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The effects of chrome mining activities on the water quality of the Hex River in the Rustenburg area: case study on Kroondal chrome mine

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KMS15: Downstream of the Hex River

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.113333	7.2	8.69	8.204167	7.92	8.76	7.928333	7.35	8.21	8.106667	7.66	8.86	8.203	7.53	8.42	8.31	7.94	9.03	8.285	7.93	8.87
EC mS/m	120.075	56.5	202	61.825	28.4	134	61.95	21.1	94	40.65833	14.1	64	35.19	11.8	60.8	81.09167	33.6	155	66.66667	36.6	89.4
TDS mg/l	715.5	280	1312	350.8333	112	980	315	144	532	178.4167	78	241	170	48	296	365.25	181	668	359.6667	163	469
Ca mg/l	60.71667	33.2	169	27.925	12.1	62.9	29.3	13.2	44.8	17.32167	7.56	27.6	17.081	6.41	26.4	38.10833	18.3	85.9	33.7	13.1	48.5
Mg mg/l	95.79167	31.8	187	46.51667	20.6	87.9	54.4	22	93.9	30.20833	10.2	41.5	29.093	7.83	51.1	61.10833	32.9	94.3	60.20833	33.2	72.1
Na mg/l	47.14167	15	93.2	19.28417	4.85	70.8	16.37417	6.79	31.3	7.783333	-0.03	14	8.049	1.8	17.3	22.14333	4.21	46.7	15.52833	2.9	28.2
K mg/l	7.703333	2.19	30.9	2.277083	0.795	8.05	2.531583	0.789	5.6	1.567583	0.224	5.17	1.3071	0.801	2.09	2.436583	0.809	5.53	1.841583	0.482	3.13
MALK CaCO3/L	336.0833	158	970	168.7583	66.7	267	196.2333	88.8	342	124.5083	54.2	167	127.83	32.3	197	195.3333	118	354	217.0833	128	284
Cl mg/l	77.26667	29.3	128	27.66417	7.67	74.9	26.06417	9.47	43.2	11.64833	3.33	17.9	11.4062	-1.408	22.4	38.475	10.6	89.7	34.89167	11.7	54.9
SO4 mg/l	147.9917	55.1	258	54.34167	26.1	103	59.925	26.3	110	33.475	15	49.5	22.353	6.47	45.9	61.05	30.3	94.2	61.25	20.2	86.2
NO3-N mg/l	19.95833	-0.1	41.7	7.231917	-0.057	18.4	8.426667	1.58	18.6	1.686333	0.422	2.89	3.5847	0.787	12.4	24.50475	0.707	56.6	10.8475	2.34	25.2
F mg/l	0.059833	0.019	0.101	-0.40167	-0.48	-0.01	0.131833	-0.48	0.464	0.1075	-0.001	0.308	0.2228	0.041	0.484	0.101083	-0.183	0.363	0.016583	-0.183	0.34
Al mg/l	-0.00575	-0.01	0.021	0.038083	-0.006	0.183	0.012167	-0.006	0.146	0.103167	-0.006	0.639	0.0204	-0.006	0.122	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Fe mg/l	0.006083	-0.01	0.04	0.056083	-0.006	0.197	0.017083	-0.006	0.083	0.12925	-0.006	0.641	0.0596	-0.006	0.205	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	-0.00625	-0.01	-0.001	-0.001	-0.001	-0.001	0.005667	-0.001	0.059	0.013667	-0.001	0.061	0.0177	-0.001	0.05	0.020083	-0.001	0.243	0.001	-0.001	0.023
N_Amonia mg/l	1.44	-0.015	11.7	0.222333	-0.015	1.61	0.121833	-0.015	0.849	0.048083	-0.015	0.201	0.1648	-0.015	0.686	1.607833	0.025	9.52	0.434583	-0.015	2.99
TotHardness mg/l	546	214	1190	261.4167	120	519	297.0833	123	499	167.6667	61	223	162.2	48	276	346.75	181	603	332.1667	170	391
PO4 mg/l	0.116167	-0.1	0.808	0.029167	-0.025	0.625	0.101417	-0.025	0.522	0.02875	-0.025	0.141	0.0089	-0.025	0.178	0.040583	-0.025	0.228	-0.01125	-0.025	0.034
Cd mg/l	-0.0055	-0.01	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.0002	-0.001	0.003	-0.00083	-0.001	0.001	-0.001	-0.001	-0.001
Cr mg/l	-0.00667	-0.01	-0.002	-0.002	-0.002	-0.002	-0.0005	-0.002	0.003	0.003333	-0.002	0.036	0.0019	-0.002	0.01	-0.00025	-0.002	0.014	-0.002	-0.002	-0.002
Cr6+ mg/l	-0.00542	-0.01	-0.001	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	0.855833	0.32	1.52	0.469167	0.18	1.35	0.405	0.23	0.69	0.256667	0	0.43	0.264	0.11	0.45	0.5025	0.14	0.91	0.36	0.09	0.62

KMS14: Upstream of the Hex River

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.3	7.98	8.55	8.163333	7.89	8.79	7.968	7.49	8.37	8.005833	7.52	8.84	8.083	7.77	8.27	8.153333	7.96	8.54	8.241667	7.95	8.79
EC mS/m	96.12727	70.1	109	42.575	15.2	84.1	53.04	16	89.6	35.20833	10.4	57.8	30.09	16.8	49.6	40.89167	21.5	58.2	49.05833	18.1	69.3
TDS mg/l	574.0909	364	707	219.5833	54	574	269	80	512	157.6667	58	229	169.9	85	372	217.0833	135	291	270.6667	78	438
Ca mg/l	40.52727	26.1	55	16.57417	6.29	33.9	21.459	6.69	47	13.0725	4.18	18.4	17.87	10	41.1	17.55833	11.5	23.9	19.98667	6.34	30.6
Mg mg/l	99.50909	72.5	144	38.29167	12.8	83.2	52.29	14	102	28.81917	7.13	44.4	25.66	10.6	61.8	41.2	25.5	59.9	52.45	16.8	72.5
Na mg/l	18.14545	8.9	42.1	6.773333	2.5	16.3	9.944	3.3	17.7	6.035833	-0.03	9.85	9.019	4.68	22.9	6.2975	1.95	16	3.828917	-0.03	8.24
K mg/l	2.204546	-0.01	4.78	1.08325	0.591	2.44	1.3956	0.562	2.16	1.223167	-0.041	4.3	1.6524	0.845	2.66	0.812667	-0.041	2.09	0.97	0.204	1.95
MALK CaCO3/L	351.0909	244	437	154.8833	39.7	291	185.87	51.6	327	108.5583	33.4	174	112.04	63.3	198	162.5	106	245	203.0583	59.7	292
Cl mg/l	38.26364	28.9	59	11.2825	1.45	27.6	17.272	2.42	36.7	9.606667	2.73	14.2	18.178	3.4	72.2	14.7275	9.13	23.2	14.02667	4.22	21.6
SO4 mg/l	114.0636	50.9	153	36.59167	16.6	78.3	49.62	20.7	105	31.31667	14.9	41.4	28.26	11.4	87.8	36.64167	21.1	52.4	46.51667	11.7	70.5
NO3-N mg/l	7.596364	1.16	24.4	1.815083	-0.057	2.71	5.3825	0.795	9.2	2.34025	0.317	7.04	1.8821	0.752	2.78	2.13525	-0.057	3.22	2.225583	0.917	3.6
F mg/l	0.071	0.042	0.102	-0.29125	-0.48	0.845	0.0782	-0.48	0.354	0.079833	-0.068	0.339	0.176	0.022	0.466	0.04025	-0.183	0.238	0.022833	-0.183	0.327
Al mg/l	-0.00582	-0.01	0.016	0.078917	-0.006	0.296	0.142	-0.006	0.822	0.172333	-0.006	0.996	0.099	-0.006	0.692	-0.00442	-0.006	0.013	1.30E-18	-0.006	0.066
Fe mg/l	0.007909	-0.01	0.03	0.1465	-0.006	0.355	0.1586	-0.006	0.682	0.271167	-0.006	1.46	0.1081	-0.006	0.608	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.000909	-0.01	0.074	0.009167	-0.001	0.083	0.0403	-0.001	0.303	0.017833	-0.001	0.046	0.0196	-0.001	0.057	0.005667	-0.001	0.058	0.006083	-0.001	0.036
N_Amonia mg/l	0.110091	-0.1	0.957	0.177583	-0.015	1.84	0.0375	-0.015	0.245	0.10225	-0.015	0.659	0.1473	-0.015	0.598	0.173333	0.024	0.468	0.133833	0.024	0.363
TotHardness mg/l	511	364	711	199.0833	68	427	268.5	74	535	151.3333	40	229	150.2	69	339	213.3333	135	302	265.9167	85	375
PO4 mg/l	0.132636	-0.1	1.52	-0.01067	-0.025	0.147	0.0064	-0.025	0.129	0.023667	-0.025	0.134	0.0065	-0.025	0.107	-0.00142	-0.025	0.103	-0.004	-0.025	0.053
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.00075	-0.001	0.002	-0.0006	-0.001	0.001	-0.0005	-0.001	0.001	-0.001	-0.001	-0.001
Cr6+ mg/l	-0.00582	-0.01	-0.001	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	0.348182	0.2	0.84	0.2025	0.13	0.34	0.262	0.17	0.34	0.21	0	0.34	0.315	0.2	0.67	0.1975	0.05	0.55	0.100833	0	0.19
Cr mg/l	-0.00636	-0.01	-0.002	-0.002	-0.002	-0.002	-0.0006	-0.002	0.004	0.002667	-0.002	0.019	0.0014	-0.002	0.016	-0.00167	-0.002	0.002	-0.002	-0.002	-0.002

