RAND WATER

Quarterly Water Quality Status of the Wilge River Catchment

1 October 2013 - 30 September 2014

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	0.20	<10	0.08	37	1.20	0.08	44	<10	10	7.00	1,930
		0.18	<10	0.08	38	0.16	0.11	<5.0	<10	9	7.20	125
		0.20	<10	0.12	35	0.38	0.08	6	<10	8	7.10	6
		0.25	<10	0.22	37	1.00	0.10	6	5	8	7.30	16
WLS	Ash River - Soulspoort Dam 28°16'20.27"S 28°22'22.10"E	0.25	14	0.27	93	1.02	0.28	22	17	28	7.27	
		0.18	<10	0.08	38	0.37	0.08	<5.0	<10	9	7.40	
		0.20	<10	0.13	36	0.47	0.08	5	<10	8	7.30	
		0.25	<10	0.23	43	0.47	0.30	<5.0	5	8	7.20	
WLB	Wilge Liebenbergsvlei @ Bethlehem 28°11'27.05"S 28°20'37.05"E	0.20	<10	0.13	39	0.61	0.12	10	<10	11	7.00	
		0.18	<10	0.08	46	0.18	0.08	6	<10	11	7.30	
		0.20	<10	0.13	38	1.20	0.10	6	<10	8	7.30	
		0.25	<10	0.17	39	1.10	0.17	6	5	8	7.40	
WJA	Jordaanspruit above Bethlehem 28°15'1.05"S 28°18'31.85"E	0.20	<10	0.20	130	1.40	0.08	13	23	34	7.80	
WJ	Jordaanspruit below Bethlehem 28°10'0.45"S 28°18'38.66"E	1.60	26	0.17	125	2.20	0.23	23	34	42	7.40	
		0.76	22	0.25	105	1.60	0.26	20	30	35	7.60	
		0.31	25	0.23	110	2.10	0.18	31	28	37	7.30	
		3.50	36	0.35	125	6.20	0.29	37	36	47	7.50	
WLBB	Wilge River below Bethlehem 28° 6'11.72"S 28°17'49.43"E	0.20	<10	0.18	39	0.50	0.12	10	<10	12	6.90	
		0.18	<10	0.13	50	0.13	0.08	6	13	12	7.30	
		0.20	<10	0.13	39	2.30	0.41	7	<10	9	7.30	
		0.25	<10	0.28	39	0.69	0.25	6	5	9	7.30	
WLR	Wilge River @ Reitz 27°45'28.18"S 28°19'39.05"E	0.20	<10	0.14	40	0.82	0.08	13	<10	11	7.00	
		0.18	<10	0.17	52	0.31	0.08	8	18	13	7.30	
		0.20	<10	0.12	39	0.37	0.13	7	<10	9	7.20	
		0.25	<10	0.32	39	1.10	0.23	6	5	9	7.30	
WL	Liebenbergsvlei River between Tweeling & Frankfort 27°25'51.31"S 28°31'35.66"E	0.20	<10	0.16	43	1.40	0.08	7	<10	14	6.90	
		0.18	<10	0.16	55	0.11	0.10	6	22	14	7.30	
		0.20	<10	0.13	41	0.33	0.10	6	<10	9	7.20	
		0.25	<10	0.23	42	0.93	0.10	7	5	10	7.40	
EQQ	Elands River below Qwa-Qwa 28°22'33.68"S 28°51'38.22"E	0.25	11	0.11	92	1.80	0.44	14	16	29	7.20	
		0.18	<10	0.08	64	0.42	0.10	6	<10	16	7.30	
		0.20	11	0.10	105	2.20	0.19	13	16	27	7.50	
		0.35	14	0.11	110	3.40	0.45	15	16	32	7.70	
WE	Elands River @ Aberfeldy 28°13'48.53"S 28°51'3.03"E	0.34	<10	0.23	99	1.10	0.21	16	20	28	7.20	
		0.18	<10	0.13	71	0.38	0.11	7	11	18	7.50	
		0.20	11	0.21	115	1.90	0.18	14	<10	29	7.70	
