

Rand Water

Quarterly Water Quality Status of the Grootdraai Dam Catchment

Oct 2017 - Sept 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	<0.092	26	18	27	0.55	100	0.44	7.2	0.20	14
		2	<0.05	20	11	23	0.33	82	<0.44	6.8	<0.2	20
		3	<0.05	20	12	25	<0.19	35	<0.44	7.2	<0.2	23
		4	<0.05	13	14	38	<0.19	90	<0.44	7.2	<0.2	24
WITPUNTSPRUIT	Witpuntspruit @ N2 near Camden 26° 35.604'S 30° 5.781'E	1	0.70	16	25	180	1.00	5	0.44	3.5	0.20	<5.0
		2	0.08	23	25	71	0.32	33	<0.44	4.8	<0.2	272
		3	0.25	18	21	161	0.60	<5	<0.44	3.3	<0.2	895
		4	0.39	33	29	203	0.97	<5	0.88	3.1	<0.2	1 633
VAAL-DS_WITPT	Vaal River Downstream of Witpuntspruit 26° 42.123'S 30° 4.968'E	1	<0.092	24	30	54	0.54	140	0.44	7.9	0.20	110
		2	<0.05	18	11	29	0.39	78	<0.44	7.1	<0.2	53
		3	<0.05	16	13	22	<0.19	87	<0.44	7.5	<0.2	39
		4	<0.05	12	19	36	0.30	89	<0.44	8.1	<0.2	62
VKV	Klein Vaal River @ Goedeheoop 26° 49.209'S 30° 8.199'E	1	<0.092	32	<10	16	0.19	38	0.92	6.8	0.20	20
		2	<0.05	13	6	20	<0.19	131	<0.44	7.1	<0.2	7
		3										
		4										
VRA	Rietspruit below Amersfoort 26° 54.785'S 29° 52.320'E	1	<0.092	25	36	49	0.30	160	0.44	7.5	0.20	42
		2	0.10	21	11	37	0.34	140	<0.44	7.6	<0.2	30
		3	0.84	18	14	37	<0.19	124	0.61	7.7	<0.2	33
		4	0.07	25	20	63	0.19	162	0.96	8.1	<0.2	45
VKK	Brummerspruit below Ermelo 26° 30.835'S 29° 54.448'E	1	11.00	45	23	62	0.25	175	0.44	7.0	0.57	54
		2	18.67	52	35	72	0.54	202	<0.44	7.0	1.90	88
		3	19.67	43	38	69	0.21	182	<0.44	7.2	1.70	96
		4	21.67	46	40	58	0.23	160	<0.44	7.3	1.69	100
VKR	Tweefontein @ Riverside 26° 37.363'S 29° 50.267'E	1	11.00	53	32	54	0.31	180	0.44	7.3	0.51	72
		2	6.27	30	25	58	0.32	152	0.99	7.0	0.61	64
		3	7.60	30	32	63	0.22	200	0.98	7.3	0.71	70
		4	10.43	32	37	75	0.24	200	0.87	7.3	0.99	96
VK	Brummerspruit before Vaal River 26° 46.853'S 29° 48.402'E	1	18.00	37	36	44	0.30	140	0.44	7.1	1.30	66
		2	0.07	21	22	57	0.35	215	1.51	7.4	<0.2	56
		3	0.75	24	26	52	0.22	175	3.33	7.6	0.24	62
		4	0.15	30	34	62	0.24	187	5.00	7.6	0.50	74
VAS	Vaal River above Standerton 26° 51.311'S 29° 41.860'E	1	3.30	32	24	96	0.26	54	1.40	5.5	0.24	43
		2	<0.05	17	11	30	0.30	95	0.36	7.3	<0.2	31
		3	<0.05	16	15	30	<0.19	123	0.97	8.0	<0.2	36
		4	<0.05	15	22	43	0.20	150	1.60	8.2	<0.2	49
VGK	Geelklipspruit below Amersfoort 26° 57.893'S 29° 40.318'E	1	<0.092	34	110	66	0.32	94	0.44	7.5	0.20	440
		2	<0.05	28	30	59	0.30	165	<0.44	7.6	<0.2	88
		3										
		4										
VBB	Blesbokspruit below Bethal 26° 31.866'S 29° 25.371'E	1	11.00	38	58	57	0.27	180	1.40	7.4	2.00	130
		2	0.91	39	23	37	0.26	105	0.59	7.0	0.91	31
		3	<0.05	30	42	47	0.24	145	0.91	7.6	0.90	45
		4	15.50	45	49	80	0.24	167	<0.44	7.5	2.55	43
VBS	Blesbokspruit @ Skaapkraal 26° 39.223'S 29° 27.056'E	1	0.90	35	68	69	0.34	220	0.52	7.6	1.70	53
		2	<0.05	31	19	31	0.23	89	<0.44	7.6	0.21	26
		3	<0.05	23	31	48	0.23	162	1.60	6.7	<0.2	56
		4	0.06	28	68	76	0.30	195	1.35	8.6	0.94	63