KMS08: Downstream of Sandspruit

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	7.791667	7.19	8.26	8.1975	8.02	8.46	7.965	7.64	8.62	8.284167	7.73	8.63	8.198	7.68	8.4	8.11	7.8	8.3	8.145455	7.75	8.68
EC mS/m	151.6667	125	177	99.90833	37.6	189	87.86667	13.3	148	45.95	14.9	79.9	44.21	18.8	96.2	103.0583	56.3	164	149.0545	47	225
TDS mg/l	902	768	974	544.5833	234	1022	448.8333	102	675	220.4167	90	452	213.3	98	484	532.0833	297	774	797.1818	214	1493
Ca mg/l	63.78333	55.2	73.2	43.05833	15.3	72.1	43.1	10.6	66.5	23.4625	7.75	55.3	20.44	11.8	46.8	53.91667	23.7	95.7	79.74545	22.4	131
Mg mg/l	87.18333	80.8	101	67.75833	22.5	101	73.44167	16.4	108	35.75	10.3	52.5	35.35	12.8	71.9	83.46667	43.3	149	95.14545	32.3	163
Na mg/l	83.21667	68.6	98.2	43.63333	13.5	100	31.01333	4.16	78.2	9.850833	-0.03	36.8	13.675	4.97	46	43.19167	9.9	85.6	91.11818	16.6	170
K mg/l	10.66	8.19	16.3	5.481667	2.44	11.8	4.451667	2.13	7.33	1.689583	-0.041	6.23	1.6447	0.409	4.11	5.695	1.27	10.3	11.25364	2.57	21.5
MALK CaCO3/L	199.3333	154	381	193.2583	51.1	270	281.4583	75.5	544	165.725	62.2	227	146.16	62.7	249	231.9167	127	382	198.3091	94.4	296
Cl mg/l	99.76667	85	119	51.1	15.1	106	40.91333	3.96	84.1	13.79167	2.47	72	16.938	5.94	49.2	69.6	14.2	131	161.5	32.2	292
SO4 mg/l	152.3333	105	235	86.25	38.2	195	72.86667	18	120	35.58333	12.5	99	29.908	7.88	77.9	94.475	38.9	149	127.3182	34	223
NO3-N mg/l	64.38333	35.3	95	23.52608	-0.057	99.4	14.10383	-0.057	63.4	0.7975	0.221	1.99	7.6676	0.295	38.3	42.01083	0.33	87.7	66.91	0.51	125
F mg/l	0.089833	0.043	0.15	-0.23075	-0.48	0.565	0.138667	-0.48	0.365	0.109917	-0.018	0.287	0.3941	0.037	2.46	0.337667	0.137	1.44	0.215273	-0.183	0.362
Al mg/l	-0.008	-0.01	-0.006	0.05175	-0.006	0.453	0.114083	-0.006	1.04	0.17825	-0.006	1.48	0.0156	-0.006	0.083	-0.00425	-0.006	0.015	-0.00482	-0.006	0.007
Fe mg/l	-0.00517	-0.01	0.011	0.050167	-0.006	0.472	0.103167	-0.006	0.772	0.19275	-0.006	1.37	0.0874	-0.006	0.191	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.005	-0.01	0.053	-0.001	-0.001	-0.001	0.074	-0.001	0.835	0.016667	-0.001	0.045	0.0168	-0.001	0.037	0.100083	-0.001	1.17	0.037091	-0.001	0.266
N_Amonia mg/l	3.309167	-0.1	10.6	0.74125	-0.015	4.32	0.272083	-0.015	1.43	0.072167	-0.015	0.266	0.7748	-0.015	3.92	2.56875	0.477	9.17	7.731	0.073	20.2
TotHardness mg/l	518.1667	472	598	386.6667	131	597	409.8333	94	609	205.9167	62	349	196.6	82	413	478.3333	270	725	590.9091	189	1000
PO4 mg/l	0.096	-0.1	0.669	0.05275	-0.025	0.908	0.112083	-0.025	0.338	0.068417	-0.025	0.166	0.0105	-0.025	0.126	0.294	-0.025	1.69	0.083818	-0.025	0.372
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.00067	-0.001	0.003	-0.0006	-0.001	0.001	-0.00083	-0.001	0.001	-0.001	-0.001	-0.001
Cr mg/l	-0.006	-0.01	-0.002	0.001417	-0.002	0.012	0.001583	-0.002	0.012	0.002333	-0.002	0.029	0.002	-0.002	0.007	-0.00108	-0.002	0.004	-0.002	-0.002	-0.002
Cr6+ mg/l	-0.006	-0.01	-0.001	-0.008	-0.008	-0.008	-0.00475	-0.008	0.014	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008

KMS13: Upstream of Sandspruit

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH				8.403333	7.98	8.58	8.114444	7.55	8.4	8.358333	7.64	8.99	8.295	7.67	8.56	8.527273	8.27	8.77	8.41	8.12	8.69
EC mS/m				60.05556	13.1	92.9	71.11111	14.1	115	48.83333	12.4	85	34.18	11.9	69.7	60.65455	22.4	73.9	61.525	21.7	78.3
TDS mg/l				315.7778	118	446	388.8889	110	505	227.4167	69	362	184.6	72	362	354.3636	181	421	348.25	104	466
Ca mg/l				33.33556	6.72	49.8	41.66667	11.1	59.3	24.63583	5.53	38.2	19.712	7.02	40.9	35.77273	15.4	48.6	36.4375	11.6	47.8
Mg mg/l				55.64333	9.49	74.9	70	17.7	91.1	40.2975	7.91	67.9	31.29	11.4	65.4	64.5	28.2	81.2	65.575	20.8	85.3
Na mg/l				8.12	2.26	11.6	10.49	4.98	13.2	6.6625	-0.03	12	7.373	3.73	18.6	9.597273	3.26	23.9	6.934625	0.507	15.9
K mg/l				1.702667	0.385	2.81	1.782889	0.148	3.33	1.104583	-0.041	4.77	1.0114	0.389	2	1.442818	0.116	7.03	1.303	0.183	3.11
MALK CaCO3/L				271.9667	32.7	473	326.4222	80.8	449	192.9417	52.4	298	152	46.8	339	308.2727	138	391	319.675	95.4	423
Cl mg/l				8.712222	3.09	16	11.78111	3.82	15.8	6.195167	-1.408	10.5	8.818	3.15	26.7	11.32909	5.87	16.1	9.629	-1.408	17.7
SO4 mg/l				44.63333	15.7	74.1	56.17778	20.5	94.1	32.625	11.6	59.7	24.283	5.33	66.4	46.39091	27.7	65.4	35.1625	12.6	50.5
NO3-N mg/l				0.028	-0.057	0.323	0.776444	-0.057	7.02	0.035083	-0.057	0.262	0.7378	-0.057	1.46	0.287091	-0.057	0.625	0.422625	-0.057	0.892
F mg/l				-0.36844	-0.48	0.054	0.208111	-0.48	0.385	0.135417	-0.046	0.296	0.1392	0.01	0.278	0.201636	-0.183	0.408	0.204125	-0.183	0.318
Al mg/l				0.240111	-0.006	2.05	0.032778	-0.006	0.292	0.10575	-0.006	1.1	0.0364	-0.006	0.147	-0.00482	-0.006	0.007	-0.00288	-0.006	0.019
Fe mg/l				0.224667	-0.006	1.99	0.047111	-0.006	0.342	0.132083	-0.006	0.89	0.12	-0.006	0.257	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l				-0.001	-0.001	-0.001	0.017667	-0.001	0.061	0.038833	-0.001	0.202	0.0269	0.001	0.059	0.002364	-0.001	0.036	0.00725	-0.001	0.065
N_Amonia mg/l				0.152222	-0.015	1.49	0.052	-0.015	0.226	0.037667	-0.015	0.215	0.075	-0.015	0.35	0.185818	0.018	1.05	0.524125	0.026	2.91
TotHardness mg/l				312.4444	56	433	392.2222	101	523	227.5	54	375	178	65	371	354.9091	155	451	361.125	115	465
PO4 mg/l				0.027111	-0.025	0.16	0.116667	-0.025	0.284	0.02525	-0.025	0.115	0.023	-0.025	0.107	0.096909	-0.025	0.279	0.198	0.028	0.721
Cd mg/l				.	.	.	-0.001	-0.001	-0.001	-0.00075	-0.001	0.002	-0.0006	-0.001	0.001	-0.00036	-0.001	0.002	-0.001	-0.001	-0.001
Cr mg/l				0.002667	-0.002	0.04	-0.002	-0.002	-0.002	0.002833	-0.002	0.028	0.0002	-0.002	0.005	9.09E-05	-0.002	0.017	-0.002	-0.002	-0.002
Cr6+ mg/l				-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR				0.198889	0.13	0.24	0.233333	0.17	0.26	0.195	0	0.38	0.242	0.17	0.52	0.230909	0.07	0.54	0.15	0.02	0.32

