



**RAND WATER**

**Quarterly Water Quality Status of the Wilge River Catchment**

1 January 2017 - 31 December 2017

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	0.2	<10	0.15	35	0.20	0.1	<5.0	10	10	7.10	520
		<0.092	<10	0.10	63	0.31	0.20	<5.0	10	18	7.20	40
		<0.05	4.9	0.30	42	0.44	<0.2	7	23	10	7.49	55
		0.12	<10	0.19	300	0.44	<0.2	<5.0	15	10	7.00	23
WLB	Wilge Liebenbergsvlei @ Bethlehem 28°11'27.05"S 28°20'37.05"E	0.2	<10	0.15	38	0.21	0.1	<5.0	12	10	7.30	
		<0.092	<10	0.10	41	0.24	0.20	<5.0	10	9	7.40	
		<0.05	4.7	0.28	37	1.01	<0.2	8	11	9	7.45	
		0.12	<10	0.19	290	0.44	<0.2	<5.0	19	10	7.10	
WJ	Jordaanspruit below Bethlehem 28°10'0.45"S 28°18'38.66"E	3.60	20	0.24	110	0.20	1.80	14	24	36	7.40	
		1.90	29	0.16	195	0.21	0.95	18	24	28	6.50	
		11.13	41.0	0.20	185	4.82	2.10	23	36	54	7.38	
		14.00	46	0.19	350	0.44	3.20	18	27	56	7.10	
WLB	Wilge River below Bethlehem 28° 6'11.72"S 28°17'49.43"E	0.2	<10	0.15	39	0.14	0.1	6	11	10	7.30	
		<0.092	<10	0.10	40	0.25	0.20	<5.0	10	9	7.40	
		<0.05	4	<0.15	38	0.38	<0.2	8	33	12	7.41	
		0.12	<10	0.19	295	0.44	<0.2	5	21	10	7.10	
WLR	Wilge River @ Reitz 27°45'28.18"S 28°19'39.05"E	0.2	<10	0.18	48	0.13	0.1	7	10	13	7.40	
		<0.092	<10	0.10	42	0.19	0.20	<5.0	11	9	7.30	
		<0.05	3.9	<0.15	39	0.35	<0.2	8	15	10	7.39	
		0.12	<10	0.19	42	0.44	<0.2	5.2	24	9	7.20	
WL	Liebenbergsvlei River between Tweeling & Frankfort 27°25'51.31"S 28°31'35.66"E	0.2	<10	0.25	48	0.53	0.1	7	17	13	7.40	
		<0.092	<10	0.10	47	0.22	0.2	<5.0	10	16	7.30	
		<0.05	3.5	<0.15	45	0.28	<0.2	8	<10	14	7.47	
		0.57	<10	0.19	285	160.00	<0.2	<5.0	13	10	7.10	
EQQ	Elands River below Qwa-Qwa 28°22'33.68"S 28°51'38.22"E	0.2	19.0	0.22	42	0.92	0.10	76	11	18	7.10	
		1.4	11	0.10	110	0.75	0.22	11	18	30	7.40	
		3.77	19	0.26	138	1.95	0.45	16	24	40	7.41	
		2.30	10	0.19	125	0.44	0.46	14	29	34	6.90	
WE	Elands River @ Aberfeldy 28°13'48.53"S 28°51'3.03"E	0.20	<10	0.22	52	0.45	0.10	11	22	15	7.30	
		0.12	<10	0.10	105	1.10	0.20	10	16	27	7.60	
		1.30	13.9	0.18	157	2.50	<0.2	12	16	48	7.54	
		1.50	17.0	0.19	365	1.00	0.37	12	20	36	7.10	
STERK	Sterkfontein Dam 28°24'30.30"S 29° 2'15.00"E	0.2	15.0	0.31	41	1.30	0.10	56	10	10	7.70	
		<0.05	3.7	0.35	40	0.52	<0.2	9	<10	16	7.17	
		0.2	<10	0.18	57	0.10	0.10	8	14	14	7.40	
		<0.092	<10	0.14	50	0.07	0.20	<5.0	15	11	7.40	
WN	Nuewjaarspruit d/s of Sterkfontein Dam 28°17'19.39"S 29° 5'28.26"E	<0.05	3.3	0.20	48	1.20	<0.2	7.2	<10	12	7.53	
		0.12	<10	0.19	50	0.44	<0.2	<5.0	23	11	7.20	
		0.75	<10	0.29	26	0.10	0.19	<5.0	24	9	6.90	
		<0.092	<10	0.11	32	0.11	0.20	9.7	14	9	7.00	
WAH	Wilge above Harrismith 28°18'27.90"S 29° 7'52.48"E	<0.05	5	<0.15	75	0.63	<0.2	10	12	22	7.33	
		0.2	<10	0.19	405	0.44	<0.2	11	14	15	7.20	
		0.20	14	0.22	38	0.28	0.10	10	16	11	7.10	
		1.40	<10	0.10	165	0.55	0.32	<5.0	24	15	6.70	
WH	Wilge River below Harrismith 28°13'20.10"S 28°57'56.96"E	1.02	11	0.19	74	1.71	<0.2	10	15	22	7.16	
		0.58	12	0.20	315	0.86	0.33	10	20	27	7.20	
		0.20	16.0	0.40	24	0.75	0.10	57	26	9	6.80	
		<0.092	19.0	0.19	105	0.44	0.20	8	14	28	7.10	
WM	Mollen River @ Letuka 28° 1'24.18"S 28°59'41.27"E	0.2	<10	0.21	50	0.10	0.10	7	14	14	7.30	
		<0.092	19.0	0.26	150	0.44	0.20	17	30	38	7.70	
		0.2	<10	0.18	42	0.10	0.10	9	17	12	7.00	
		<0.092	<10	0.10	60	0.15	0.2	6	17	15	7.40	
WMW	Wilge Meul @ Waaiwater 27°54'11.90"S 28°48'27.91"E	<0.05	9.0	0.17	76	1.00	<0.2	11	12	18	7.47	
		0.12	14.0	0.20	125	0.62	<0.2	10	17	30	7.60	
		0.20	<10	0.27	89	0.18	0.10	13	24	26	7.40	
		<0.092	19.0	0.26	150	0.44	0.20	17	30	38	7.70	
WC	Cornelis River below Warden 27°50'36.89"S 28°57'42.03"E	0.2	11.0	0.31	62	0.73	0.10	26	30	19	7.30	
		<0.092	<10	0.14	84	0.17	0.20	10	15	22	7.70	
		<0.05	10.2	0.26	139	0.44	<0.2	20	13	47	7.81	
		<0.05	12.1	0.22	127	<0.44	<0.2	16	19	31	7.53	
WAF	Wilge above Frankfort 27°18'36.42"S 28°31'58.65"E	0.20	<10	0.18	53	0.17	0.10	8	14	16	7.40	550
		<0.092	<10	0.11	55	0.22	0.18	6	12	14	7.50	145
		<0.05	5.8	<0.15	52	0.80	<0.2	9	15	18	7.55	803
		0.14	<10	0.19	50	0.44	<0.2	6	20	13	7.00	7.120

