

APPENDIX C

TOMP Water Quality Data

APPENDIX C.1

Denison TMA

Appendix Table C.1.1: Denison final points of control (D-2, D-3) discharge criteria.

Parameter	Units	Discharge Criteria	
		Grab Sample ^a	Monthly Mean ^b
Dissolved Radium-226 ^c	Bq/L	1.11	0.37
pH	pH units	5.5 – 9.5	6.5 – 9.5
Total Suspended Solids	mg/L	50.0	25.0

^aSamples to be collected during periods of discharge.

^bArithmetic mean of twelve consecutive samples.

^c Discharge criteria are for dissolved radium-226, while measured and reported values are for total radium-226.

Appendix Table C.1.2: Water quality at station D-1 from 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/11/2005				0.03		7.5	0.26	343	0.042
2/15/2005						7.6	0.34		
3/15/2005						7.9	0.41		
4/12/2005				0.169		7.7	0.21	150	0.02
3/14/2006				0.07		7.4	0.48	250	0.0747
4/11/2006						7.6	0.52	160	0.0322
4/12/2006				0.169		7.3			
12/19/2006						7.4	0.28		
1/9/2007	1	0.013	0.00025	0.07	0.014	7.8	0.300	260.0	
2/13/2007						7.8	0.290		
3/13/2007						8.1	0.280		
4/10/2007	1	0.011	0.00025	0.040	0.023	7.7	0.150	110.0	
3/11/2008	1	0.029	0.0009	0.08	0.061	7.1	0.740	240.0	
4/8/2008	1	0.032	0.0009	0.08	0.058	7.0	0.770	250.0	
5/13/2008						8.1	0.880		
12/23/2008						7.3	0.860		
1/13/2009	1	0.035	0.00025	0.020	0.010	7.3	0.860	230.0	
3/10/2009						7.1	0.970		
4/14/2009	1	0.037	0.0006	0.100	0.075	7.0	0.870	190.0	0.0406
5/12/2009						7.3	1.000		
12/8/2009						6.9	0.790		
Number	6	6	6	10	6	437	20	10	5
Minimum	1	0.011	0.00025	0.020	0.010	6.5	0.15	110	0.02
Maximum	1	0.037	0.0009	0.169	0.075	8.4	1	343	0.0747
Mean	1	0.026	0.00053	0.083	0.040	7.5	0.563	218	0.0419
Median	1	0.031	0.00043	0.075	0.041	7.5	0.500	235	0.0406
10th Perc.	1	0.012	0.00025	0.029	0.012	7	0.255	146	0.0249

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Concentration below maximum MDL.

Appendix Table C.1.3: Water quality at station D-22 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO ₄ (mg/L)	U (mg/L)
1/11/2005			0.32		6.9	0.47	105	0.005
2/15/2005					6.6	0.14		
3/29/2005					6.6	0.05		
4/19/2005			0.189		7.1	0.24	99.5	0.005
5/10/2005					7	0.33		
6/14/2005					6.7	1.29		
9/27/2005					6.6	1		
10/11/2005			2.37		6.4	0.97	258	0.005
11/15/2005					6.7	0.11		
12/13/2005					6.5	0.65		
1/10/2006			1.69		6.5	0.57	190	0.0014
2/14/2006					6.6	0.058		
3/14/2006					6.8	0.53		
4/11/2006			0.14		7	0.1	58	0.00056
5/9/2006					7	0.32		
6/13/2006					6.9	0.9		
7/11/2006			4.38		6.8	0.026	160	0.0035
8/8/2006					6.9	0.9		
10/10/2006			1.8		6.9	0.5	200	0.0018
11/14/2006					7.2	0.11		
12/12/2006					7.1	0.085		
1/9/2007	0.022	< 0.0005	0.23	0.096	6.9	0.150	96.0	0.00025
2/13/2007					6.5	1.000		
3/13/2007					6.1	0.750		
4/10/2007	0.021	0.0006	0.10	0.098	6.9	0.089	66.0	0.00025
5/8/2007					6.8	0.350		
6/12/2007					6.9	0.510		
9/18/2007					6.7	1.900		
10/9/2007	0.036	0.0006	0.32	0.145	6.5	0.350	180.0	0.0006
11/13/2007					7.0	0.130		
12/11/2007					6.7	0.054		
1/8/2008	0.015	0.0007	0.33	0.137	6.7	0.089	63.0	0.00025
2/12/2008					6.7	0.110		
3/11/2008					6.5	0.057		
4/8/2008	0.015	< 0.0005	0.22	0.065	6.9	0.010	18.0	0.0007
5/13/2008					7.0	0.070		
6/10/2008					6.9	0.240		
7/8/2008	0.038	< 0.0005	2.19	0.113	6.8	0.650	100.0	0.0019
8/12/2008					6.9	0.340		
9/9/2008					6.7	1.300		
10/14/2008	0.049	< 0.0005	4.24	0.182	6.8	1.000	230.0	0.0018
11/11/2008					7.1	0.400		
12/9/2008					6.9	0.160		
1/13/2009	0.023	< 0.0005	0.21	0.123	6.8	0.035	57.0	0.0008
2/10/2009					6.6	0.180		
3/10/2009					6.7	0.100		
4/14/2009	0.016	< 0.0005	0.21	0.099	6.9	0.038	33.0	0.00025
5/12/2009					6.8	0.190		
6/9/2009					7.0	0.190		
7/14/2009	0.082	0.0006	13.60	0.511	6.6	1.800	89.0	0.0047
8/11/2009					6.4	1.900		
9/8/2009					6.6	2.800		
10/13/2009	0.031	0.0007	1.78	0.279	6.7	0.350	160.0	0.0018

