

# Rand Water

## Quarterly Water Quality Status of the Grootdraai Dam Catchment

01 Jul 2017 - 30 Jun 2018



RAND WATER

Sample Points	Sample Point Description	Quarter	Ammonia	Chemical Oxygen Demand	Chloride	Conductivity	Fluoride	M-Alkalinity	Nitrate	pH	Phosphate	Sulphate
VE	Vaal River @ Ermelo 26° 38.891'S 30° 9.072'E	1	<0.05	12	15	25	0.28	75	1.10	7.4	<0.2	27
		2	<0.092	26	18	27	0.55	100	0.44	7.2	0.20	14
		3	<0.05	20	11	23	0.33	82	<0.44	6.8	<0.2	20
		4	<0.05	20	12	25	<0.19	35	<0.44	7.2	<0.2	23
WITPUNTSPRUIT	Witpuntspruit @ N2 near Camden 26° 35.604'S 30° 5.781'E	1	1.06	<10	20	231	1.06	88	<0.1	4.2	<0.2	1 810
		2	0.70	16	25	180	1.00	5	0.44	3.5	0.20	<5.0
		3	0.08	23	25	71	0.32	33	<0.44	4.8	<0.2	272
		4	0.25	18	21	161	0.60	<5	<0.44	3.3	<0.2	895
VAAL-DS_WITPT	Vaal River Downstream of Witpuntspruit 26° 42.123'S 30° 4.968'E	1	0.05	21	19	39	0.48	91	1.20	7.8	<0.2	76
		2	<0.092	24	30	54	0.54	140	0.44	7.9	0.20	110
		3	<0.05	18	11	29	0.39	78	<0.44	7.1	<0.2	53
		4	<0.05	16	13	22	<0.19	87	<0.44	7.5	<0.2	39
VKV	Klein Vaal River @ Goedeheoop 26° 49.209'S 30° 8.199'E	1										
		2	<0.092	32	<10	16	0.19	38	0.92	6.8	0.20	20
		3	<0.05	13	6	20	<0.19	131	<0.44	7.1	<0.2	7
		4										
VRA	Rietspruit below Amersfoort 26° 54.785'S 29° 52.320'E	1	0.05	20	35	62	0.26	220	0.38	8.3	<0.2	56
		2	<0.092	25	36	49	0.30	160	0.44	7.5	0.20	42
		3	0.10	21	11	37	0.34	140	<0.44	7.6	<0.2	30
		4	0.84	18	14	37	<0.19	124	0.61	7.7	<0.2	33
VKK	Brummerspruit below Ermelo 26° 30.835'S 29° 54.448'E	1	21.67	69	36	74	0.47	212	0.19	7.2	1.69	92
		2	11.00	45	23	62	0.25	175	0.44	7.0	0.57	54
		3	18.67	52	35	72	0.54	202	<0.44	7.0	1.90	88
		4	19.67	43	38	69	0.21	7 - 30	<0.44	7.2	1.70	96
VKR	Tweefontein @ Riverside 26° 37.363'S 29° 50.267'E	1	15.83	42	37	77	0.33	248	6.71	7.5	2.40	72
		2	11.00	53	32	54	0.31	180	0.44	7.3	0.51	72
		3	6.27	30	25	58	0.32	152	0.99	7.0	0.61	64
		4	7.60	30	32	63	0.22	200	0.98	7.3	0.71	70
VK	Brummerspruit before Vaal River 26° 46.853'S 29° 48.402'E	1	1.60	31	32	62	0.42	200	4.80	8.4	0.43	69
		2	18.00	37	36	44	0.30	140	0.44	7.1	1.30	66
		3	0.07	21	22	57	0.35	215	1.51	7.4	<0.2	56
		4	0.75	24	26	52	0.22	175	3.33	7.6	0.24	62
VAS	Vaal River above Standerton 26° 51.311'S 29° 41.860'E	1	0.07	15	20	44	0.33	148	0.99	8.6	<0.2	50
		2	3.30	32	24	96	0.26	54	1.40	5.5	0.24	43
		3	<0.05	17	11	30	0.30	95	0.36	7.3	<0.2	31
		4	<0.05	16	15	30	<0.19	123	0.97	8.0	<0.2	36
VGK	Geelklipspruit below Amersfoort 26° 57.893'S 29° 40.318'E	1										
		2	<0.092	34	110	66	0.32	94	0.44	7.5	0.20	440
		3	<0.05	28	30	59	0.30	165	<0.44	7.6	<0.2	88
		4										
VBB	Blesbokspruit below Bethal 26° 31.866'S 29° 25.371'E	1	9.00	52	63	75	0.40	248	0.19	7.7	2.10	54
		2	11.00	38	58	57	0.27	180	1.40	7.4	2.00	130
		3	0.91	39	23	37	0.26	105	0.59	7.0	0.91	31
		4	<0.05	30	42	47	0.24	145	0.91	7.6	0.90	45
VBS	Blesbokspruit @ Skaapkraal 26° 39.223'S 29° 27.056'E	1	<0.05	41	63	71	0.30	240	1.45	9.5	0.69	52
		2	0.90	35	68	69	0.34	220	0.52	7.6	1.70	53
		3	<0.05	31	19	31	0.23	89	<0.44	7.6	0.21	26
		4	<0.05	23	31	48	0.23	162	1.60	6.7	<0.2	56