KMS12: Downstream of Kroondal tributary

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.19	8.19	8.19	8.23	8.23	8.23	7.63	7.63	7.63	8.3025	7.84	8.98	8.307778	7.8	8.71	8.241667	7.97	8.47	8.354	8	8.8
EC mS/m	191	190	192	133	133	133	13.9	13.9	13.9	92.225	22.2	109	95.17778	20.2	145	95.73333	74.7	107	131.4	103	202
TDS mg/l	1091	1022	1160	688	688	688	96	96	96	422.5	148	503	479.7778	104	791	563.1667	427	643	718.4	515	967
Ca mg/l	72.3	70	74.6	66.3	66.3	66.3	11.3	11.3	11.3	29.4125	13.2	38.4	39.2	13.2	66.4	46.03333	40.5	55.8	61.26	46.3	85
Mg mg/l	87	82.2	91.8	105	105	105	12.9	12.9	12.9	80.125	17	102	83.22222	16.2	137	100.5333	81.6	117	113.86	98.3	123
Na mg/l	107	105	109	38.3	38.3	38.3	7.39	7.39	7.39	19.67625	8.81	22.9	27.75667	3.41	55	22.49667	6.28	28.7	88.63333	33.9	230.1
K mg/l	13.2	12.3	14.1	17.4	17.4	17.4	7.52	7.52	7.52	4.12625	2.54	6.76	4.687778	2.09	7.63	4.7665	-0.041	8.17	18.14167	6.47	48.73
MALK CaCO3/L	177.5	157	198	400	400	400	73.9	73.9	73.9	286.25	77	395	299.0111	81.1	468	407	347	481	304.5	17	460
Cl mg/l	124	119	129	75.4	75.4	75.4	5.52	5.52	5.52	28.25125	5.41	44.7	40.84333	5.79	87.5	33.85667	9.44	47.5	142.6	57.3	365.6
SO4 mg/l	178.5	158	199	167	167	167	6.4	6.4	6.4	86.4625	49.8	103	90.13333	10.1	158	103.8333	74	124	161	34	354
NO3-N mg/l	469.95	-0.1	940	19.1	19.1	19.1	0.86	0.86	0.86	2.39975	0.298	7.56	14.64111	2	57.6	6.095333	-0.057	15.8	54.43333	13.9	161.5
F mg/l	0.0485	0.028	0.069	-0.48	-0.48	-0.48	0.314	0.314	0.314	0.079625	-0.117	0.277	0.258444	0.052	0.594	0.164833	-0.183	0.3	0.222167	0.188	0.246
Al mg/l	-0.01	-0.01	-0.01	-0.006	-0.006	-0.006	0.091	0.091	0.091	0.109625	-0.006	0.901	-0.00444	-0.006	0.008	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Fe mg/l	0.0025	-0.01	0.015	0.045	0.045	0.045	0.042	0.042	0.042	0.137625	-0.006	0.974	-0.00278	-0.006	0.01	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.026	0.02	0.032	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.04275	0.005	0.16	0.066111	0.002	0.385	0.006667	-0.001	0.045	-0.001	-0.001	-0.001
N_Amonia mg/l	18	17.6	18.4	4.97	4.97	4.97	-0.015	-0.015	-0.015	0.43775	0.046	2.04	2.272222	0.04	14	1.279167	0.074	5.2	0.1485	0.057	0.306
TotHardness mg/l	538.5	513	564	598	598	598	81	81	81	403.5	103	498	440.7778	99	732	528.8333	454	598	656.1667	520	828
PO4 mg/l	0.032	-0.1	0.164	1.15	1.15	1.15	1.58	1.58	1.58	1.117125	0.355	2.72	0.800889	0.202	2.72	1.52	0.052	2.66	0.925667	-0.454	1.76
Cd mg/l	.	.	.	.	.	.	-0.001	-0.001	-0.001	-0.00038	-0.001	0.004	-0.00033	-0.001	0.001	-0.00067	-0.001	0.001	-0.001	-0.001	-0.001
Cr mg/l	-0.01	-0.01	-0.01	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	0.02575	0.002	0.057	0.014333	-0.002	0.03	-0.002	-0.002	-0.002	-0.0002	-0.002	0.007
Cr6+ mg/l	-0.0055	-0.01	-0.001	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	0.008125	-0.008	0.047	0.003	-0.008	0.025	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	2.01	2	2.02	0.68	0.68	0.68	0.36	0.36	0.36	0.43	0.35	0.5	0.544444	0.15	0.95	0.421667	0.13	0.53	1.038	0.65	2.21

KMS01: Upstream of Kroondal tributary

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.74	8.74	8.74	9.49	9.49	9.49	8.36	8.36	8.36	7.536667	7.18	7.77	8.388	7.73	8.77	8.9	8.76	9.04			
EC mS/m	126	126	126	21	21	21	64.9	64.9	64.9	8.1	-16.1	24.4	67.94	14.5	98.4	69.9	62.9	76.9			
TDS mg/l	836	836	836	601	601	601	304	304	304	32.33333	-104	101	339	74	592	399.5	351	448			
Ca mg/l	46.2	46.2	46.2	-18.6	-18.6	-18.6	23.3	23.3	23.3	9.4	4.1	13.7	31.116	9.08	49.3	32.35	28.5	36.2			
Mg mg/l	123	123	123	134	134	134	56.2	56.2	56.2	-1.43333	-28.8	13.7	55.86	11.4	101	68.95	58.2	79.7			
Na mg/l	28.9	28.9	28.9	-94.2	-94.2	-94.2	11.2	11.2	11.2	3.703333	-1.32	7.49	15.628	2.64	23.9	15.5	11.7	19.3			
K mg/l	10.6	10.6	10.6	-10.9	-10.9	-10.9	6.14	6.14	6.14	2.35	-1.26	5.87	5.094	1.24	7.8	7.135	5.71	8.56			
MALK CaCO3/L	348	348	348	567	567	567	222	222	222	-2.5	-117.4	57.6	183.4	51	346	255.5	242	269			
Cl mg/l	48.7	48.7	48.7	-154.6	-154.6	-154.6	23.6	23.6	23.6	-1.72667	-13.34	5.13	23.65	6.65	35.7	27.15	24.1	30.2			
SO4 mg/l	155	155	155	105	105	105	49.2	49.2	49.2	17.76667	0.6	27.8	82	10.7	148	92.85	76.7	109			
NO3-N mg/l	25.8	25.8	25.8	-77.4	-77.4	-77.4	0.457	0.457	0.457	3.366333	0.566	6.203	15.766	2.04	24.4	2.735	1.56	3.91			
F mg/l	0.058	0.058	0.058	0.299	0.299	0.299	0.28	0.28	0.28	-0.00667	-0.106	0.087	0.2024	0.059	0.351	0.2065	0.158	0.255			
Al mg/l	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	0.228333	0.025	0.604	0.0028	-0.006	0.038	0.017	-0.006	0.04			
Fe mg/l	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	0.269333	0.048	0.658	0.0076	-0.006	0.026	-0.006	-0.006	-0.006			
Mn mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0.001	0.001	0.001	0.002333	-0.003	0.011	0.0188	0.003	0.044	-0.001	-0.001	-0.001			
N_Amonia mg/l	-0.015	-0.015	-0.015	-0.078	-0.078	-0.078	-0.015	-0.015	-0.015	0.016	-0.015	0.047	0.1088	0.017	0.272	0.212	0.017	0.407			
TotHardness mg/l	624	624	624	510	510	510	290	290	290	17.66667	-108	91	307.8	69	540	365	311	419			
PO4 mg/l	-0.025	-0.025	-0.025	-0.025	-0.025	-0.025	-0.025	-0.025	-0.025	0.125	0.052	0.194	0.0532	-0.025	0.123	-0.025	-0.025	-0.025			
Cd mg/l	.	.	.	-0.001	-0.001	-0.001	.	.	.	-0.001	-0.001	-0.001	0.0002	-0.001	0.003	-0.001	-0.001	-0.001			
Cr mg/l	-0.002	-0.002	-0.002	-0.009	-0.009	-0.009	0.002	0.002	0.002	0.013333	-0.006	0.048	0.0072	-0.002	0.012	0.001	-0.002	0.004			
Cr6+ mg/l	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.0044	-0.008	0.01	-0.008	-0.008	-0.008			
SAR	0.5	0.5	0.5	-1.44	-1.44	-1.44	0.29	0.29	0.29	0.31	0.23	0.39	0.374	0.14	0.48	0.35	0.29	0.41			