Appendix Table C.1.3: Water quality at station D-22 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
11/10/2009					6.6	0.130		
12/8/2009					6.9	0.210		
Number	11	11	18	11	235	55	18	18
Minimum	0.015	0.0005	0.1	0.065	6.1	0.01	18	0.00025
Maximum	0.082	0.0007	13.6	0.511	7.3	2.8	258	0.005
Mean	0.032	0.0006	1.91	0.168	6.8	0.491	120	0.0020
Median	0.023	0.0005	0.33	0.123	6.8	0.240	99.8	0.0016
10th Perc.	0.015	0.0005	0.17	0.096	6.5	0.055	49.8	0.0003

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measure values.

Concentration below maximum MDL.

Bold concentrations deleted from statistical analysis due to unreasonably high MDLs.

Appendix Table C.1.4: Water quality at station D-25 from 2005 to 2009.

Date	Acidity (mg/L)	pH ^a	Ra (Bq/L)
4/12/2005		7.2	0.17
10/11/2005		6.5	0.56
4/11/2006		7.1	0.14
10/10/2006		7.4	0.3
4/10/2007	0.5	7.4	0.240
10/9/2007	0.5	6.7	0.340
4/8/2008	0.5	7.0	0.470
10/14/2008	0.5	6.9	0.440
4/14/2009	0.5	7.2	0.410
10/13/2009	0.5	7.2	0.290
Number	6	22	10
Minimum	0.5	6.5	0.14
Maximum	0.5	7.5	0.56
Mean	0.5	7.1	0.336
Median	0.5	7.2	0.320
10th Perc.	0.5	6.9	0.167

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

 Concentration below maximum MDL.

Appendix Table C.1.5: Water quality at groundwater station BH91 DG4B from 2005 to 2009.

Date	Acidity (mg/L)	Fe (mg/L)	pH	SO4 (mg/L)
7/1/2005	87	29.08	6.7	
7/1/2006	0.5	21	6.8	
9/12/2007	0.5	22.30	6.7	
7/30/2008	0.5	21.30	6.6	1100.0
8/18/2009	0.5	2.48	6.3	810.0
Number	5	5	5	2
Minimum	0.5	2.48	6.3	810
Maximum	87	29.08	6.8	1100
Mean	18	19.23	6.6	955.0
Median	0.5	21.30	6.7	955.0
10th Perc.	0.5	9.89	6.4	839.0

 Concentration below maximum MDL.

Appendix Table C.1.6: Water quality for station B91-D1A and B from 2005 to 2009.

Site	Date	Acidity (mg/L)	Fe (mg/L)	pH	SO4 (mg/L)
BH91-D1A	8/2/2005	158	80.44	7.1	
	7/12/2006	63	60.30	7.1	
	9/13/2007	54	58.50	7.2	
	8/13/2008	30	49.70	7.2	450.0
	8/27/2009	29	44.50	6.7	810.0
BH91-D1A Summary	Number	5	5	5	2
	Minimum	29.0	44.5	6.7	450.0
	Maximum	158.0	80.4	7.2	810.0
	Mean	66.8	58.69	7.1	630.0
	Median	54.0	58.50	7.1	630.0
	10th Perc.	29.4	46.58	6.9	486.0
BH91-D1B	8/2/2005	0.5	0.03	8.4	
	7/14/2006	0.5	0.09	7.6	
	8/13/2008	0.5	0.09	8.1	450.0
	8/31/2009	0.5	0.09	7.8	480.0
BH91-D1B Summary	Number	4	4	4	2
	Minimum	0.5	0.0	7.6	450.0
	Maximum	0.5	0.1	8.4	480.0
	Mean	0.5	0.08	8.0	465.0
	Median	0.5	0.09	8.0	465.0
	10th Perc.	0.5	0.05	7.7	453.0

Concentration below maximum MDL.

Appendix Table C.1.7: Water quality at station BH91-D3 A and B from 2005 to 2009.

Site	Date	Acidity (mg/L)	Fe (mg/L)	pH	SO4 (mg/L)
BH91-D3A	8/4/2005	2260	924.20	7.4	
	7/14/2006	1050	630.00	6.8	
	9/12/2007	956	536.00	7.0	
	8/15/2008	663	407.00	7.0	2300.0
	8/27/2009	650	407.00	6.7	2200.0
BH91-D3A Summary	Number	5	5	5	2
	Minimum	650	407.0	6.7	2200.0
	Maximum	2260	924.2	7.4	2300.0
	Mean	1116	580.84	7.0	2250.0
	Median	956	536.00	7.0	2250.0
	10th Perc.	655	407.00	6.7	2210.0
BH91-D3B	7/25/2005	1357	742.00	6.0	
	7/17/2006	1040	591.00	5.8	
	9/11/2007	923	504.00	5.9	
	8/15/2008	825	461.00	6.0	2300.0
	8/27/2009	712	442.00	6.5	2100.0
BH91-D3B Summary	Number	5	5	5	2
	Minimum	712.0	442.0	5.8	2100.0
	Maximum	1357.0	742.0	6.5	2300.0
	Mean	971	548.00	6.0	2200.0
	Median	923	504.00	6.0	2200.0
	10th Perc.	757	449.60	5.8	2120.0

 Concentration below maximum MDL.