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Sample Points	Sample Point Description	Quarter	Ammonia	Chemical Oxygen Demand	Chloride	Conductivity	Fluoride	M-Alkalinity	Nitrate	pH	Phosphate	Sulphate
VB	Blesbokspruit @ Vaal River Confluence 26° 46.558'S 29° 32.485'E	1	<0.05	23	51	68	0.29	240	0.20	8.1	<0.2	70
		2	0.20	31	62	69	0.39	230	0.44	7.9	0.33	60
		3	0.10	33	16	36	0.24	107	<0.44	7.6	<0.2	26
		4	<0.05	21	24	46	0.23	168	<0.44	7.7	<0.2	55
ND-LEEU	Leeuspruit @ New Denmark Colliery 26° 51.277'S 29° 19.524'E	1	<0.05	21	21	42	0.32	117	0.32	8.2	<0.2	53
		2	0.20	29	40	50	0.29	120	0.44	7.5	<0.2	95
		3	<0.05	22	18	39	0.23	125	<0.44	7.4	<0.2	37
		4	<0.05	33	17	37	0.22	107	<0.44	7.6	<0.2	46
VS	Vaal River @ Standerton 26° 56.509'S 29° 15.835'E	1	0.07	18	11	28	0.31	69	0.25	7.6	<0.2	33
		2	0.14	21	37	33	0.28	110	0.73	7.2	<0.2	45
		3	<0.05	20	13	29	0.24	83	<0.44	7.8	<0.2	36
		4	0.10	19	14	32	0.24	89	<0.44	7.8	<0.2	38

### Key

VE	Vaal River @ Ermelo 26° 38.891'S 30° 9.072'E	1	<0.05	- 1 Jul to 30 Sep 2017
		2	<0.092	- 1 Oct to 31 Dec 2017
		3	<0.05	- 1 Jan to 31 Mar 2018
		4	<0.05	- 1 Apr to 30 Jun 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
<b>S-BETHAL</b>	Bethal Sewage Works 26° 29.182'S 29° 27.056'E	1	5.05	35	21	59	204 595	25.62	130	3.70	7.2	2.75	53
		2	6.70	29	50	56	470 800	0.28	135	2.40	7.0	1.20	49
		3	4.10	24	40	59	340 987	0.30	153	2.75	7.1	1.53	51
		4	0.39	33	52	62	30 153	0.19	125	5.60	7.5	2.14	64
<b>S-ESW</b>	Ermelo Sewage Works 26° 30.679'S 29° 57.863'E	1	33.00	1025	46	89	4 029 567	0.39	273	0.24	6.7	1.36	93
		2	20.00	230	49	84	1 973 200	0.24	270	0.44	6.8	2.20	76
		3	30.67	176	47	91	5 277 333	0.63	285	<0.44	6.9	2.80	96
		4	22.11	718	50	66	7 997 667	0.19	213	<0.44	7.5	1.37	97
<b>S-TUTU</b>	Tutukani Sewage Works 26° 47.621'S 29° 17.514'E	1	0.28	21	65	60	4	0.34	55	13.67	7.0	0.16	68
		2	0.44	27	54	54	97	0.19	110	3.50	6.9	0.29	74
		3	6.12	39	48	58	366	0.30	168	2.20	7.7	0.60	48
		4	0.53	21	54	55	7 160	<0.19	128	4.67	7.6	0.10	77
<b>S-ND-SOUTH</b>	New Denmark Colliery - South Shaft 26° 44.611'S 29° 18.272'E	1	0.12	36	83	73	265	0.25	90	16.00	7.7	1.65	65
		2	<0.2	46	91	71	69	0.19	107	13.67	7.1	1.57	93
		3	34.00	35	63	69	380	0.65	151	15.00	7.9	2.31	39
		4	0.23	40	99	82	239	0.19	125	13.67	7.9	0.30	85

**Key**

<b>S-BETHAL</b>	Bethal Sewage Works 26° 29.182'S 29° 27.056'E	1	5.05	- 1 Jul to 30 Sep 2017
		2	6.70	- 1 Oct to 31 Dec 2017
		3	4.10	- 1 Jan to 31 Mar 2018
		4	0.39	- 1 Apr to 30 Jun 2018

**Water Quality Guidelines**

	- Acceptable
	- Unacceptable

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

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<b>Variables</b>	<b>Measured as</b>	<b>Acceptable Management Target</b>	<b>Unacceptable</b>
<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	< 1,000	>= 1,000

*\*After removal of algae*