

Sample Points	Sample Point Description	Ammonia	Chloride	Fluoride	Alkalinity	Nitrate	Phosphate	Sulphate	Chemical Oxygen Demand	Conductivity	pH	E. coli
VSV	Sandspruit above Volksrust 27°14'26.03"S 29°53'21.78"E	0.12	<10	0.11	81	<-0.10	<-0.05	13	<10	21	8.00	
		0.12	<10	0.15	115	0.14	<-0.05	16	12	32	8.10	
		0.12	<10	0.17	93	0.13	0.050	20	16	27	7.40	
		0.12	<10	0.19	86	<-0.10	<-0.036	12	13	22	7.50	
VSS	Sandspruit below Vaal River @ Kliplaatsdrift 27°12'30.82"S 29°26'12.83"E	0.12	<10	0.15	135	<-0.10	<-0.05	20	<10	35	8.10	
		0.12	<10	0.17	180	<-0.10	<-0.05	27	<10	43	8.40	
		0.12	<10	0.24	145	0.11	<-0.036	36	15	42	7.70	
		0.12	<10	0.28	140	<-0.10	<-0.036	19	13	33	7.90	
KB	Klip River @ Barnardskop 27°14'41.55"S 29°36'1.76"E	0.12	<10	0.08	50	<-0.10	<-0.05	<-5.0	12	12	7.70	
		0.12	<10	0.11	59	<-0.10	<-0.05	<-5.0	<10	17	7.50	
		0.12	<10	0.17	56	0.12	<-0.036	12	21	18	7.30	
		0.12	<10	0.15	56	<-0.10	<-0.036	<-5.0	16	14	6.60	
KW	Klip @ Winkelhaak 27°14'41.55"S 29°23'59.91"E	0.12	<10	0.10	82	<-0.10	<-0.05	9	<10	19	7.90	
		0.12	<10	0.14	125	<-0.10	0.190	13	<10	33	7.90	
		0.12	<10	0.16	120	<-0.10	0.080	14	21	30	7.50	
		0.12	<10	0.15	70	<-0.10	<-0.036	5	16	17	6.90	
KD	Klip River @ De Langedrift 27°10'57.77"S 29°14'5.54"E	0.12	<10	0.14	135	<-0.10	<-0.05	15	<10	30	8.20	
		0.12	<10	0.18	190	<-0.10	<-0.05	21	<10	46	8.30	
		0.12	10	0.23	150	0.16	<-0.036	28	14	39	7.50	
		0.12	<10	0.17	82	<-0.10	<-0.036	9	23	19	7.20	
KSV	Spruitsonderdrift downstream of Vrede 27°21'8.15"S 29°10'16.87"E	0.12	13	0.16	140	0.73	0.180	20	21	34	8.30	
		0.12	26	0.20	205	0.13	0.260	27	33	56	8.70	
		0.23	27	0.27	165	0.25	0.580	27	22	45	8.00	
		0.12	<10	0.26	145	0.43	0.080	21	21	36	7.90	
VDS	Vaal River downstream of Standerton 27°05'57.97"S 29°1'29.30"E	0.12	<10	0.12	100	0.46	<-0.05	16	15	26	7.60	
		0.12	11	0.17	195	<-0.10	<-0.05	22	14	45	8.20	
		0.43	11	0.24	105	0.65	0.070	22	21	31	7.20	
		0.12	<10	0.20	105	<-0.10	0.050	11	21	26	7.50	
VGB	Gladdedrift Bridge @ Villiers 26°59'31.24"S 28°43'47.18"E	0.12	<10	0.30	120	0.33	<-0.05	17	15	27	7.80	
		0.12	11	0.17	195	0.36	<-0.05	24	13	48	8.00	
		0.12	14	0.37	190	0.62	<-0.036	28	22	53	7.10	
		0.12	<10	0.23	94	0.13	0.180	18	18	27	6.90	
VV	Vaal @ Villiers 27°1'20.13"S 28°36'0.32"E	0.12	11	0.34	105	0.25	0.060	21	19	28	7.80	
		0.12	16	0.21	180	0.11	<-0.05	33	17	50	7.90	
		0.12	19	0.33	185	0.43	0.090	44	22	52	7.50	38
		0.12	<10	0.26	90	0.16	0.040	18	23	26	6.90	200
WF	Wilge River @ Frankfort 27°16'18.00"S 28°29'28.41"E	0.12	<10	0.17	65	0.39	<-0.05	5	<10	15	7.80	
		0.12	<10	0.08	51	0.19	<-0.05	<-5.0	<10	13	7.00	
		0.12	<10	0.12	45	0.15	<-0.036	5	5	12	6.80	135
		0.12	<10	0.18	70	0.19	0.040	7	22	20	6.70	28370
VD4I	Vaal Dam 4 Integrated - Vaal River upstream of Vaal Marina 26°53'27.89"S 28°53'27.89"E	0.12	<10	0.20	71	0.50	<-0.05	16	17	21	7.90	
		0.12	<10	0.21	69	0.34	<-0.05	16	16	21	7.80	
		0.12	<10	0.23	68	0.38	0.060	19	17	22	7.20	65
		0.12	<10	0.22	67	0.30	<-0.036	16	31	20	7.50	22
VD3I	Vaal Dam 3 Integrated - Wilge River downstream of Oranjeville 26°59'1.64"S 28°53'48.81"E	0.12	<10	0.16	47	0.37	0.050	8	13	14	7.80	
		0.12	<10	0.17	56	0.30	<-0.05	9	12	15	7.50	
		0.12	<10	0.20	61	0.24	0.090	10	9	13	7.30	19
		0.12	<10	0.21	51	0.33	0.090	11	30	16	7.20	47
VD2I	Vaal Dam 2 Integrated - Confluence of Vaal & Wilge 26°53'48.81"S 28°53'48.81"E	0.12	<10	0.16	56	0.36	<-0.05	11	12	16	7.80	
		0.12	<10	0.16	56	0.35	<-0.05	11	13	16	7.40	
		0.12	<10	0.23	66	0.33	0.060	15	13	19	7.20	33
		0.12	<10	0.18	55	0.35	0.050	14	27	17	7.20	19
VD1I	Vaal Dam 1 Integrated @ RW intake 26°53'0.26"S 28°7'14.35"E	0.12	<10	0.16	60	0.35	0.070	12	13	17	7.90	
		0.12	<10	0.17	59	0.40	<-0.05	17	11	17	7.50	
		0.12	<10	0.21	60	0.35	0.070	13	13	17	7.20	21
		0.12	<10	0.19	54	0.41	0.050	14	19	17	6.90	4
S-ST_NEW	Standerton Sewage Works 26°58'24.60"S 29°13'52.87"E	30.00	40	0.26	240	<-0.10	4.900	16	230	70	8.20	
		28.00	64	0.20	250	<-0.10	5.000	32	295	81	7.20	
		28.00	44	0.28	190	<-0.10	3.800	29	285	75	7.30	2893970
		21.00	47	0.36	250	0.77	3.900	35	160	79	7.00	3481330