Appendix Table C.1.8: Water quality for station BH91 D9 A from 2005 to 2009.

Date	Acidity (mg/L)	Fe (mg/L)	pH	SO4 (mg/L)
8/1/2005	310	242	6.3	
7/1/2006	212	222	6.5	
5/1/2007		238.00	6.3	1900.0
9/5/2007	211	237.00	6.6	
8/18/2008	232	254.00	6.3	1900.0
8/12/2009	239	251	6.4	1900
Number	5	6	6	3
Minimum	211	222	6.3	1900
Maximum	310	254	6.6	1900
Mean	241	240.67	6.4	1900
Median	232	240.00	6.35	1900
10th Perc.	211	229.50	6.3	1900

 Concentration below maximum MDL.

Appendix Table C.1.9: Summary of seasonal trends for station D-1, 2003 - 2009.

Season	Spearman rho	Fe	pH	Ra-226	Sulphate	Uranium
February	Correlation Coefficient		-0.6			
	Sig. (2-tailed)		0.208			
	N		6			
March	Correlation Coefficient		-0.535714	0.3571429		
	Sig. (2-tailed)		0.2152175	0.4316114		
	N		7	7		
April	Correlation Coefficient	-0.559	-0.285714	0.6428571	0.6785714	0.7
	Sig. (2-tailed)	ns	0.5345092	0.1193924	ns	ns
	N	7	7	7	7	5
December	Correlation Coefficient		-1	0.5		
	Sig. (2-tailed)		0.000001	0.3910022		
	N		5	5		

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where p<0.05.

Appendix Table C.1.10: Summary of seasonal trends for station D-22, 2003 - 2009.

Season	Spearman rho	Fe	pH	Ra-226	Sulphate	Uranium*
January	Correlation Coefficient	-0.821	0.1853123	-0.9642857	-0.89285714	
	Sig. (2-tailed)	0.023	0.6907778	0.00045415	0.006807187	
	N	7	7	7	7	
February	Correlation Coefficient		0.6785714	-0.2857143		
	Sig. (2-tailed)		0.0937503	0.53450923		
	N		7	7		
March	Correlation Coefficient		-0.090094	-0.25		
	Sig. (2-tailed)		0.8476721	0.58872445		
	N		7	7		
April	Correlation Coefficient	-0.143	0.1071429	-0.8468812	-0.42857143	
	Sig. (2-tailed)	0.787	0.8191509	0.01619713	0.337368311	
	N	6	7	7	7	
May	Correlation Coefficient		-0.321429	0.10714286		
	Sig. (2-tailed)		0.482072	0.81915086		
	N		7	7		
June	Correlation Coefficient		0.4364358	-0.1428571		
	Sig. (2-tailed)		0.3275825	0.7599453		
	N		7	7		
July	Correlation Coefficient	0.700	-0.342356	0.5	-0.9	
	Sig. (2-tailed)	0.188	0.4522512	0.39100222	0.037386073	
	N	5	7	5	5	
August	Correlation Coefficient		0.1	0.1		
	Sig. (2-tailed)		0.8728886	0.87288857		
	N		5	5		
September	Correlation Coefficient		-0.464286	-0.4285714		
	Sig. (2-tailed)		0.2939341	0.39650146		
	N		7	6		
October	Correlation Coefficient	0.321	-0.126131	-0.1801875	-0.10714286	
	Sig. (2-tailed)	0.482	0.7875722	0.69904577	0.819150856	
	N	7	7	7	7	
November	Correlation Coefficient		-0.464286	-0.0545545		
	Sig. (2-tailed)		0.2939341	0.90752321		
	N		7	7		
December	Correlation Coefficient		0.1482499	-0.5585812		
	Sig. (2-tailed)		0.7510798	0.19245253		
	N		7	7		

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where p<0.05.

Appendix Table C.1.11: Summary of seasonal trends for station D-25, 2003 - 2009.

Season	Spearman rho	pH	Ra-226
April	Correlation Coefficient	0.34551166	0.540562478
	Sig. (2-tailed)	0.44781622	0.210289253
	N	7	7
October	Correlation Coefficient	-0.25	0.216224991
	Sig. (2-tailed)	0.58872445	0.641445509
	N	7	7

Note: p-values for $n < 10$ where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where $p < 0.05$.

Appendix Table C.1.12: Summary of annual trends for Denison groundwater stations.

