

# Rand Water

## Quarterly Water Quality Status of the Waterval River Catchment

1 Jan 2018 - 31 Dec 2018



Sample Points	Sample Point Description	Quarter	Ammonia	Chemical Oxygen Demand	Chloride	Conductivity	Fluoride	M-Alkalinity	Nitrate	pH	Phosphate	Sulphate
WAW	Winkelhaakspruit @ Secunda 26° 31.204'S 29° 4.298'E	1	2.22	42	59	68	0.30	173	1.41	7.3	1.33	56
		2	3.43	25	183	98	0.52	153	1.50	7.5	0.68	138
		3	16.00	53	155	110	0.37	167	<0.44	7.6	2.60	87
		4	7.56	72	137	112	0.62	315	4.00	7.6	2.10	74
WAT	Kleinspruit @ Secunda 26° 33.162'S 29° 4.972'E	1	0.33	35	26	61	0.44	175	1.70	7.5	0.22	82
		2	2.83	37	68	63	0.34	167	1.80	7.9	0.75	97
		3	1.06	27	62	65	0.35	157	1.83	7.7	0.31	102
		4	0.83	28	55	65	0.69	148	1.13	7.6	0.39	94
WAR	Waterval River @ Roodebank 26° 37.675'S 29° 1.472'E	1	1.31	32	64	63	0.36	158	0.70	7.4	0.61	63
		2	2.97	43	62	77	0.39	177	0.93	7.4	0.64	76
		3	8.17	35	79	80	0.33	154	<0.44	7.7	1.67	68
		4	5.51	48	36	71	0.54	183	1.07	7.3	1.34	57
WAE	Waterval River @ Elandsplaagte 26° 51.499'S 28° 53.396'E	1	0.20	28	29	40	0.31	113	0.81	7.6	0.19	36
		2	0.07	23	51	48	0.37	128	1.10	7.8	<0.2	68
		3	<0.05	29	96	80	0.38	146	0.96	8.3	0.35	82
		4	0.14	36	56	73	0.48	213	1.07	7.7	1.50	61
WATERVAL_VAAL	Waterval near confluence with Vaal River 26° 57.579'S 28° 44.689'E	1	0.06	28	59	53	0.34	122	0.93	7.8	<0.2	46
		2	4.20	26	39	50	0.37	122	1.20	8.0	1.40	60
		3	0.12	23	104	81	0.41	146	<0.44	8.2	<0.2	92
		4	1.69	32	100	87	0.61	248	<0.50	8.4	0.80	86

### Key

WAE	Waterval River @ Elandsplaagte 26° 51.499'S 28° 53.396'E	1	0.20	- 1 Jan to 31 Mar 2018
		2	0.07	- 1 Apr to 30 Jun 2018
		3	<0.05	- 1 Jul to 31 Sept 2018
		4	0.14	- 1 Oct to 31 Dec 2018

### Water Quality Guidelines

	- Ideal
	- Acceptable
	- Tolerable
	- Unacceptable



**Sewage Works Compliance (where applicable) to General Standard (GN 1191 Oct 1999)**

Sample Points	Sample Point Description	Quarter	Ammonia	Chemical Oxygen Demand	Chloride	Conductivity	Faecal coliforms	Fluoride	M-Alkalinity	Nitrate	pH	Phosphate	Sulphate
S-EVAN_W	Evander Sewage Works 26° 29.633'S 29° 6.950'E	1	7.50	45	45	55	1 426 350	0.32	135	4.90	7.1	1.55	44
		2	18.43	89	70	74	1 656 300	0.20	225	2.30	7.4	2.03	54
		3	18.50	96	77	75	1 878 967	0.24	208	1.40	7.2	3.15	62
		4	20.00	157	70	76	4 495 100	0.55	193	5.60	7.4	2.60	68
S-SEC_LOC	Embalenhle Sewage Works 26° 33.414'S 29° 4.292'E	5	17.67	69	58	81	32 900	0.47	220	<0.44	7.3	4.73	79
		6	19.33	48	70	76	74 367	0.21	198	0.73	7.5	2.80	95
		7	21.33	67	75	70	11 227	0.23	192	4.00	7.6	5.87	81
		8	23.41	122	86	97	2 463	0.61	258	0.67	7.4	4.06	111