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

Sample Points	Sample Point Description	Ammonia	Fluoride	Nitrate	Phosphate	Chemical Oxygen Demand	Conductivity	pH	E. coli
S-ST_NEW	Standerton Sewage Works 26°58'24.60"S 29°13'52.87"E	30	0.26	<-0.10	4.9	230	70	8.2	
		28	0.2	<-0.10	5	295	81	7.2	
		28	0.28	<-0.10	3.8	285	75	7.3	2893970
		21	0.36	0.77	3.9	160	79	7	3481330

Key

VD1I	Vaal Dam 1 Integrated @ RW intake	0.12	-	1 Apr 10 - 30 Jun 10
		0.12	-	1 Jul 2010 - 30 Sep 2010
		0.12	-	1 Oct 10 - 31 Dec 10
		0.12	-	1 Jan 11 - 31 Mar 11

Water Quality Guidelines

	-	Ideal
	-	Acceptable
	-	Tolerable
	-	Unacceptable
	-	No sample or result available

In-stream Water Quality Guidelines for the Vaal Dam Catchment

Variables	Measured as	Ideal Catchment Background	Acceptable Management Target	Tolerable Interim Target	Unacceptable
Physical					
Conductivity	mS/m	< 10	10 - 30	30 - 45	> 45
pH	pH units	6.5 - 8.5			< 6.5; > 8.5
Organic					
Chemical Oxygen Demand (COD)	mg/l	< 10	10 - 15	15 - 20	> 20
Macro Elements					
Ammonia (NH ₄)	mg/l	< 0.2	0.2 - 0.5	0.5 - 1.0	> 1
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 ₃ mg/l	< 40	40 - 75	75 - 120	> 120
Nitrate (NO ₃)	mg/l	< 0.1	0.1 - 0.2	0.2 - 0.3	> 0.3
Phosphate (PO ₄)	mg/l	< 0.05	0.05 - 0.25	0.25 - 0.50	> 0.5
Sulphate (SO ₄)	mg/l	< 20	20 - 45	45 - 70	> 70
Bacteriological					
Faecal coliforms	counts/100ml	< 10	10 - 60	60 - 120	> 120

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			
Faecal coliforms	counts/100ml	<1000	>=1000

** After removal of algae