Station	Spearman rho	Iron	pH	Sulphate
BH91-DG-4B	Correlation Coefficient	0.481318681	-0.735539981	
	Sig. (2-tailed)	0.081418295	0.004163708	
	N	14	13	
BH91-D-9A	Correlation Coefficient	0.913108501	-0.755788725	
	Sig. (2-tailed)	0.000001	0.000707595	
	N	16	16	
BH91-D-1A	Correlation Coefficient	-0.72941176	0.866690445	-0.58181818
	Sig. (2-tailed)	0.001343079	1.40017E-05	0.0604199
	N	16	16	11
BH91-D-1B	Correlation Coefficient	-0.06674582	0.510342528	0.66363636
	Sig. (2-tailed)	0.820651404	0.051924812	0.02598413
	N	14	15	11
BH91-D-3A	Correlation Coefficient	-0.51066975	0.803552941	-0.58181818
	Sig. (2-tailed)	0.043245015	0.000176938	0.0604199
	N	16	16	11
BH91-D-3B	Correlation Coefficient	-0.56470588	0.892478851	-0.51515152
	Sig. (2-tailed)	0.022663205	7.6612E-06	0.12755287
	N	16	15	10

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where p<0.05.

Appendix Table C.1.13: Summary of seasonal trends for station ECA-128, 2003 - 2009.

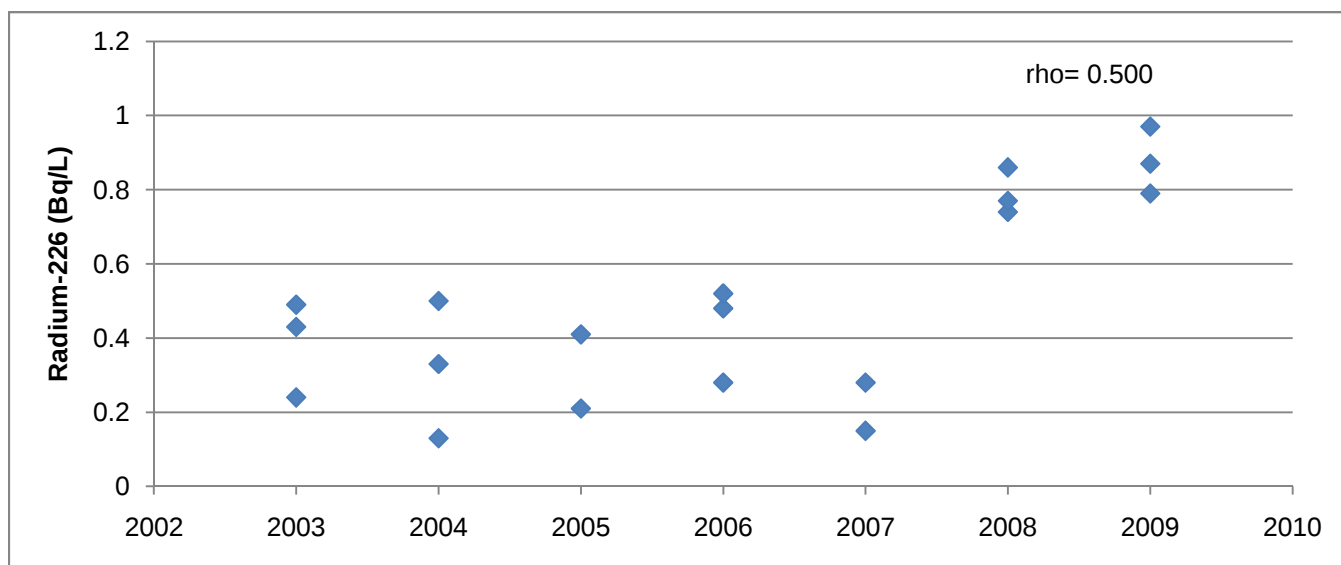
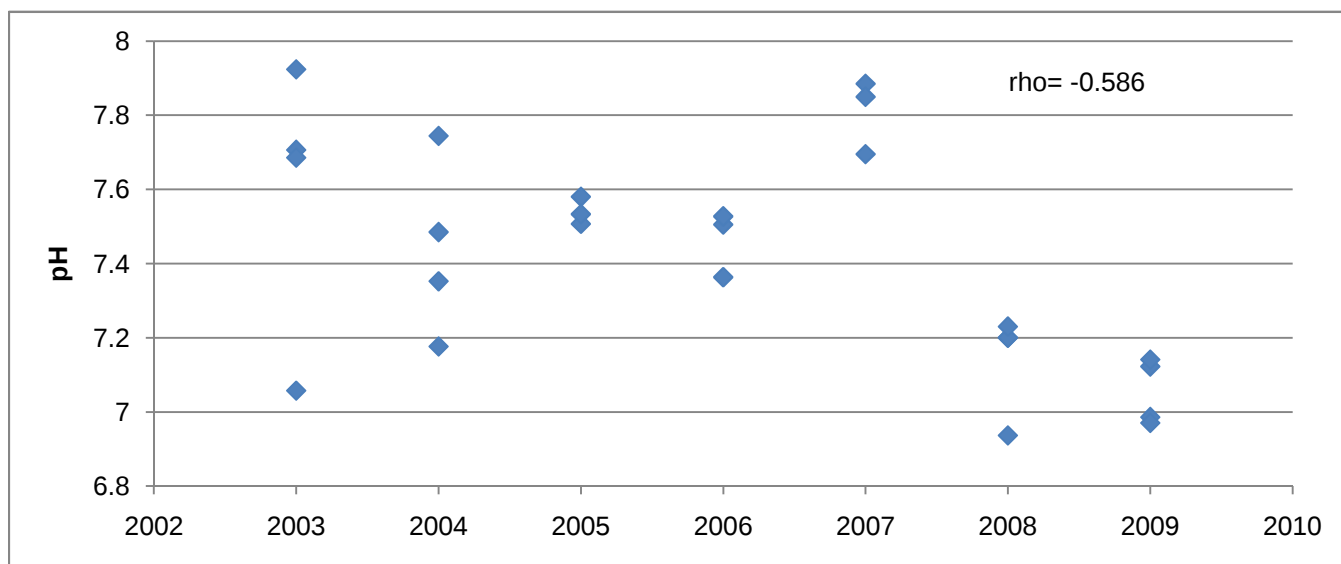
Season	Spearman rho	Fe	pH	Ra-226	Sulphate	Uranium
January	Correlation Coefficient	0.541	-0.9009375	0.05405625	-0.892857143	-0.77480622
	Sig. (2-tailed)	0.210	0.0056206	0.90836528	0.006807187	0.040769463
	N	7	7	7	7	7
April/May	Correlation Coefficient	0.536	0.1091089	0.78571429	0.214285714	0.036037499
	Sig. (2-tailed)	0.215	0.8158715	0.03623846	0.644511581	0.938860561
	N	7	7	7	7	7
October/November	Correlation Coefficient	-0.357	-0.6428571	0.89285714	-0.991031209	0.126131245
	Sig. (2-tailed)	0.432	0.1193924	0.00680719	1.45613E-05	0.787572159
	N	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