**Key**

S-EVAN_W	Evander Sewage Works 26° 29.633'S 29° 6.950'E	1	7.50	- 1 Jan to 31 Mar 2018
		2	18.43	- 1 Apr to 30 Jun 2018
		3	18.50	- 1 Jul to 31 Sept 2018
		4	20.00	- 1 Oct to 31 Dec 2018

**Water Quality Guidelines**

	- Acceptable
	- Unacceptable



**Applicable Water Quality Standards for final effluent discharge from Secunda Sewage Works (as per DWS licence)**

Sample Points	Sample Point Description	Quarter	Ammonia	Chemical Oxygen Demand	Chloride	Conductivity	Faecal coliforms	Fluoride	M-Alkalinity	Nitrate	pH	Phosphate	Sulphate
S-SEC_SEW	Secunda Sewage Works 26° 32.262'S 29° 8.520'E	1	0.87	34	50	64	15	0.38	158	2.49	7.4	0.59	70
		2	5.80	32	70	76	12	0.28	160	1.60	7.6	0.70	80
		3	<0.2	47	73	70	1	0.25	84	4.47	7.4	0.23	79
		4	15.82	23	83	60	1	0.50	112	2.30	7.3	2.85	86

**Key**

S-SEC_SEW	Secunda Sewage Works 26° 32.262'S 29° 8.520'E	1	0.87	- 1 Jan to 31 Mar 2018
		2	5.80	- 1 Apr to 30 Jun 2018
		3	<0.2	- 1 Jul to 31 Sept 2018
		4	15.82	- 1 Oct to 31 Dec 2018

**Water Quality Guidelines**

	- Acceptable
	- Unacceptable

## In-stream Water Quality Guidelines for the Waterval Catchment

Variables	Measured as	Ideal Catchment Background	Acceptable Management Target	Tolerable Interim Target	Unacceptable
<b>Physical</b>					
Conductivity	mS/m	< 10	10 - 30	30 - 45	> 45
pH	pH units	6.5 - 8.5			< 6.5; > 8.5
<b>Organic</b>					
Chemical Oxygen Demand (COD)	mg/l	< 10	10 - 15	15 - 20	> 20
<b>Macro Elements</b>					
Ammonia (NH <sub>4</sub> )	mg/l	< 0.2	0.2 - 0.5	0.5 - 1.0	> 1.0
Chloride (Cl)	mg/l	< 25	25 - 50	50 - 75	> 75
Fluoride (F)	mg/l	< 0.05	0.05 - 0.20	0.2 - 0.4	> 0.4
Alkalinity	CaCO <sub>3</sub> mg/l	< 40	40 - 75	75 - 120	> 120
Nitrate (NO <sub>3</sub> )	mg/l	< 0.1	0.1 - 0.2	0.2 - 0.3	> 0.3
Phosphate (PO <sub>4</sub> )	mg/l	< 0.05	0.05 - 0.25	0.25 - 0.50	> 0.50
Sulphate (SO <sub>4</sub> )	mg/l	< 20	20 - 45	45 - 70	> 70
<b>Bacteriological</b>					
<i>E.coli</i>	counts/100ml	< 10	10 - 60	60 - 120	> 120
<i>Faecal coliforms</i>	counts/100ml		< 126	126 - 1,000	> 1,000

### \* Applicable Water Quality Standards for final effluent discharge from Sewage Works (as per DWS licence)

Variables	Measured as	Acceptable Management Target	Unacceptable
<b>Physical</b>			
Conductivity	mS/m	<= 70	> 70
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	<= 6	> 6
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>			
<i>Faecal coliforms</i>	counts/100ml	0	> 0

### Sewage Works Compliance to General Standard (GN 1191 Oct 1999)

Variables	Measured as	Acceptable Management Target	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>			
<i>Faecal coliforms</i>	counts/100ml	< 1000	>= 1000

\*\*After removal of algae

Visit <http://www.reservoir.co.za/>  
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