KMS17: Farners dam receiving water from KMS16

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.536667	8.37	8.66	9.088333	8.12	9.83	8.136364	7.25	8.94	8.0475	7.37	8.91	8.687	7.69	9.6	8.725	7.87	9.49	8.725	8.17	9.06

EC mS/m	93	85.7	106	77.86667	13.7	121	63.12727	10.4	139	45.65833	11	126	72.4	18.3	111	96.51667	60.8	127	41.15	26	53.1
TDS mg/l	540	476	628	474.9167	92	876	328.2727	71	744	209.0833	76	564	375.4	85	642	583.8333	352	678	216.25	128	330
Ca mg/l	40.06667	36.1	45.5	15.42167	4.11	28	25.43364	9.87	59.4	20.975	9.2	46.3	31.01	11.7	50	33.44167	18.9	50.6	22.775	12.6	36.3
Mg mg/l	81.6	72.1	91.5	77.16417	9.87	130	59.21545	7.97	149	31.455	8.86	103	67.21	12.4	127	108.0167	58.4	135	35.375	20.7	55.8
Na mg/l	19.73333	17	23.6	21.60833	1.42	38.2	14.00182	2.59	32.8	9.557417	-0.03	29.9	17.294	2.91	33.1	22.11667	11.9	30.4	3.58	1.37	6.3
K mg/l	9.113333	8.33	10.2	9.489167	2.19	21.6	6.49	2.61	12.5	4.5985	0.512	9.47	6.255	1.51	10.6	8.5475	5.7	11.2	7.125	5.76	8.79
MALK CaCO3/L	298.6667	275	329	222.1	42.8	384	199.2091	20.5	385	116.7667	51.2	244	218.07	44.2	430	375.6667	243	452	148.275	80.1	206
Cl mg/l	35.13333	32.8	37.3	33.33033	-1.408	71.6	22.36636	2.13	55.7	11.8475	2.78	38.5	28.327	4.31	45.9	35.66667	22.6	45.8	6.8775	4.54	10.5
SO4 mg/l	102.1333	88.4	115	117.85	5.6	238	75.8	13.1	168	56.91833	7.42	192	85.09	18.6	137	145.4333	78.2	193	50.95	20.7	91.8
NO3-N mg/l	2.451	0.833	4.1	6.727583	-0.057	30.8	5.225364	-0.057	38.8	3.42625	-0.057	21.3	9.6016	0.636	26	5.0565	0.285	20.7	0.33975	0.222	0.431
F mg/l	0.046	0.03	0.064	-0.11083	-0.48	2.99	0.110091	-0.48	0.291	0.118917	-0.06	0.393	0.1951	0.048	0.37	0.033	-0.183	0.301	0.24875	0.196	0.317
Al mg/l	-0.006	-0.006	-0.006	0.070333	-0.006	0.31	0.034636	-0.006	0.187	0.721083	-0.006	7.38	0.0005	-0.006	0.034	0.007583	-0.006	0.072	-0.006	-0.006	-0.006
Fe mg/l	0.004333	-0.006	0.025	0.053083	-0.006	0.286	0.035091	-0.006	0.212	0.724167	-0.006	7.25	0.0026	-0.006	0.015	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.024667	-0.001	0.076	0.0125	-0.001	0.161	0.013182	-0.001	0.135	0.028583	-0.001	0.136	0.003	-0.001	0.014	0.0135	-0.001	0.173	-0.001	-0.001	-0.001
N_Amonia mg/l	0.339	-0.015	0.886	0.236417	-0.015	1.89	0.161727	-0.015	0.621	0.11225	-0.015	0.508	0.195	-0.015	1.12	0.155083	-0.015	0.587	0.13175	0.041	0.271
TotHardness mg/l	436	393	490	356.4167	67	599	307.0909	57	761	181.75	59	493	354.1	81	612	528.8333	311	625	202.5	117	320
PO4 mg/l	0.263667	0.22	0.306	0.012417	-0.025	0.251	0.065273	-0.025	0.268	0.023333	-0.025	0.172	0.0102	-0.025	0.134	0.024167	-0.025	0.179	0.2605	0.072	0.397
Cr mg/l	-0.002	-0.002	-0.002	0.001083	-0.002	0.017	0.002273	-0.002	0.012	0.024333	-0.002	0.197	0.006	-0.002	0.013	0.00075	-0.002	0.022	-0.002	-0.002	-0.002
Cr6+ mg/l	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.00636	-0.008	0.01	-0.00667	-0.008	0.008	-0.0064	-0.008	0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	0.406667	0.37	0.46	0.4675	0.08	0.82	0.323636	0.12	0.57	0.255	0	0.64	0.379	0.14	0.58	0.4175	0.29	0.63	0.105	0.06	0.15

KMS16: Vent shaft with water from underground

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.49	8.23	8.68	8.442	8.05	8.82	8.363333	8.16	8.63	8.523333	8.3	8.93	8.449	8.32	8.78	8.613	8.34	9			
EC mS/m	123.3333	118	129	126.6	112	140	120.4667	71.3	182	128.1667	124	135	122.1	115	130	112.23	86.7	132			
TDS mg/l	724.6667	708	754	786.2	666	886	641.7778	531	716	573.5	494	624	602.6	536	660	629.8	518	717			
Ca mg/l	48.03333	45.8	50.5	53.84	46.8	61.5	49.61111	33.2	59.1	46.93333	44.8	49.4	51.77	46	57.5	51.29	46.1	59			
Mg mg/l	114.6667	113	116	120.9	106	131	124.0778	94.7	149	105.95	89.1	120	116	100	129	114.88	81.6	130			
Na mg/l	24.5	24.2	24.7	27.77	24.8	31.5	26.83333	22.4	30.7	25.31667	21.5	27	24.41	19.2	26.2	25.52	17.6	46.8			
K mg/l	10.26333	9.69	11.1	10.655	9.15	11.7	9.588889	7.81	10.8	8.911667	8.41	10	8.188	6.8	8.91	7.851	2.55	10.2			
MALK CaCO3/L	316.3333	293	345	339.3	241	383	322.6667	272	366	288.8333	254	321	315.9	199	429	354.7	257	419			
Cl mg/l	46.23333	45.6	46.9	43.45	34.1	48.1	47.15556	33.7	53.8	39.18333	34	45.7	39.31	30.8	46.3	35.89	30.7	56.1			
SO4 mg/l	137.6667	131	146	140.6	111	187	159.3333	121	223	148.3333	124	175	136.18	94.8	172	149.9	126	184			
NO3-N mg/l	17.33333	10.2	24.7	22	4.44	43.9	31.23333	17.6	39.7	25.88333	14.9	36.6	36.92	29.2	42.3	31.79	23	41.2			
F mg/l	0.021333	0.011	0.037	-0.2872	-0.48	0.508	0.172667	-0.48	0.402	0.09	-0.093	0.241	0.2288	0.039	0.6	0.2228	-0.183	0.492			
Al mg/l	-0.006	-0.006	-0.006	0.0134	-0.006	0.188	-0.00011	-0.006	0.047	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.0047	-0.006	0.007			
Fe mg/l	0	-0.006	0.012	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	0.005667	-0.006	0.016	-0.0013	-0.006	0.015	0.1016	-0.006	1.07			
Mn mg/l	0.006667	-0.001	0.022	0.0084	-0.001	0.057	0.000556	-0.001	0.004	0.014667	0.005	0.038	0.0117	-0.001	0.033	0.0503	-0.001	0.505			
N_Amonia mg/l	-0.015	-0.015	-0.015	0.1303	-0.015	0.84	0.051556	-0.015	0.26	0.308	-0.015	1.81	0.1695	-0.015	0.522	0.0953	0.034	0.195			
TotHardness mg/l	592	578	602	632.2	553	694	634.5556	473	759	553.5	479	616	607.4	531	664	601.2	466	665			
PO4 mg/l	-0.025	-0.025	-0.025	-0.025	-0.025	-0.025	0.002667	-0.025	0.071	0.047167	-0.025	0.3	0.0179	-0.025	0.07	0.0554	-0.025	0.354			
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.0005	-0.001	0.002	-0.0004	-0.001	0.005	-0.0005	-0.001	0.002			
Cr mg/l	-0.002	-0.002	-0.002	0.0007	-0.002	0.012	0.003333	-0.002	0.008	0.025833	0.02	0.035	0.0245	0.016	0.038	0.0099	-0.002	0.016			
Cr6+ mg/l	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	0.022	0.014	0.026	0.0068	-0.008	0.026	-0.0062	-0.008	0.01			
SAR	0.44	0.44	0.44	0.481	0.44	0.53	0.465556	0.43	0.5	0.468333	0.43	0.51	0.432	0.36	0.49	0.455	0.3	0.87			