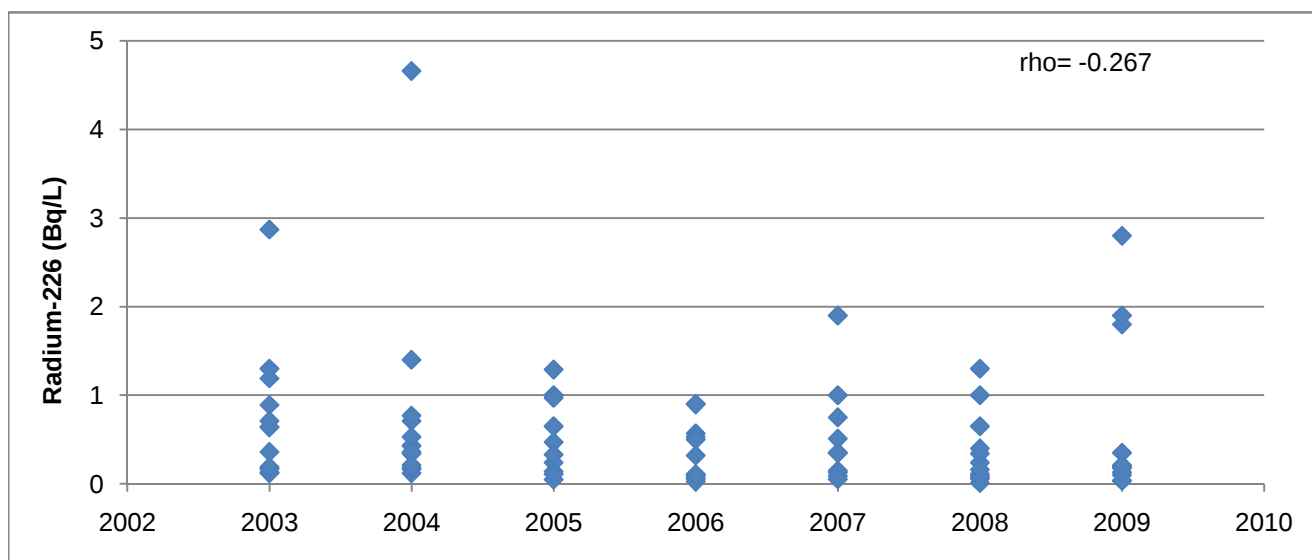
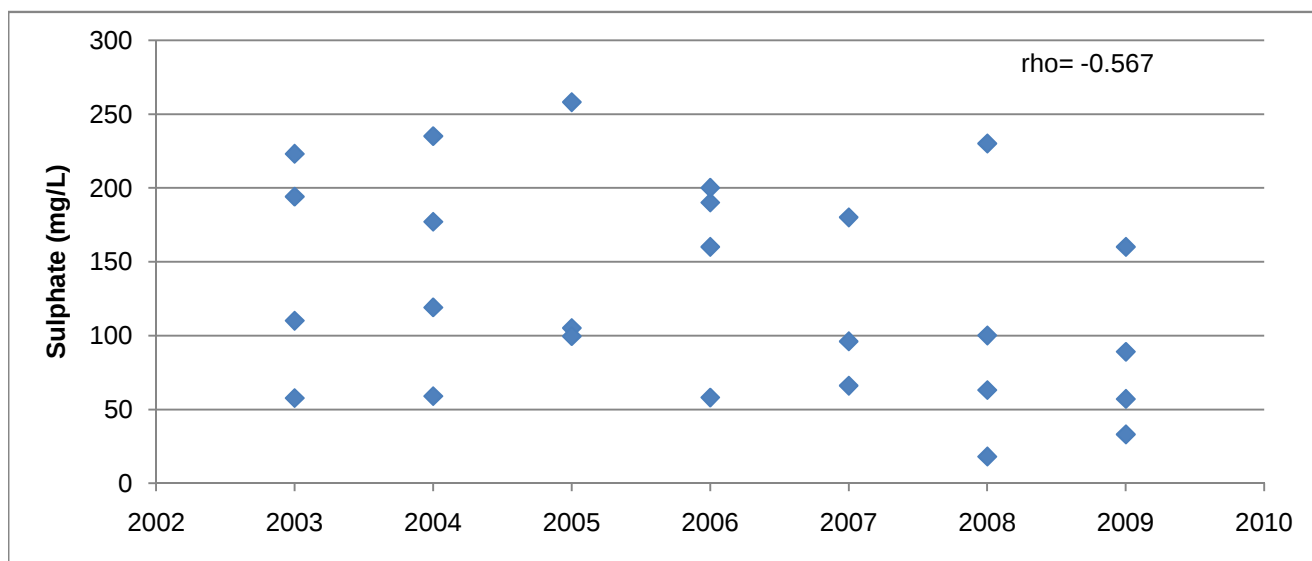
Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

