	25	13	7.73		
WH	Wilge River below Harrismith 28°13'20.10"S 28°57'56.96"E	1.80	<10	0.18	76	0.25	1.80	9	20	21	7.20		
		0.38	<10	0.13	35	0.98	0.10	6	18	10	6.90		
		1.60	7	0.28	58	2.07	0.31	6	16	14	7.26		
		0.74	13	0.27	95	0.94	<0.2	5	23	24	7.53		
MR	Meul River downstream of Ribbokspruit 28° 1'35.48"S 29°15'0.51"E	<0.092	17	0.30	70	0.43	0.05	35	30	27	7.40		
		<0.5	14	0.27	140	0.41	<0.2	7	21	33	8.22		
		<0.092	17	0.23	77	0.40	0.05	34	33	29	7.10		
WM	Mollen River @ Letuka 28° 1'24.18"S 28°59'41.27"E												
WMW	Wilge Meul @ Waaiwater 27°54'11.90"S 28°48'27.91"E	0.23	13	0.28	110	0.62	0.07	18	26	29	7.70		
		0.25	14	0.22	42	1.40	0.10	12	15	12	7.20		
		<0.5	25	0.29	87	1.44	<0.2	25	12	20	7.49		
		<0.5	8.6	0.29	74	1.29	<0.2	9	14	17	7.55		
WC	Cornelis River below Warden 27°50'36.89"S 28°57'42.03"E												
WAF	Wilge above Frankfort 27°18'36.42"S 28°31'58.65"E	0.17	<10	0.20	105	0.61	0.07	17	14	26	7.70		
		0.25	<10	0.20	60	0.86	0.16	10	17	16	7.40		
		<0.5	4.7	0.20	75	0.20	<0.2	9	13	17	7.51		
		<0.5	7.5	0.58	88	0.50	<0.2	19	39	20	7.83		
WF	Wilge River @ Frankfort 27°16'18.00"S 28°29'28.41"E	0.18	<10	0.25	56	2.50	0.06	18	9	14	7.60	2,210	
		0.25	<10	0.11	52	0.53	0.15	9	14	13	7.50	720	
		3.40	4.4	0.24	46	0.29	0.84	10	<10	11	7.59	579	
		2.00	1.5	0.95	68	0.30	<0.2	6	22	16	7.65	190	

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	16.00	33	0.15	150	2.10	1.30	35	78	50	7.40	146,980
		10.00	31	0.08	140	0.36	0.28	26	56	47	7.30	497,680
		22.33	36	0.17	195	<0.1	1.67	32	177	56	7.21	5,002,000
		21.50	30	0.77	188	0.15	1.90	25	41	57	7.02	743267
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	14.00	31	0.17	205	0.29	2.10	14	400	54	7.10	836,030
		20.00	31	0.14	260	0.10	2.60	9	150	66	7.40	3,797,750
		21.67	41	0.17	207	<0.10	2.73	22	490	52	7.00	10,622,66
		23.50	34	0.53	265	0.31	2.33	12	117	68	7.29	1672967
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	0.31	33	0.08	66	14.00	2.40	89	22	41	7.30	1,080
		0.25	25	0.08	70	18.00	1.50	20	34	40	8.20	125
		0.67	25	<0.15	58	17.33	2.07	29	29	39	7.30	566
		<0.2	22	0.40	110	9.30	1.65	40	27	44	7.33	437
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	9.40	16	0.13	105	0.83	1.80	17	20	37	7.20	475
		3.90	14	0.12	140	<0.10	0.23	17	46	46	7.20	10,720
		14.80	21	0.19	81	2.16	3.27	24	17	28	7.16	5259
		14.00	19	0.36	137	1.20	3.17	20	31	41	7.32	491753





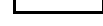
Compliance of Sewage Work to General Standard (GN 1191 Oct 1999), where applicable

S- BETH	Bethlehem Sewage Works 28°12'49.19"S 28°18'35.16"E	16.00	33	0.15	150	2.10	1.30	35	78.00	50.00	7.40	146,980
		10.00	31	0.08	140	0.36	0.28	26	56.00	47.00	7.30	497,680
		22.33	36	0.17	195	<0.1	1.67	32	176.67	56.00	7.21	5,002,000
		21.50	30	0.77	188	0.15	1.90	25	40.67	56.67	7.02	743267
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	14.00	31	0.17	205	0.29	2.10	14	400.00	54.00	7.10	836,030
		20.00	31	0.14	260	0.10	2.60	9	150.00	66.00	7.40	3,797,750
		21.67	41	0.17	207	<0.1	2.73	22	490.00	52.33	7.00	10,622,66
		23.50	34	0.53	265	0.31	2.33	12	116.67	68.33	7.29	1672967
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	0.31	33	0.08	66	14.00	2.40	89	22.00	41.00	7.30	1,080
		0.25	25	0.08	70	18.00	1.50	20	34.00	40.00	8.20	125
		0.67	25	<0.15	58	17.33	2.07	29	29.33	39.00	7.30	566
		<0.2	22	0.40	110	9.30	1.65	40	27.00	44.33	7.33	437
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	9.40	16	0.13	105	0.83	1.80	17	20.00	37.00	7.20	475
		3.90	14	0.12	140	<0.10	0.23	17	46.00	46.00	7.20	10,720
		14.80	21	0.19	81	2.16	3.27	24	17.33	28.33	7.16	5259
		14.00	19	0.36	137	1.20	3.17	20	31.00	40.67	7.32	491753

Key

WLA	Location	Value	Period
WLA	Lesotho Highlands Ash River Outfall 28°26'22.13"S 28°23'49.64"E	0.12	1 Jan 15 - 31 Mar 15
		0.12	1 Apr 15 - 30 Jun 15
		0.12	1 July 15 - 30 Sept 15
		0.12	1 Oct 15 - 31 Dec 15

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			