KMS09: discharge outlet from Crocodile farm

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.11	7.91	8.4	7.71	7.11	8.07	7.78	7.78	7.78	8.185	7.76	8.44	8.113	7.53	8.81	8.284	8.08	8.64	8.8025	8.6	9.16
EC mS/m	220.6667	182	247	216	183	308	74.7	74.7	74.7	146.925	60.4	268	141.67	73	202	129.77	87	192	108.425	99.7	112
TDS mg/l	966.6667	932	998	825	540	1262	650	650	650	656.375	261	1149	719.8	270	1035	725.9	493	886	645.5	568	689
Ca mg/l	56.4	55.1	57.8	62.475	40.2	97.1	79.4	79.4	79.4	43.8	20.9	77	47.31	20.6	81.8	46.49	37.9	57.9	49.175	45.8	57.4
Mg mg/l	143.6667	129	157	119.875	62.5	192	84.2	84.2	84.2	98.6	45	134	118.6	40	174	117.33	68.3	132	122.25	117	133
Na mg/l	45.96667	45.1	46.5	41.875	24.7	57	31.2	31.2	31.2	56.0875	11.1	243	35.85	10.7	61.2	53.82727	22	111.9	51.875	32	78.3
K mg/l	14.46667	8.8	18.2	18.8	14.1	27	6.65	6.65	6.65	6.94375	3.24	9.84	11.246	3.33	37.8	9.344546	1.38	24.3	1.104167	-5.48	5.02
MALK CaCO3/L	849	696	934	902	667	1418	378	378	378	447.25	201	640	523.4	254	850	578.5455	385	875	381.6667	257	460
Cl mg/l	84.3	81.2	87.3	54.5	41.1	59.9	44.9	44.9	44.9	71.35	18.2	245	72.27	23.2	134	65.94545	38.9	119.9	85.71667	55.6	125.6
SO4 mg/l	157.6667	110	186	82.467	-0.132	126	177	177	177	110.5	41.9	180	116.104	9.04	206	81.54255	-0.132	195	59.73333	-93.1	114
NO3-N mg/l	1.752	-0.057	5.37	-0.057	-0.057	-0.057	-0.057	-0.057	-0.057	0.773	-0.057	3.13	4.3788	-0.057	18.6	2.097636	-0.057	17.4	18.36667	15.1	29.1
F mg/l	0.061667	0.045	0.091	-0.21125	-0.48	0.595	0.134	0.134	0.134	0.148	-0.008	0.291	0.307	0.094	0.425	0.290364	-0.267	0.651	0.255583	-0.183	0.428
Al mg/l	-0.006	-0.006	-0.006	0.0355	-0.006	0.16	-0.006	-0.006	-0.006	-0.00438	-0.006	0.007	0.0009	-0.006	0.063	-0.00391	-0.097	0.085	-0.006	-0.006	-0.006
Fe mg/l	0.041667	0.028	0.055	0.0355	0.018	0.044	0.063	0.063	0.063	0.050625	0.01	0.173	0.0336	-0.006	0.218	-0.006	-0.148	0.136	-0.006	-0.006	-0.006
Mn mg/l	0.326	0.214	0.424	0.254	-0.001	0.523	0.062	0.062	0.062	0.157375	0.011	0.455	0.3077	-0.001	0.808	0.125273	-0.001	0.926	-0.001	-0.001	-0.001
N_Amonia mg/l	77.6	47.2	109	88.625	53.5	144	13.7	13.7	13.7	14.6475	2.96	29.6	13.6944	0.104	47.7	19.74645	-14.1	50.5	0.602417	0.089	1.139
TotHardness mg/l	732	675	786	650	358	1035	545	545	545	514.875	237	679	606.4	216	920	591	379	674	628.5833	590	690
PO4 mg/l	12.37667	8.03	17.7	19.225	7.6	44.3	3.01	3.01	3.01	3.071	0.478	5.67	3.0391	0.821	9.13	5.402364	0.186	16.6	-0.19858	-1.461	0.747
Cd mg/l	.	.	.	.	.	.	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.0005	-0.001	0.002	-0.0006	-0.001	0.001	-0.001	-0.001	-0.001
Cr mg/l	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	-0.002	0.002375	-0.002	0.013	0.0038	-0.002	0.026	-0.002	-0.002	-0.002	0.0085	-0.002	0.021
Cr6+ mg/l	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	.	.	.	.	.	.	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	0.743333	0.72	0.76	0.7125	0.57	0.84	0.58	0.58	0.58	1.02875	0.31	4.37	0.61	0.3	0.88	0.851	0.39	1.38	0.645	0.57	0.74

