



Quarterly Water Quality Status of the Grootdraai Dam Catchment

1 October 2014 - 30 September 2015

Sample Points	Sample Point Description	Ammonia	Chloride	Fluoride	Inv-Alkalinity	Nitrate	Phosphate	Sulphate	Chemical Oxygen Demand	Conductivity	pH	E. coli
VE	Vaal River @ Ermelo 26°21'46.17"S 30° 6'31.15"E	0.18	13	0.26	80	0.45	0.08	22	17	27	7.7	
		0.18	9	0.23	58	0.33	0.14	33	19	23	7.2	
		<0.5	10	0.24	93	0.71	<0.2	10	18	22	7.5	
		0.23	23	0.26	115	0.17	0.35	31	19	28	7.8	
C-WITPUNTSRUIT	Witpuntspruit @ N2 near Camden 26°35'36.24"S 30° 05'46.84"E	2.30	17	0.64	<5.0	0.61	0.10	260	9	290	3.1	
		0.25	<10	0.64	<5.0	0.88	0.10	47	5	120	3.9	
		1.30	16	1.20	<0.5	0.59	<0.2	597	<10	235	3.3	
		1.60	16	1.53	<5	0.52	0.36	863	<10	330	3.0	
C-VAAL-DS-WITPT	Vaal River Downstream of Witpuntspruit 26°42'07.39"S 30° 04'58.08"E	0.15	18	0.61	120	0.84	0.08	140	20	58	7.9	
		0.15	11	0.36	70	<0.10	0.12	80	18	33	8	
		<0.5	15	0.36	110	0.26	<0.2	44	18	33	7.9	
		<0.2	20	0.47	185	1.40	2.30	40	28	55	8.3	
ZD	Zaaihoek Dam 27°09'47.0"S 29°52'42.8"E											
VKV	Klein Vaal River @ Goedehoop 26°49'12.19"S 30° 8'12.00"E	<0.092	<10	0.08	85	0.36	0.05	<5.0	13	19	7.9	
VRA	Rietspruit below Amersfoort 26°54'47.20"S 29°52'19.22"E	0.18	16	0.24	125	0.77	0.08	35	30	37	7.8	
		0.25	28	0.32	140	1.70	0.10	100	22	38	8.2	
		<0.5	17	0.31	168	0.41	<0.2	41	18	42	8.1	
		0.21	10	0.27	59	0.80	<0.1	30	15	19	7.3	
VKK	Brummerspruit below Ermelo 26°30'49.51"S 29°54'27.37"E	4.30	19	0.36	87	0.89	0.48	67	115	40	7.0	
		11.00	34	0.32	175	0.12	1.40	72	48	66	7.3	
		17.67	32	0.28	170	0.35	2.03	80	50	59	7.2	
		14.37	48	0.54	200	6.35	2.13	149	72	70	7.5	
VKR	Tweefontein @ Riverside 26°37'21.17"S 29°50'16.24"E	7.30	36	0.31	210	0.96	2.80	54	63	73	7.4	
		1.83	19	0.35	170	1.30	0.10	46	38	65	7.4	
		7.40	31	0.32	152	7.93	0.99	81	38	57	7.2	
		6.45	36	0.44	187	53.00	1.90	77	44	72	7.4	
VK	Brummerspruit before Vaal River 26°46'51.26"S 29°48'23.51"E	0.15	30	0.34	220	2.20	0.96	72	31	70	7.8	
		6.18	30	0.38	150	2.00	1.10	90	32	56	7.7	
		1.25	31	0.30	138	5.57	0.35	78	30	51	7.4	
		0.48	27	0.35	155	7.57	0.81	41	25	56	7.8	
VAS	Vaal River above Standerton 26°51'18.56"S 29°41'51.61"E	0.25	14	0.26	110	1.10	0.16	35	32	36	7.6	
		<0.5	19	0.27	138	1.36	<0.2	47	22	40	7.8	
		<0.2	13	0.33	89	1.09	<0.1	29	28	28	7.6	
		<0.092	29	0.33	235	0.63	0.05	83	20	61	8.5	
VGK	Geelklipspruit below Amersfoort 26°57'53.51"S 29°40'19.12"E											
VBB	Blesbokspruit below Bethal 26°34'2.11"S 29°26'41.21"E	0.68	34	0.34	150	0.66	0.71	42	40	50	7.4	
		0.68	34	0.34	150	0.66	0.71	42	40	50	7.4	
		4.00	35	0.46	188	6.55	0.92	44	48	54	8.0	
		9.10	36	0.37	188	10.17	1.44	41	44	71	7.6	
VBS	Blesbokspruit @ Skaapkraal 26°38'17.35"S 29°27'6.24"E	0.90	42	0.48	190	0.57	1.20	43	51	58	8.0	
		0.25	25	0.28	170	0.17	0.38	38	36	54	8	
		<0.1	45	0.42	187	0.77	0.30	50	38	58	8.7	
		0.56	60	0.38	207	2.95	0.73	84	65	70	8.6	
VB	Blesbokspruit @ Vaal River Confluence 26°49'57.05"S 29°30'32.95"E	0.25	34	0.39	185	0.60	0.82	46	45	57	7.8	
		0.25	15	0.35	165	0.51	0.10	42	31	44	7.9	
		<0.5	41	0.46	207	0.51	0.25	51	30	59	7.9	
		<0.2	58	0.42	228	0.99	<0.2	68	42	72	8.1	
ND-LEEUE	Leeuspruit @ New Denmark Colliery 26°51'16.79"S 29°19'31.56"E	0.25	19	0.34	115	0.41	0.10	53	35	40	7.5	
		0.25	16	0.30	98	2.30	0.10	68	28	30	7.8	
		<0.1	23	0.33	123	0.21	0.55	66	20	43	7.9	
		<0.1	39	0.24	119	<0.1	<0.2	73	29	53	7.8	
VS	Vaal River @ Standerton 26°56'51.37"S 29°15'32.09"E	0.17	<10	0.33	68	0.43	0.68	32	19	23	7.6	
		0.25	11	0.26	74	0.46	0.16	36	20	26	7.5	
		<0.5	11	0.37	78	0.47	<0.2	33	18	25	7.8	
		<0.2	16	0.28	81	0.26	<0.1	29	20	28	7.1	
S-BETHAL	Bethal Sewage Works 26°29'8.05"S 29°27'15.88"E	7.40	49	0.14	205	2.30	1.60	58	53	74	7.6	118,050
		10.53	47	0.29	207	0.49	1.10	61	28	71	7.5	598,973
		3.00	46	0.28	118	7.87	0.98	63	29	56	7.3	818,033
		22.00	43	0.25	213	10.50	1.53	50	53	77	7.49	668,100
S-ESW	Ermelo Sewage Works 26°30'42.84"S 29°57'51.11"E	10.00	36	0.12	175	0.28	2.30	105	270	72	7.1	605,670
		16.00	47	0.13	190	1.70	2.80	84	225	77	7.2	258,730
		26.67	46	0.24	197	1.29	3.30	73	232	72	7.2	542,800
		21.00	47	0.35	186	37.12	4.37	74	157	61	7.7	563,633
S-TUTU	Tutukani Sewage Works 26°47'36.70"S 29°17'30.43"E	0.35	87	0.19	66	3.30	0.12	70	16	56	7.1	70,670
		0.25	67	0.21	105	2.80	0.64	69	17	49	7.7	18,720
		20.00	56	0.28	101	11.18	0.27	75	57	62	7.4	0
		12.00	83	0.18	53	5.83	0.63	75	108	67	7.2	289,462
S-ND-SOUTH	New Denmark Colliery - South Shaft 26°44'41.51"S 29°18'31.70"E	<0.092	115	0.78	68	2.00	1.10	115	31	81	7.8	6
		4.20	35	0.18	190	3.00	1.00	49	48	76	7.3	547,500
		3.00	76	0.28	121	11.40	0.72	91	39	89	7.7	177
		1.07	104	0.28	130	14.33	1.33	79	76	93	7.5	2997