		0.25	13	0.20	120	3.60	0.32	17	14	33	8.00	
STERK	Sterkfontein Dam 28°24'30.30"S 29° 2'15.00"E	0.20	<10	0.19	45	0.35	0.27	44	<10	14	7.20	
		0.18	<10	0.16	44	<0.10	0.13	<5.0	<10	10	7.40	
		0.20	<10	0.55	42	0.34	0.10	5	<10	9	7.40	
		0.25	<10	0.15	43	0.60	0.14	5.2	5	10	7.40	
WN	Nuewjaarspruit d/s of Sterkfontein Dam 28°17'19.39"S 29° 5'28.26"E	0.20	<10	0.14	56	0.71	0.12	<5.0	15	15	7.10	
		0.18	<10	0.16	46	<0.10	0.08	<5.0	20	12	7.20	
		0.20	<10	0.14	78	0.29	0.10	5	10	20	7.40	
		0.25	<10	0.18	88	0.38	0.10	7	5	19	7.70	
WAH	Wilge above Harrismith 28°18'27.90"S 29° 7'52.48"E	0.20	14	0.23	35	1.80	0.08	55	11	12	6.70	
		0.18	<10	0.08	24	0.11	0.08	<5.0	15	6	6.90	
		0.20	<10	0.27	32	0.49	0.10	<5.0	<10	8	6.90	
		0.25	<10	0.20	50	0.61	0.10	6	5	12	7.30	
WH	Wilge River below Harrismith 28°13'20.10"S 28°57'56.96"E	1.20	<10	0.13	64	1.50	0.13	11	20	21	6.90	
		0.26	<10	0.11	28	0.36	0.14	<5.0	18	9	6.90	
		0.77	<10	0.28	60	1.40	0.17	10	17	18	7.10	
		5.70	37	2.00	120	5.70	1.00	41	40	32	7.80	
MR	Meul River downstream of Ribbokspruit 28° 1'35.48"S 29°15'0.51"E	0.25	14	0.27	93	1.02	0.28	22	17	28	7.27	
		0.18	<10	0.22	54	<0.10	0.10	<5.0	18	14	7.30	
		0.77	<10	0.20	81	0.12	0.16	10	<10	21	7.60	
		0.25	<10	0.26	130	0.33	0.10	14	9	31	8.40	
WM	Mollen River @ Letuka 28° 1'24.18"S 28°59'41.27"E	0.20	14	0.26	125	0.33	0.08	20	23	34	7.70	
		0.18	<10	0.24	56	<0.10	0.08	6	16	15	7.30	
		0.20	<10	0.23	85	0.12	0.12	10	<10	20	7.70	
		0.25	11	0.29	135	0.43	0.14	16	12	31	8.30	
WMW	Wilge Meul @ Waaiwater 27°54'11.90"S 28°48'27.91"E	0.20	<10	0.16	90	0.76	0.08	17	19	26	7.40	
		0.18	<10	0.18	55	0.26	0.08	<5.0	18	14	7.40	
		0.20	<10	0.26	95	0.69	0.08	11	<10	24	7.80	
		0.25	12	0.22	120	2.90	0.10	15	30	31	8.50	
WC	Cornelis River below Warden 27°50'36.89"S 28°57'42.03"E	0.25	<10	0.34	100	0.12	0.10	12	30	25	7.40	
		0.25	12	0.33	135	0.39	0.10	17	17	33	7.90	
WAF	Wilge above Frankfort 27°18'36.42"S 28°31'58.65"E	0.20	12	0.19	140	0.39	0.08	52	24	37	7.50	
		0.18	<10	0.18	59	0.26	0.08	6	18	16	7.30	
		0.20	<10	0.20	110	0.47	0.15	15	<10	27	7.80	
		0.25	14	0.29	170	0.30	0.10	25	20	39	8.30	
WF	Wilge River @ Frankfort 27°16'18.00"S 28°29'28.41"E	0.20	<10	0.08	65	0.62	0.08	11	16	18	7.10	870
		0.18	<10	0.18	56	0.24	0.08	6	15	14	7.30	690
		0.20	<10	0.08	50	0.42	0.10	8	<10	11	7.40	84
		0.25	<10	0.19	46	0.36	0.10	7	9	11	7.40	290