KMS02: Water dam from KCM sewage treament plant

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.07	7.35	8.83	7.914167	7.31	8.47	7.914167	7.31	8.47	8.358889	7.79	8.62	8.54	7.84	8.88	8.786154	8.66	8.95	8.709091	8.57	8.88
EC mS/m	118.85	88.3	145	130.4917	73.2	234	130.4917	73.2	234	151.5556	102	202	131.5444	95.8	187	93.51538	75.9	110	105.1273	92.3	115
TDS mg/l	693	444	1000	644.25	456	950	644.25	456	950	698.3333	522	947	649.4444	452	967	540.2308	477	651	612.9091	540	697
Ca mg/l	41.4	7.2	67.3	51.41667	12.9	101	51.41667	12.9	101	60.38889	37.5	96.6	59.44444	31.1	112	37.03846	32.6	50.4	43.05455	33.2	55
Mg mg/l	98.64	83.1	112	103.9833	83.1	119	103.9833	83.1	119	110.7667	90.6	128	98.4	85.2	118	101.3308	90.8	119	116.4545	103	134
Na mg/l	46.71	16.4	77.6	63.73333	20.1	125	63.73333	20.1	125	62.98889	30.9	129	58.81111	24.9	115	26.36923	20.5	32.5	32.03636	26.8	39.1
K mg/l	5.662	2.08	8.89	5.781667	1.94	9.52	5.781667	1.94	9.52	4.238889	1	5.9	3.761111	1.67	5.28	2.090769	1.22	2.5	2.414546	1.77	3.69
MALK CaCO3/L	241.5	169	326	245	169	329	245	169	329	273.7778	209	361	275.8889	228	415	368.3846	219	513	415.0909	366	467
Cl mg/l	70.58	30.2	111	115.7417	35.3	289	115.7417	35.3	289	124.2889	61	293	116.1333	30.8	342	37.36154	28.3	48.4	53.77273	41.7	66.1
SO4 mg/l	112.34	97.4	139	120.8167	81	156	120.8167	81	156	141.7444	95.7	189	116.8889	90.7	156	101.1077	57	153	89.05455	44.3	120
NO3-N mg/l	27.719	4.62	49.2	35.84333	4.71	65.3	35.84333	4.71	65.3	29.85444	6.79	43.2	30.52556	6.9	53.6	13.93385	8	18.2	16.43545	7.09	22.4
F mg/l	-0.2413	-0.48	1.34	0.22025	-0.48	0.515	0.22025	-0.48	0.515	0.154667	-0.001	0.376	0.170778	0.027	0.291	0.101077	-0.183	0.249	0.044818	-0.183	0.277
Al mg/l	0.0237	-0.006	0.291	-0.00183	-0.006	0.044	-0.00183	-0.006	0.044	-0.00089	-0.006	0.022	-0.006	-0.006	-0.006	-0.00362	-0.006	0.025	-0.006	-0.006	-0.006
Fe mg/l	-0.002	-0.006	0.016	-0.00358	-0.006	0.009	-0.00358	-0.006	0.009	0.006444	-0.006	0.038	-0.00122	-0.006	0.018	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.0047	-0.001	0.027	0.003917	-0.001	0.025	0.003917	-0.001	0.025	0.008556	-0.001	0.04	0.008222	-0.001	0.022	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001
N_Amonia mg/l	1.6607	-0.015	9.92	2.141417	-0.015	6.82	2.141417	-0.015	6.82	0.606444	-0.015	2.53	0.657333	-0.015	1.86	0.094077	-0.015	0.449	0.093182	0.02	0.35
TotHardness mg/l	509.7	405	630	556.5	424	710	556.5	424	710	606.8889	494	708	553.5556	429	683	509.8462	457	601	587.1818	522	690
PO4 mg/l	0.0581	-0.025	0.66	0.05925	-0.025	0.63	0.05925	-0.025	0.63	0.035778	-0.025	0.092	0.071	-0.025	0.157	0.084615	-0.161	0.557	0.046818	-0.025	0.067
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0	-0.001	0.003	-0.00038	-0.001	0.002	-0.001	-0.001	-0.001
Cr mg/l	0.0478	0.024	0.068	0.0315	-0.002	0.054	0.0315	-0.002	0.054	0.039778	-0.002	0.074	0.062778	0.041	0.093	0.027385	-0.002	0.052	0.021546	0.004	0.029
Cr6+ mg/l	0.0185	-0.008	0.06	0.027583	-0.008	0.06	0.027583	-0.008	0.06	0.027556	-0.008	0.06	0.039111	-0.008	0.077	0.010539	-0.008	0.041	-0.008	-0.008	-0.008
SAR	0.878	0.35	1.34	1.154167	0.41	2.05	1.154167	0.41	2.05	1.098889	0.53	2.11	1.061111	0.5	1.91	0.510769	0.4	0.6	0.575455	0.5	0.67

KMS03: Ereckon dam with water from underground

Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	8.4825	7.9	8.81	8.271818	7.34	8.71	8.065833	7.34	9.01	8.785	8.21	9.2	9.098	8.71	9.86	8.891667	8.66	9.21	8.79	8.59	9.23
EC mS/m	94.25	80.5	139	116.6909	83.9	168	131.1417	73.1	231	134.9167	105	170	115.03	87.9	144	88.01667	72	99.6	99.91818	91.8	114
TDS mg/l	578.1667	480	822	668.3636	430	816	643.75	447	799	598.3333	480	741	573.9	465	695	530.8333	444	657	593.8182	507	667
Ca mg/l	19.18667	6.04	49.9	37.79545	8.55	70.3	51.95833	14.9	78	45.00833	25.7	68.2	45.88	30.3	61.5	33.275	24.5	45.9	34.08182	16.4	49
Mg mg/l	101.3417	88.1	116	101.7091	84.3	117	103.1417	93.1	114	99.93333	90.9	112	99.06	89.1	108	98.60833	80.6	109	112.6818	97.5	119
Na mg/l	22.93333	14.9	51.7	42.72727	17.4	89.2	65.46667	19.4	92.8	50.96667	10.3	85.9	45.19	26.5	62.3	30.19167	21.9	76	30.82727	24.8	37.6
K mg/l	2.821583	0.969	5.79	5.047273	2.31	8.08	5.801667	2.53	8.26	3.630833	0.87	6.49	3.092	1.78	4.55	2.399167	1.31	4.59	2.378182	1.77	3.71
MALK CaCO3/L	313	226	474	253.5455	177	315	241.4167	203	292	268.8333	223	303	275.7	222	401	343.25	185	431	383.2727	312	431
Cl mg/l	41.78333	29.2	93.3	66.51818	28.2	153	119.0083	33.3	202	99.325	35	170	78.3	33.1	126	36.45833	29.3	46.9	51.46364	42.3	61.2
SO4 mg/l	105.2917	78	118	115.8727	79.9	162	117.025	84.3	152	116.8917	82.8	169	111.13	92.7	140	111.7417	83.1	196	96.91818	61.6	130
NO3-N mg/l	14.4125	7.34	41.4	22.49118	-0.057	72.6	36.13	3.56	58	21.2125	7.1	29.8	25.743	8.51	43.5	12.15917	8.46	19.1	15.20909	11.5	17.8
F mg/l	0.057167	0.034	0.097	0.147727	-0.48	2.01	0.151667	-0.48	0.448	0.131917	-0.001	0.258	0.1388	0.025	0.286	0.051333	-0.183	0.264	0.033364	-0.183	0.268
Al mg/l	-0.00833	-0.01	-0.006	0.013	-0.006	0.203	-0.00175	-0.006	0.045	-0.00083	-0.006	0.035	-0.004	-0.006	0.014	-0.00275	-0.006	0.033	-0.006	-0.006	-0.006
Fe mg/l	-0.00833	-0.01	-0.006	0.000455	-0.006	0.025	-0.00233	-0.006	0.011	0.020917	-0.006	0.16	0.0059	-0.006	0.043	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	-0.00508	-0.01	0.013	0.002	-0.001	0.021	0.000583	-0.001	0.005	0.009917	-0.001	0.036	0.0077	-0.001	0.026	0.002833	-0.001	0.045	-0.001	-0.001	-0.001
N_Amonia mg/l	0.545833	-0.1	6.55	1.562364	-0.015	4.77	1.679583	-0.015	4.8	0.2395	-0.015	0.987	0.1418	-0.015	0.745	0.218417	-0.015	1.45	0.186818	0.017	0.902
TotHardness mg/l	465.3333	388	547	512.8182	395	615	554.5833	431	656	523.9167	442	612	521.9	449	583	489	393	564	549.1818	490	608
PO4 mg/l	-0.04892	-0.1	0.138	0.020546	-0.025	0.476	-0.00358	-0.025	0.114	0.006917	-0.025	0.072	0.0937	0.026	0.345	0.1005	-0.025	0.505	-0.007	-0.025	0.053
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	0	-0.001	0.003	-0.00083	-0.001	0.001	-0.001	-0.001	-0.001
Cr mg/l	0.050167	0.019	0.074	0.057546	0.023	0.079	0.029167	-0.002	0.045	0.050417	-0.002	0.088	0.0545	0.027	0.084	0.01975	-0.002	0.04	0.015182	-0.002	0.039
Cr6+ mg/l	0.0535	-0.05	0.18	0.022091	-0.008	0.064	0.028417	-0.008	0.042	0.036667	-0.008	0.073	0.0358	-0.008	0.073	0.004	-0.008	0.03	-0.008	-0.008	-0.008
SAR	0.459167	0.29	0.96	0.806364	0.38	1.57	1.196667	0.41	1.62	0.961667	0.19	1.57	0.851	0.52	1.15	0.5975	0.42	1.53	0.57	0.45	0.69