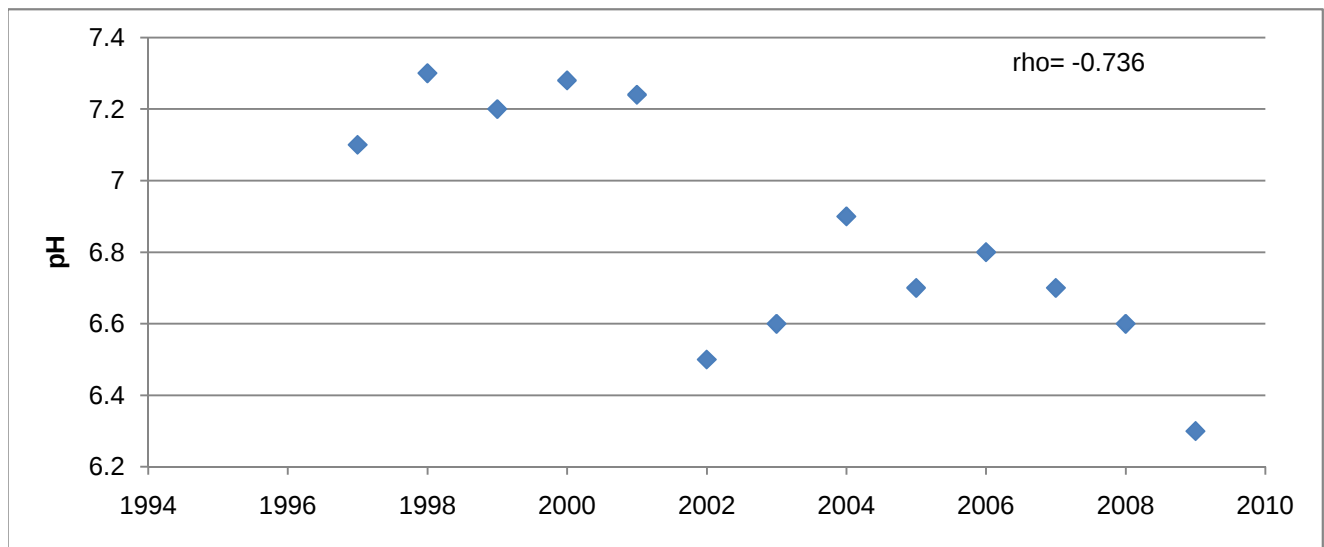
Significant trend where $p < 0.05$.