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	14.00	50	0.15	180	1.50	0.46	34	41	56	7.10	1,231,000
		20.00	30	0.20	190	0.70	1.40	27	57	54	7.20	1,256,370
		22.67	31	0.20	162	0.43	2.40	30	114	43	7.18	2419600
		24.00	35	0.19	210	0.44	2.50	24	57	55	7.00	2,130,770
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	14.00	52	0.27	230	0.10	1.60	18	610	64	7.00	309,910
		38.00	31	0.27	285	0.08	3.90	6	125	80	6.70	1,496,430
		27.00	34	0.21	260	0.37	2.49	19	1397	71	6.73	588467
		15.00	42	0.32	320	0.56	6.80	7	1,240	89	6.70	428,480
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	6.70	43	0.15	105	5.00	2.40	28	35	43	7.80	120
		1.80	28	0.10	73	5.80	2.20	26	55	40	7.20	38
		3.23	36	<0.15	95	5.57	3.10	27	104	48	7.79	40
		2.00	40	0.19	140	0.44	<0.2	22	97	45	8.20	17
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	3.70	33	0.26	150	2.00	1.40	22	19	51	7.40	840
		0.63	22	0.12	74	1.10	0.89	25	14	33	7.20	4,810
		0.17	23	<0.15	71	2.43	1.21	30	24	36	7.19	23983
		7.30	24	0.19	115	0.44	3.30	28	20	41	6.90	158,860






**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	14.00	50	0.15	180	1.50	0.46	34	41	56	7.10	1,231,000
		20.00	30	0.20	190	0.70	1.40	27	57	54	7.20	1,256,370
		22.67	31	0.20	162	0.43	2.40	30	114	43	7.18	2419600
		24.00	35	0.19	210	0.44	2.50	24	57	55	7.00	2,130,770
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	14.00	52	0.27	230	0.10	1.60	18	610	64	7.00	309,910
		38.00	31	0.27	285	0.08	3.90	6	125	80	6.70	1,496,430
		27.00	34	0.21	260	0.37	2.49	19	1397	71	6.73	588467
		15.00	42	0.32	320	0.56	6.80	7	1,240	89	6.70	428,480
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	6.70	43	0.15	105	5.00	2.40	28	35	43	7.80	120
		1.80	28	0.10	73	5.80	2.20	26	55	40	7.20	38
		3.23	36	<0.15	95	5.57	3.10	27	104	48	7.79	40
		2.00	40	0.19	140	0.44	<0.2	22	97	45	8.20	17
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	3.70	33	0.26	150	2.00	1.40	22	19	51	7.40	840
		0.63	22	0.12	74	1.10	0.89	25	14	33	7.20	4,810
		0.17	23	<0.15	71	2.43	1.21	30	24	36	7.19	23983
		7.30	24	0.19	115	0.44	3.30	28	20	41	6.90	158,860

**Key**

WLA	Lesotho Highlands Ash River Outfall 28°26'22.13"S 28°23'49.64"E	0.12	-	1 Jan 17 - 31 Mar 17
		0.12	-	1 Apr 17 - 30 Jun 17
		0.12	-	1 July 17 - 30 Sept 17
		0.12	-	1 Oct 17 31 Dec 17

**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
<b>Physical</b>			
Conductivity	mS/m	<150	>=150
pH	pH units	5.5 - 9.5	< 5.5; >9.5
<b>Organic</b>			
Chemical Oxygen Demand (COD)**	mg/l	<75	>=75
<b>Macro Elements</b>			
Ammonia (NH <sub>4</sub> )	mg/l	<3	>=3
Fluoride (F)	mg/l	<1	>=1
Nitrate (NO <sub>3</sub> )	mg/l	<15	>=15
Phosphate (PO <sub>4</sub> )	mg/l	<10	>10
<b>Bacteriological</b>			
Faecal coliforms	counts/100m	<1000	>=1000
** After removal of algae			