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	11.47	28	0.16	138	0.29	1.07	79	91	52	7.10	1040233
		18.00	30	0.19	175	0.51	0.41	18	60	54	7.50	1,203,300
		16.00	33	0.10	160	0.49	0.46	30	79	51	7.40	406,700
		9.60	45	0.18	160	7.00	0.42	37	135	54	7.30	1,016,640
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	17.00	31	0.26	260	<0.10	2.20	30	85	70	7.10	2,548,500
		13.00	26	0.18	210	<0.10	2.30	48	465	58	6.90	1,732,900
		14.00	24	0.14	205	0.49	2.00	12	230	55	7.00	453,180
		19.00	25	0.16	235	7.20	1.80	16	240	61	7.00	2,713,700
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	0.65	30	0.10	45	10.00	2.10	53	28	46	6.70	325
		0.25	22	0.08	67	12.00	1.60	23	22	38	7.10	1,380
		5.40	22	0.11	59	13.00	2.30	24	32	43	7.20	230
		0.90	22	0.20	57	11.00	2.10	74	28	45	7.20	310
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	21.00	32	0.15	170	0.31	3.70	75	77	59	7.30	67,790
		14.00	26	0.22	165	1.30	1.60	22	39	52	7.30	38,960
		3.80	27	0.21	88	0.90	1.10	30	21	33	7.30	590
		2.90	25	0.19	85	4.20	2.10	26	30	35	7.10	780

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	11.47	28	0.16	138	0.29	1.07	79	91.33	52.00	7.10	1040233
		18.00	30	0.19	175	0.51	0.41	18	60.00	54.00	7.50	1,203,300
		16.00	33	0.10	160	0.49	0.46	30	79.00	51.00	7.40	406,700
		9.60	45	0.18	160	7.00	0.42	37	135.00	54.00	7.30	1,016,640
S-HSW	Harrismith Sewage Works 28°16'47.50"S 29° 5'49.69"E	17.00	31	0.26	260	<0.10	2.20	30	85.00	70.00	7.10	2,548,500
		13.00	26	0.18	210	<0.10	2.30	48	465.00	58.00	6.90	1,732,900
		14.00	24	0.14	205	0.49	2.00	12	230.00	55.00	7.00	453,180
		19.00	25	0.16	235	7.20	1.80	16	240.00	61.00	7.00	2,713,700
S-QWAQWA	Qwa-Qwa Sewage Works 28°30'29.90"S 28°49'34.21"E	0.65	30	0.10	45	10.00	2.10	53	28.00	46.00	6.70	325
		0.25	22	0.08	67	12.00	1.60	23	22.00	38.00	7.10	1,380
		5.40	22	0.11	59	13.00	2.30	24	32.00	43.00	7.20	230
		0.90	22	0.20	57	11.00	2.10	74	28.00	45.00	7.20	310
S-TSIAME	Tsiame Sewage Works 28°16'47.10"S 28°59'20.70"E	21.00	32	0.15	170	0.31	3.70	75	77.00	59.00	7.30	67,790
		14.00	26	0.22	165	1.30	1.60	22	39.00	52.00	7.30	38,960
		3.80	27	0.21	88	0.90	1.10	30	21.00	33.00	7.30	590
		2.90	25	0.19	85	4.20	2.10	26	30.00	35.00	7.10	780

Key

WLA	Lesotho Highlands Ash River Outfall 28°26'22.13"S 28°23'49.64"E	0.12	-	1 Oct 13 - 31 Dec 13
		0.12	-	1 Jan 14 - 31 Mar 14
		0.12	-	1 Apr 14 - 30 Jun 14
		0.12	-	1 July 14 - 30 Sept 14

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 Management 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	:ounts/100m	<1000	>=1000

** After removal of algae