



Sample Points	Sample Point Description	Ammonia	Chloride	Fluoride	M-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	0.11	<10	0.24	57	0.29	0.050	22	18	36	7.10	
		0.77	16	0.16	66	0.83	0.170	32	<10	22	7.40	
		0.10	12	0.20	135	0.10	0.070	35	<10	36	8.30	
		0.25	10	0.33	48	0.37	0.100	27	28	27	7.10	
		0.11	<10	0.28	87	0.12	0.110	22	17	36	7.40	
VSS	Sandspruit below Vaal River @ Klipplaatdrift 27°12'30.82"S 29°26'12.83"E	0.10	12	0.18	110	0.82	0.050	25	<10	30	7.90	
		0.10	14	0.24	115	0.14	0.050	37	10	31	8.00	
		0.25	13	0.43	150	0.11	0.100	35	17	50	8.40	
		0.11	<10	0.13	42	0.23	0.080	14	13	12	6.90	
		0.10	<10	0.08	34	<0.10	0.050	7	<10	10	6.90	
KB	Klip River @ Barnardskop 27°28'12.33"S 29°36'1.76"E	0.10	<10	0.08	58	<0.10	0.050	6	12	14	7.80	
		0.25	<10	0.23	54	0.15	0.180	12	25	21	8.40	
		0.11	<10	0.12	49	<0.10	0.070	11	18	14	6.90	
		0.10	<10	0.13	49	<0.10	0.050	11	<10	14	7.10	
		0.10	<10	0.14	85	0.34	0.050	8	<10	20	7.80	
KW	Klip @ Winkelhaak 27°14'41.55"S 29°23'59.91"E	0.11	<10	0.12	49	<0.10	0.070	11	18	14	6.90	
		0.10	<10	0.13	49	<0.10	0.050	11	<10	14	7.10	
		0.10	<10	0.14	85	0.34	0.050	8	<10	20	7.80	
		0.11	<10	0.12	49	<0.10	0.070	11	18	14	6.90	
		0.11	<10	0.38	86	0.39	<0.05	19	17	23	7.40	
KD	Klip River @ De Langesdrift 27°10'57.77"S 29°14'5.54"E	0.10	<10	0.19	67	0.93	0.050	14	<10	77	6.90	
		0.10	<10	0.15	160	0.31	0.050	15	<10	35	8.20	
		0.25	<10	0.29	155	0.12	0.100	16	23	41	8.00	
		0.11	10	0.40	150	0.16	0.110	34	25	38	7.70	
		0.10	20	0.31	205	1.50	0.190	27	16	50	8.10	
KSV	Spruitsonderdrift downstream of Vrede 27°21'8.15"S 29°10'16.87"E	0.10	30	0.28	245	1.20	0.500	42	44	59	9.10	
		0.25	25	0.25	120	0.26	0.520	25	38	51	8.10	
		0.11	<10	0.30	94	0.23	0.080	21	24	28	7.20	
		0.10	<10	0.17	115	0.17	0.050	17	13	29	7.40	
		0.10	14	0.26	155	0.80	0.130	29	19	41	7.90	
VDS	Vaal River downstream of Standerton 27° 0'55.97"S 29° 1'29.30"E	0.43	15	0.30	125	0.72	0.100	26	25	41	7.70	
		0.11	<10	0.29	89	0.47	<0.05	15	19	24	7.00	
		0.10	13	0.35	100	0.53	0.090	39	18	28	7.70	
		0.10	12	0.26	150	0.12	0.050	34	16	38	7.90	
		0.20	11	0.30	130	1.30	0.080	22	32	39	7.50	
VVB	Vaal @ Villiers 26°59'31.24"S 28°43'47.18"E	0.11	<10	0.28	87	1.10	0.060	18	20	22	7.20	210
		0.10	<10	0.29	105	0.11	0.050	30	14	30	7.70	14
		0.10	15	0.29	130	0.13	0.080	44	19	36	8.00	13
		0.27	16	0.24	100	1.60	0.120	36	28	36	7.50	105
		0.11	10	0.28	89	0.50	0.100	30	36	30	7.20	11
VD4I	Vaal Dam 4 Integrated - Vaal River upstream of Vaal Marina 26°53'27.99"S 28°15'0.16"E	0.10	<10	0.30	87	0.20	0.050	31	18	24	7.30	21
		0.10	<10	0.29	87	0.61	0.130	25	18	25	8.30	1
		0.20	<10	0.30	91	0.16	0.070	24	23	30	7.30	15
		0.11	<10	0.16	69	0.36	0.060	7	15	16	7.00	155
		0.10	<10	0.13	49	0.32	0.050	6	<10	12	7.00	86
WF	Wilge River @ Frankfort 27°16'18.00"S 28°29'28.41"E	0.10	<10	0.08	44	0.10	0.050	6	<10	11	7.20	71
		0.20	<10	0.08	65	0.62	0.080	11	16	18	7.10	870
		0.11	<10	0.16	60	0.18	0.080	24	29	18	7.10	8
		0.10	<10	0.21	62	0.30	0.070	15	30	17	7.20	14
		0.15	<10	0.19	57	1.10	0.070	15	<10	15	7.50	7
VD3I	Vaal Dam 3 Integrated - Wilge River downstream of Oranjeville 26°59'1.64"S 28°13'25.08"E	0.11	<10	0.16	60	0.18	0.080	24	29	18	7.10	8
		0.11	<10	0.17	72	0.12	0.060	22	11	22	7.30	3
		0.10	<10	0.21	74	0.32	0.050	23	11	18	7.30	3
		0.15	<10	0.23	65	1.10	0.070	19	12	18	7.70	1
		0.11	<10	0.17	72	0.12	0.060	22	11	22	7.30	3
VD2I	Vaal Dam 2 Integrated - Confluence of Vaal & Wilge 26°53'48.81"S 28°11'9.92"E	0.11	<10	0.16	72	0.20	<0.05	24	<10	22	7.40	10
		0.10	<10	0.20	77	0.22	0.050	22	<10	21	7.20	165
		0.15	<10	0.24	70	1.10	0.130	21	<10	20	7.70	4
		0.15	<10	0.24	69	0.34	0.070	19	<10	22	7.30	13
		29.00	42	0.40	405	<0.10	3.500	34	140	63	7.20	3871000
S-ST_NEW	Standerton Sewage Works 26°58'24.60"S 29°13'52.87"E	36.00	42	0.40	150	<0.10	3.700	23	215	90	7.50	3,652,870
		14.00	38	0.31	175	0.19	2.700	30	455	76	7.00	5,081,670
		15.00	58	0.40	310	0.12	2.000	44	55	89	7.00	5,813,800

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	29.00	42	0.40	405	<0.10	3,500	34	140	63	7.20	3871000
		36.00	42	0.40	150	<0.10	3,700	23	215	90	7.50	3,652,870
		14.00	38	0.31	175	0.19	2,700	30	455	76	7.00	5,081,670
		15.00	58	0.40	310	0.12	2,000	44	55	89	7.00	5,813,800

Key

VD1I	Vaal Dam 1 Integrated @ RW intake	0.12	-	1 Jan 13 - 31 Mar 13
		0.12	-	1 Apr 13 - 30 Jun 13
		0.12	-	1 July 13 - 30 Sept 12
		0.12	-	1 Oct 13 - 31 Dec 13

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