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	0.20	31	62	69	0.39	230	0.44	7.9	0.33	60
		2	0.10	33	16	36	0.24	107	<0.44	7.6	<0.2	26
		3	<0.05	21	24	46	0.23	168	<0.44	7.7	<0.2	55
		4	0.02	19	53	69	0.30	222	<0.44	8.4	<0.2	74
ND-LEEU	Leeuspruit @ New Denmark Colliery 26° 51.277'S 29° 19.524'E	1	0.20	29	40	50	0.29	120	0.44	7.5	<0.2	95
		2	<0.05	22	18	39	0.23	125	<0.44	7.4	<0.2	37
		3	<0.05	33	17	37	0.22	107	<0.44	7.6	<0.2	46
		4	0.04	18	26	48	0.27	133	<0.44	7.9	<0.2	63
VS	Vaal River @ Standerton 26° 56.509'S 29° 15.835'E	1	0.14	21	37	33	0.28	110	0.73	7.2	<0.2	45
		2	<0.05	20	13	29	0.24	83	<0.44	7.8	<0.2	36
		3	0.10	19	14	32	0.24	89	<0.44	7.8	<0.2	38
		4	0.20	17	15	33	0.26	113	<0.44	7.9	<0.2	41

Key

VE	Vaal River @ Ermelo 26° 38.891'S 30° 9.072'E	1	<0.092	- 1 Oct to 31 Dec 2017
		2	<0.05	- 1 Jan to 31 Mar 2018
		3	<0.05	- 1 Apr to 30 Jun 2018
		4	<0.05	- 1 Jul to 30 Sept 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-BETHAL	Bethal Sewage Works 26° 29.182'S 29° 27.056'E	1	6.70	29	50	56	470 800	0.28	135	2.40	7.0	1.20	49
		2	4.10	24	40	59	340 987	0.30	153	2.75	7.1	1.53	51
		3	0.39	33	52	62	30 153	0.19	125	5.60	7.5	2.14	64
		4	4.35	58	50	59	12 525	0.21	99	5.47	7.4	4.70	50
S-ESW	Ermelo Sewage Works 26° 30.679'S 29° 57.863'E	1	20.00	230	49	84	1 973 200	0.24	270	<0.44	6.8	2.20	76
		2	30.67	176	47	91	5 277 333	0.63	285	<0.44	6.9	2.80	96
		3	22.11	718	50	66	7 997 667	0.19	213	<0.44	7.5	1.37	97
		4	40.33	1059	62	94	10 071 333	0.23	247	<0.44	7.1	3.10	101
S-TUTU	Tutukani Sewage Works 26° 47.621'S 29° 17.514'E	1	0.44	27	54	54	97	0.19	110	3.50	6.9	0.29	74
		2	6.12	39	48	58	366	0.30	168	2.20	7.7	0.60	48
		3	0.53	21	54	55	7 160	<0.19	128	4.67	7.6	0.10	77
		4	<0.2	21	59	57	5 108	0.20	105	6.00	7.6	<0.1	85
S-ND-SOUTH	New Denmark Colliery - South Shaft 26° 44.611'S 29° 18.272'E	1	<0.2	46	91	71	69	0.19	107	13.67	7.1	1.57	93
		2	34.00	35	63	69	380	0.65	151	15.00	7.9	2.31	39
		3	0.23	40	99	82	239	0.19	125	13.67	7.9	0.30	85
		4	5.71	44	108	74	15	0.23	123	15.00	7.7	2.10	76

Key

S-BETHAL	Bethal Sewage Works 26° 29.182'S 29° 27.056'E	1	6.70	- 1 Oct to 31 Dec 2017
		2	4.10	- 1 Jan to 31 Mar 2018
		3	0.39	- 1 Apr to 30 Jun 2018
		4	4.35	- 1 Jul to 30 Sept 2018

Water Quality Guidelines

	- Acceptable
	- Unacceptable

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

Variables	Measured as	Acceptable Management Target	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			
<i>Faecal coliforms</i>	counts/100ml	< 1,000	>= 1,000

**After removal of algae*

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