Sample Points	Sample Point Description	Ammonia	Chloride	Fluoride	M-Alkalinity	Nitrate	Phosphate	Sulphate	Chemical Oxygen Demand	Conductivity	pH	E. coli
<b>Sewage Works Compliance (where applicable) to General Standard (GN 1191 Oct 1999)</b>												
S-BETHAL	Bethal Sewage Works 26°29'8.05"S 29°27'15.88"E	7.40	49	0.14	205	2.30	1.60	58	53	74	7.6	118,050
		10.53	47	0.29	207	0.49	1.10	61	28	71	7.5	598,973
		3.00	46	0.28	118	7.87	0.98	63	29	56	7.3	818,033
		22.00	43	0.25	213	10.50	1.53	50	53	77	7.5	668,100
S-ESW	Ermelo Sewage Works 26°30'42.84"S 29°57'51.11"E	10.00	36	0.12	175	0.28	2.30	105	270	72	7.1	605,670
		16.00	47	0.13	190	1.70	2.80	84	225	77	7.2	258,730
		26.67	46	0.24	197	1.29	3.30	73	232	72	7.2	542,800
		21.00	47	0.35	186	37.12	4.37	74	157	61	7.7	563,633
S-TUTU	Tutukani Sewage Works 26°47'36.70"S 29°17'30.43"E	0.35	87	0.19	66	3.30	0.12	70	16	56	7.1	70,670
		0.25	67	0.21	105	2.80	0.64	69	17	49	7.7	18,720
		20.00	56	0.28	101	11.18	0.27	75	57	62	7.4	0
		12.00	83	0.18	53	5.83	0.63	75	108	67	7.2	289,462
S-ND-SOUTH	New Denmark Colliery - South Shaft 26°44'41.51"S 29°18'31.70"E	1.90	115	0.29	68	0.29	1.40	115	56	70	7.6	250
		<0.092	35	0.78	190	2	1.10	49	31	81	7.8	6
		4.20	76	0.18	121	3.00	1.00	91	48	76	7.3	547,500
		1.07	104	0.28	130	14.33	1.33	79	76	93	7.5	2997

**Key**

VE	Vaal River above Standerton	0.12	-	1 Oct 14 - 31 Dec 14
		0.12	-	1 Jan 15 - 31 Mar 15
		0.12	-	1 Apr 15 - 30 Jun 15
		0.12	-	1 July 15 - 30 Sept 15

**Water Quality Guidelines**

	-	Ideal
	-	Acceptable
	-	Tolerable
	-	Unacceptable

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>3</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/100ml	<1000	>=1000

\*\* After removal of algae