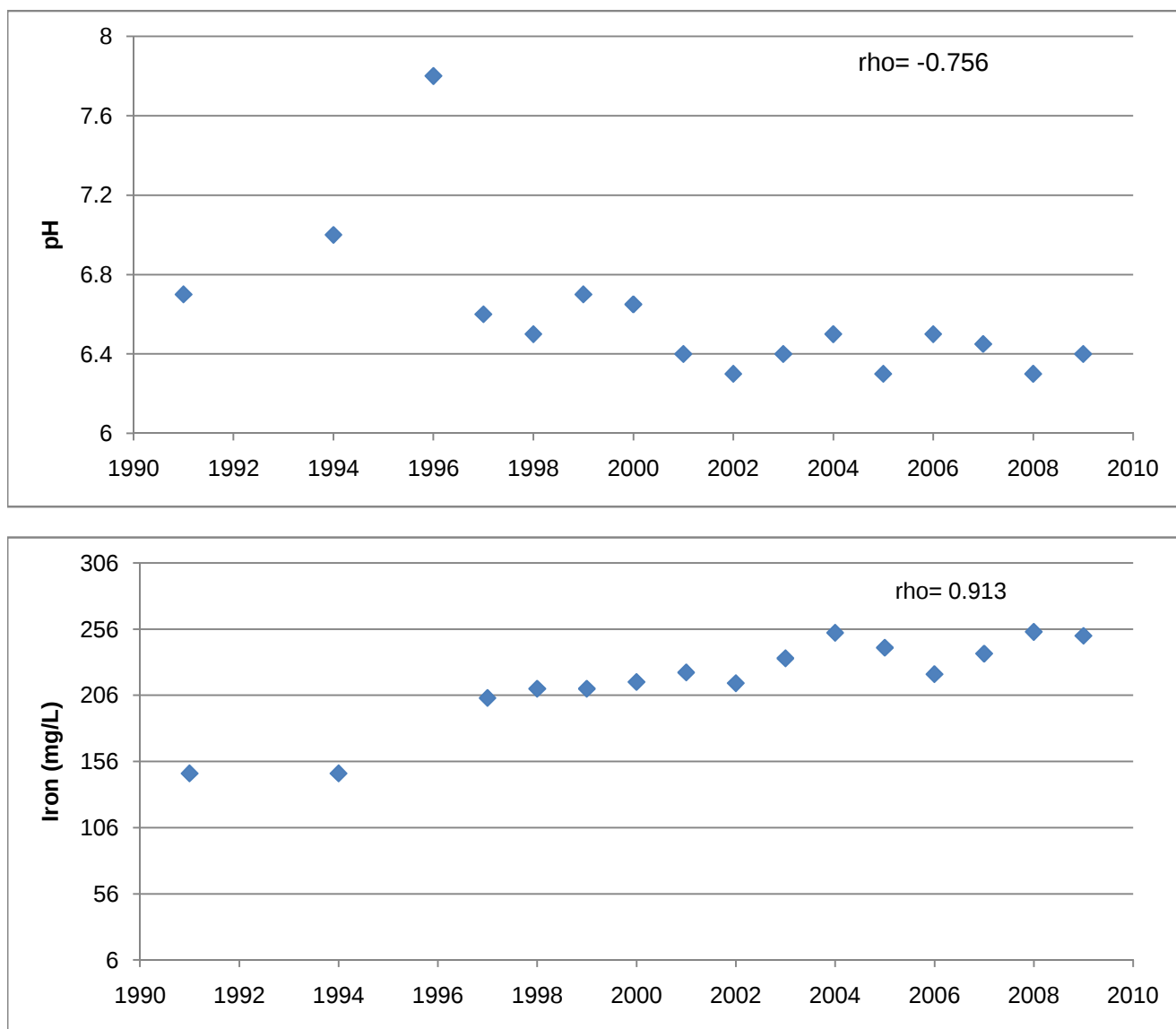
Appendix Figure C.1.1: Significant common (average) trends observed for pH and radium-226 over all seasons at station D-1, 2003 to 2009.