KMS05: Setlers dam with water from underground

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	7.625	6.41	8.43	7.86	7.35	8.51	7.855833	7.25	8.54	8.354444	7.3	8.83	8.765143	8.56	8.97						
EC mS/m	187.3333	134	230	157.9167	130	182	140.75	66.8	227	173.3333	113	211	113.6857	58.4	191						
TDS mg/l	1037.33	270	1222	866.5	646	1016	649.25	416	761	672.7778	501	799	496.3143	316.4	762						
Ca mg/l	74.125	60.7	95.2	60.2	39.5	80.5	58.85833	34.2	75.3	57.94444	41.8	70.7	39.56286	22.06	72.5						
Mg mg/l	93.98333	78.4	112	100.75	83.8	120	97.33333	57.4	115	91.45556	75.9	108	78.41143	61.8	100						
Na mg/l	110.2583	77.8	157	84.04167	67.4	109	78.45833	46.9	95	89.95556	49.5	117	78.28286	61.12	98.3						
K mg/l	12.62167	9.59	16.5	9.025	5.73	12.7	7.578333	5.16	10.5	7.944444	4.7	9.43	7.968286	7.436	9.41						
MALK CaCO3/L	188.1667	118	223	192.5	156	279	216.8333	115	281	196.1111	153	277	85.17143	3	225						
Cl mg/l	116.9417	80.8	149	90.25833	77.4	102	91.51667	62	121	97.62222	65.9	130	77.49714	45.1	123						
SO4 mg/l	168.75	129	243	130.5833	107	168	127.4	75.2	187	145.7111	77.4	165	70.58571	16.5	120						
NO3-N mg/l	81.05	32.5	155	57.31667	31.5	86.9	57.88333	14.1	85.2	64.58889	45.3	92.5	92.61714	69	117						
F mg/l	0.082833	0.031	0.35	-0.02508	-0.48	0.996	0.19125	-0.48	0.473	0.177778	-0.001	0.421	0.0536	-0.0986	0.395						
Al mg/l	-0.00833	-0.01	-0.006	0.013917	-0.006	0.233	-0.00183	-0.006	0.044	-0.00033	-0.006	0.021	-0.006	-0.006	-0.006						
Fe mg/l	-0.00042	-0.01	0.022	-0.00292	-0.006	0.013	-0.00133	-0.006	0.01	0.007889	-0.006	0.024	-0.00554	-0.0158	0.01						
Mn mg/l	0.029833	-0.01	0.056	0.012333	-0.001	0.03	0.009167	-0.001	0.03	0.028111	-0.001	0.044	-0.00491	-0.038	0.05						
N_Amonia mg/l	19.19375	0.175	32.5	6.665667	0.648	11.5	4.984	-0.015	10.2	9.39	2.24	15.1	3.191	-1.9218	24						
TotHardness mg/l	572	505	699	565.6667	483	696	547.25	322	637	521.3333	417	606	421.5714	309	593						
PO4 mg/l	-0.023	-0.1	0.221	-0.025	-0.025	-0.025	0.000583	-0.025	0.062	-0.00744	-0.025	0.072	-0.00871	-0.025	0.089						
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001						
Cr mg/l	-0.00492	-0.01	0.011	0.0175	0.012	0.03	0.014833	-0.002	0.025	0.018444	-0.002	0.039	0.002	-0.002	0.005						
Cr6+ mg/l	-0.00542	-0.01	-0.001	0.004833	-0.008	0.049	0.015333	-0.008	0.032	0.002889	-0.008	0.016	-0.008	-0.008	-0.008						
SAR	2	1.48	2.59	1.538333	1.3	1.96	1.4575	0.91	1.68	1.702222	1.06	2.14	1.736667	1.67	1.78						

KMS06: Sepage from the taillings dam

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	7.231	5.46	8.12	7.45875	6.63	8.19	7.46	6.66	8.57	7.775	7.16	8.39	8.235	8.01	8.46	8.113333	7.49	8.5	8.065455	7.76	8.48
EC mS/m	165.5	120	222	234.375	116	341	183.4286	55	287	154	127	181	205	190	220	180.5	131	247	226.0909	172	261
TDS mg/l	976.4	664	1354	1456	678	1864	817.1429	398	1204	660.5	560	761	875.5	845	906	928.6667	730	1183	1201.55	720	1743
Ca mg/l	65.61	43.9	90.7	97.7	58	124	80.71429	32.7	123	58.55	49.4	67.7	87.35	77	97.7	98.34167	59.8	142	112.9182	71.9	137
Mg mg/l	69.23	47.1	93.1	106.5	53.7	137	91.27143	45.3	127	87.6	70.2	105	108	108	108	106.025	91.4	118	115.6455	78.2	144
Na mg/l	114.91	73.5	163	158.7625	74.1	208	123.3714	47.4	200	88.5	72	105	128	108	148	123.025	91.3	157	159.6364	106	192
K mg/l	17.84	12.1	25.7	25.8875	14.5	31	18.35	8.63	29.6	9.58	9.06	10.1	14.1	10.7	17.5	14.74167	6.1	19.8	20.21818	11	26.3

MALK CaCO3/L	122.5	81.8	193	86.525	64.1	124	111.1286	43.7	224	190	157	223	175.5	129	222	142.4667	99.6	183	130.9818	90.8	172
Cl mg/l	91.73	61.3	134	104.2625	59.7	159	95.01429	59.2	140	79.75	63.3	96.2	112.5	101	124	191.8	99.6	377	277.5455	190	403
SO4 mg/l	209.7	150	340	270.625	133	440	237.5714	96	355	165	154	176	183.5	174	193	186.8333	112	255	180.4182	78.6	249
NO3-N mg/l	83.01	38.7	165	122.1288	1.33	233	104.1429	13.5	186	57.55	48	67.1	136.5	111	162	119.225	94.1	148	138.9273	61.5	197
F mg/l	0.1623	0.045	0.948	-0.0875	-0.48	0.738	0.114143	-0.48	0.471	0.0965	-0.001	0.194	0.2765	0.191	0.362	0.244167	-0.183	0.515	0.343	0.203	0.429
Al mg/l	-0.0084	-0.01	-0.006	-0.006	-0.006	-0.006	-0.00371	-0.006	0.01	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.00492	-0.006	0.007	-0.006	-0.006	-0.006
Fe mg/l	-0.0038	-0.01	0.019	-0.006	-0.006	-0.006	0	-0.006	0.017	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.0078	-0.01	0.039	0.08175	-0.001	0.288	0.022857	-0.001	0.049	0.016	0.007	0.025	0.044	0.016	0.072	0.00625	-0.001	0.055	0.011546	-0.001	0.059
N_Amonia mg/l	17.315	3.76	29.6	24.19	6.62	45.8	17.905	-0.015	42.4	6.12	5.09	7.15	23.95	21.7	26.2	16.34167	1.18	36.1	24.77636	4.44	46.9
TotHardness mg/l	448.9	304	578	682.375	366	868	577.2857	293	830	506.5	413	600	662.5	635	690	682	560	803	758.6364	502	895
PO4 mg/l	0.0849	-0.1	0.357	0.02525	-0.025	0.377	0.084286	-0.025	0.399	-0.025	-0.025	-0.025	0.019	-0.025	0.063	0.061333	-0.025	0.567	-0.01055	-0.025	0.033
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.00058	-0.001	0.002	-0.001	-0.001	-0.001
Cr mg/l	-0.0068	-0.01	-0.002	-0.002	-0.002	-0.002	0.005286	-0.002	0.016	0.011	0.01	0.012	0.0025	-0.002	0.007	0.016917	-0.002	0.178	0.002818	-0.002	0.012
Cr6+ mg/l	-0.0056	-0.01	-0.001	-0.004	-0.008	0.024	0.007714	-0.008	0.025	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008	-8.3E-05	-0.008	0.087	-0.008	-0.008	-0.008
SAR	2.344	1.84	3.17	2.60875	1.68	3.18	2.171429	0.98	3.02	1.7	1.54	1.86	2.155	1.86	2.45	2.045	1.68	2.41	2.515455	2.06	2.89

KMS07: Water run-off from KCM spiral plant

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	7.683333	6.67	8.49	7.994167	7.44	8.64	8.040833	7.36	8.62	8.186667	7.02	8.82	8.433	7.71	8.77	8.34	7.77	8.65	8.248333	8.05	8.43
EC mS/m	193.6667	175	234	145.8333	123	167	142.1167	75.8	258	163.3333	116	204	146.19	84.9	183	171.5455	121	250	210.8333	101	260
TDS mg/l	1015.67	902	1170	828.75	619	990	647.6667	511	755	663.1667	516	764	641.6	436	810	826	673	1025	1098.83	506	1661
Ca mg/l	78.06667	66.1	100	54.925	36	64.2	56.60833	38.6	71.4	56.99167	40.4	70.6	58.52	32.6	81.1	85.49091	47.2	114	101.3667	45.9	141
Mg mg/l	101.9	91	120	98.8	75.4	113	96.76667	66.7	113	91.95833	76.4	103	94.84	75.5	111	101	89.3	116	102.8167	61.6	131
Na mg/l	109.15	86.7	163	72.46667	45.1	95.4	77.78333	45.4	114	83.775	51.8	104	70.36	33.9	109	106.4364	74	139	143.175	67.1	200
K mg/l	12.68333	10.7	17.2	8.319167	5.33	11.4	7.454167	5.06	9.28	7.649167	4.47	9.64	6.794	3.56	12.3	10.69727	2.29	16.8	16.8225	6.97	28.9
MALK CaCO3/L	189.8333	124	233	207	151	274	219.6667	139	272	232	169	313	227.6	203	263	178.4545	100	236	158.1667	113	190
Cl mg/l	130.8333	109	158	84.575	69.1	107	90.83333	74.2	114	94.16667	55.1	139	84.77	50.9	116	142.0727	91	213	237.2	82.4	388
SO4 mg/l	148.5	132	168	120.1167	96.4	149	125.5	106	154	137.4833	78.3	172	124.38	82.8	158	158.2727	104	228	150.2833	79	216
NO3-N mg/l	63.78333	28.9	140	44.44167	27.6	65.1	60.56667	13	82.9	51.75833	18	68.7	65.35	22.9	117	111	72.1	175	132.0083	43.7	216
F mg/l	0.0485	0.034	0.065	-0.31408	-0.48	0.571	0.194167	-0.48	0.48	0.192583	-0.001	0.371	0.2201	0.099	0.467	0.209455	-0.183	0.431	0.346417	0.235	0.497
Al mg/l	-0.00667	-0.01	-0.006	0.01275	-0.006	0.219	-0.00183	-0.006	0.044	-0.00175	-0.006	0.024	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Fe mg/l	0.002833	-0.006	0.012	-0.00417	-0.006	0.016	0.00025	-0.006	0.01	0.01825	-0.006	0.114	0.0007	-0.006	0.014	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.034833	0.018	0.057	0.0115	-0.001	0.025	0.013333	-0.001	0.044	0.0335	-0.001	0.079	0.0372	0.006	0.072	0.010091	-0.001	0.086	0.008583	-0.001	0.086
N_Amonia mg/l	19.6975	-0.015	28	4.678	0.102	11.3	6.980917	-0.015	15.8	8.055833	1.96	15.1	9.0112	0.115	22.9	22.67091	4.86	50.6	34.26083	4.43	61.1
TotHardness mg/l	614.8333	540	746	544.0833	401	618	539.6667	371	628	520.9167	430	588	536.7	392	644	629.6364	514	762	676.5833	368	832
PO4 mg/l	-0.01067	-0.1	0.136	0.045667	-0.025	0.823	0.01375	-0.025	0.172	0.077583	-0.025	0.526	0.0973	-0.025	0.386	0.124273	-0.025	0.671	0.264333	0.027	1.05
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.0005	-0.001	0.001	-0.001	-0.001	-0.001	0.0002	-0.001	0.003	-0.00082	-0.001	0.001	-0.001	-0.001	-0.001
Cr mg/l	-0.001	-0.01	0.012	0.02625	0.015	0.061	0.01825	-0.002	0.031	0.018417	-0.002	0.045	0.0306	-0.002	0.056	0.003455	-0.002	0.037	0.002833	-0.002	0.016
Cr6+ mg/l	-0.00833	-0.01	-0.008	0.009667	-0.008	0.104	0.019333	-0.008	0.032	0.01025	-0.008	0.029	0.0138	-0.008	0.045	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	1.903333	1.58	2.6	1.349167	0.98	1.74	1.455	0.88	2.04	1.5925	1.09	1.93	1.305	0.74	1.94	1.840909	1.42	2.25	2.371667	1.52	3.02

KMS11: Retain Water dam or containment dam

Year	2007			2008			2009			2010			2011			2012			2013		
Variable/Stats	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max	Mean	Min	Max
pH	7.7525	6.93	8.33	8.078182	7.65	8.78	8.030833	7.3	8.56	8.383	8.08	8.73	8.375	7.98	8.88	8.195	7.76	8.67	8.179091	7.9	8.45
EC mS/m	174.25	135	210	152.8182	129	190	139.9583	68.4	235	159.6	118	198	153.57	83.7	201	178.1667	130	247	218.8182	168	251
TDS mg/l	1008.17	888	1134	888.9091	648	1090	639.8333	411	731	628.8	513	705	656.3	419	811	937.9167	702	1281	1126	762	1626
Ca mg/l	71.39167	62.6	85.8	57.61818	40.9	68.7	57.64167	33.2	66.8	54.75	42.1	65.1	60.15	32	94	92.05	50.9	129	107.1818	78.1	140
Mg mg/l	95.29167	79.8	110	101.4182	83	114	95.29167	51.9	113	86.19	72.8	94.1	95.24	64.3	111	109.0667	89.9	151	106.7545	82.8	138
Na mg/l	101.3917	81.3	151	80.13636	64.1	99.4	78.48333	46.8	97.1	80.3	59	108	76.78	37.8	129	127.6833	88.8	184	145.4545	109	192
K mg/l	11.99917	9.01	16.8	9.12	6.73	12.1	8.0225	5.33	10	7.975	6.59	8.99	8.014	4.36	15	19.0225	6.39	40.9	17.74545	11.5	27.4
MALK CaCO3/L	190.1667	123	272	195.6364	147	239	206.25	108	268	201.4	111	292	196.2	150	230	129.6	91.7	171	142.2364	99.6	186
Cl mg/l	112.2	82.5	150	88.20909	73.1	107	93.75	69.1	123	92.88	59.7	131	95.06	55.9	137	181.0667	92.8	317	249.8182	187	370
SO4 mg/l	167.4167	122	246	133.8182	108	190	124.7417	76.1	176	131.61	78.9	157	128.82	86.2	162	207.4167	109	331	150.1364	79.5	206
NO3-N mg/l	64.275	25.9	115	57.28182	28.4	97	57.98333	11.4	83.4	54.43	35.5	81.7	74.25	25	148	120.2333	82.8	175	140.0545	86.4	205
F mg/l	0.0565	0.029	0.084	-0.00709	-0.48	1.5	0.191083	-0.48	0.453	0.1686	-0.001	0.384	0.2529	-0.075	0.693	0.112333	-0.183	0.374	0.340546	0.26	0.478
Al mg/l	-0.00833	-0.01	-0.006	0.016091	-0.006	0.237	-0.00167	-0.006	0.046	-0.0041	-0.006	0.013	-0.006	-0.006	-0.006	-0.00375	-0.006	0.008	-0.006	-0.006	-0.006
Fe mg/l	-0.00833	-0.01	-0.006	-0.006	-0.006	-0.006	-0.00125	-0.006	0.011	0.0195	-0.006	0.099	-0.0028	-0.006	0.01	-0.006	-0.006	-0.006	-0.006	-0.006	-0.006
Mn mg/l	0.000583	-0.01	0.025	0.004636	-0.001	0.026	0.0105	-0.001	0.034	0.0235	-0.001	0.048	0.0152	0.001	0.04	0.014083	-0.001	0.17	-0.001	-0.001	-0.001
N_Amonia mg/l	12.81883	-0.1	25.5	5.042909	-0.015	12.6	5.772917	-0.015	10.7	6.382	1.85	9.75	7.981	-0.015	20.4	10.33917	0.053	28.5	32.96364	14.4	53.7
TotHardness mg/l	570.4167	498	668	561.0909	465	622	536.4167	297	621	491.6	405	550	542.2	345	666	678.5833	521	895	707.5455	538	845
PO4 mg/l	0.096	-0.1	0.433	-0.01355	-0.025	0.101	-0.00867	-0.025	0.051	0.057	-0.025	0.279	0.091	-0.025	0.22	0.10125	-0.025	0.504	0.153727	0.035	0.453
Cd mg/l	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.0004	-0.001	0.005	-0.0006	-0.001	0.001	-0.00083	-0.001	0.001	-0.001	-0.001	-0.001
Cr6+ mg/l	-0.00542	-0.01	-0.001	0.008364	-0.008	0.038	0.015083	-0.008	0.034	0.0095	-0.008	0.028	0.0088	-0.008	0.033	-0.008	-0.008	-0.008	-0.008	-0.008	-0.008
SAR	1.841667	1.51	2.55	1.470909	1.27	1.81	1.475	0.89	1.76	1.574	1.19	2.16	1.414	0.87	2.18	2.1275	1.69	2.89	2.370909	1.93	2.96
Cr mg/l	-0.00367	-0.01	0.013	0.023	0.013	0.035	0.015917	-0.002	0.028	0.0209	-0.002	0.041	0.0255	-0.002	0.043	0.001417	-0.002	0.016	0.003182	-0.002	0.03