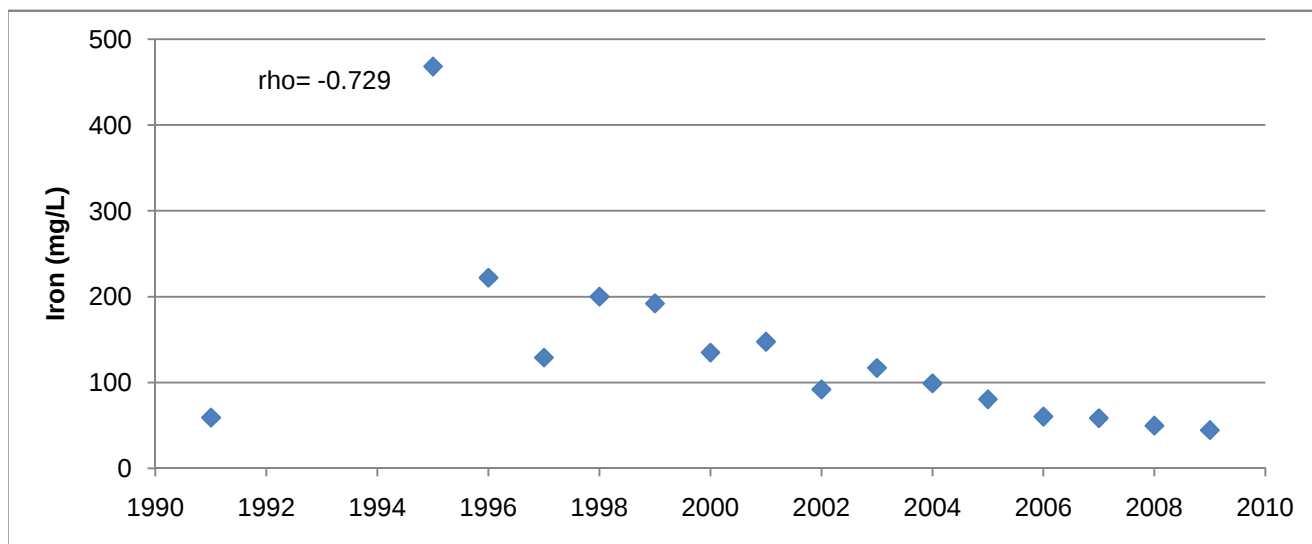
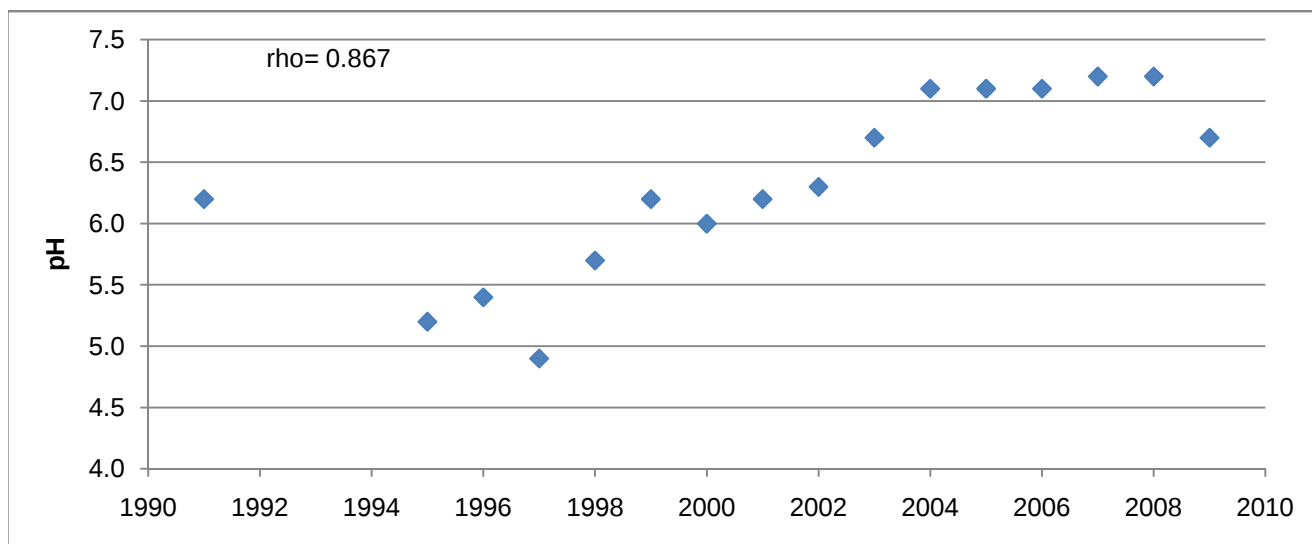
Appendix Figure C.1.2: Significant common (average) trends observed for sulphate and radium-226 over all seasons at station D-22, 2003 to 2009.



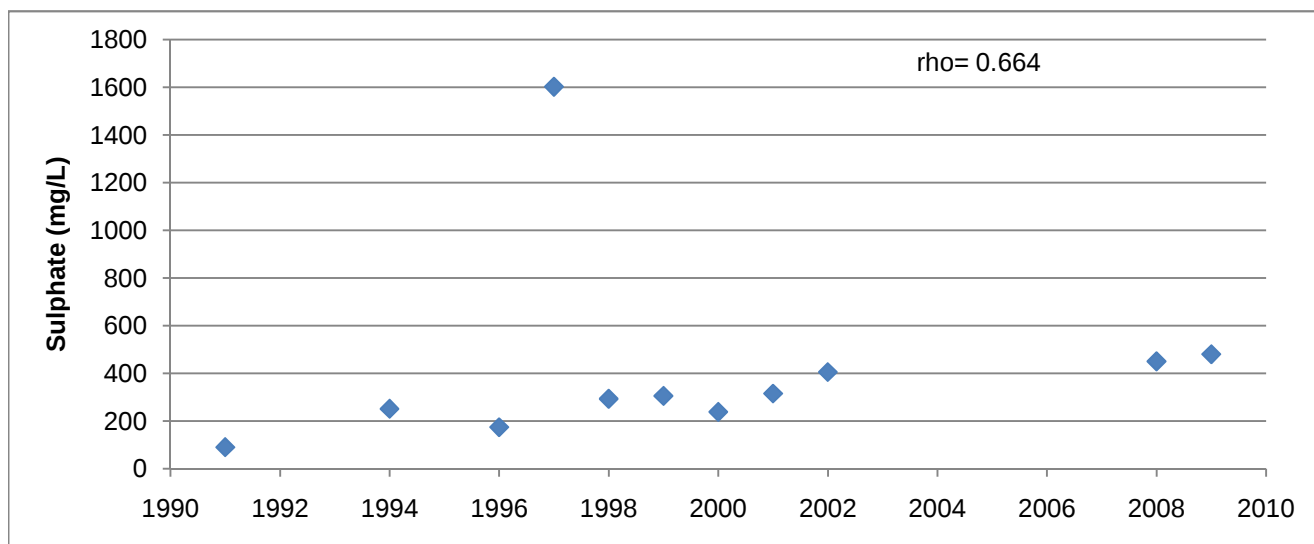
Appendix Figure C.1.3: Significant trends observed for pH at station BH91-DG-4B, 1997 to 2009.



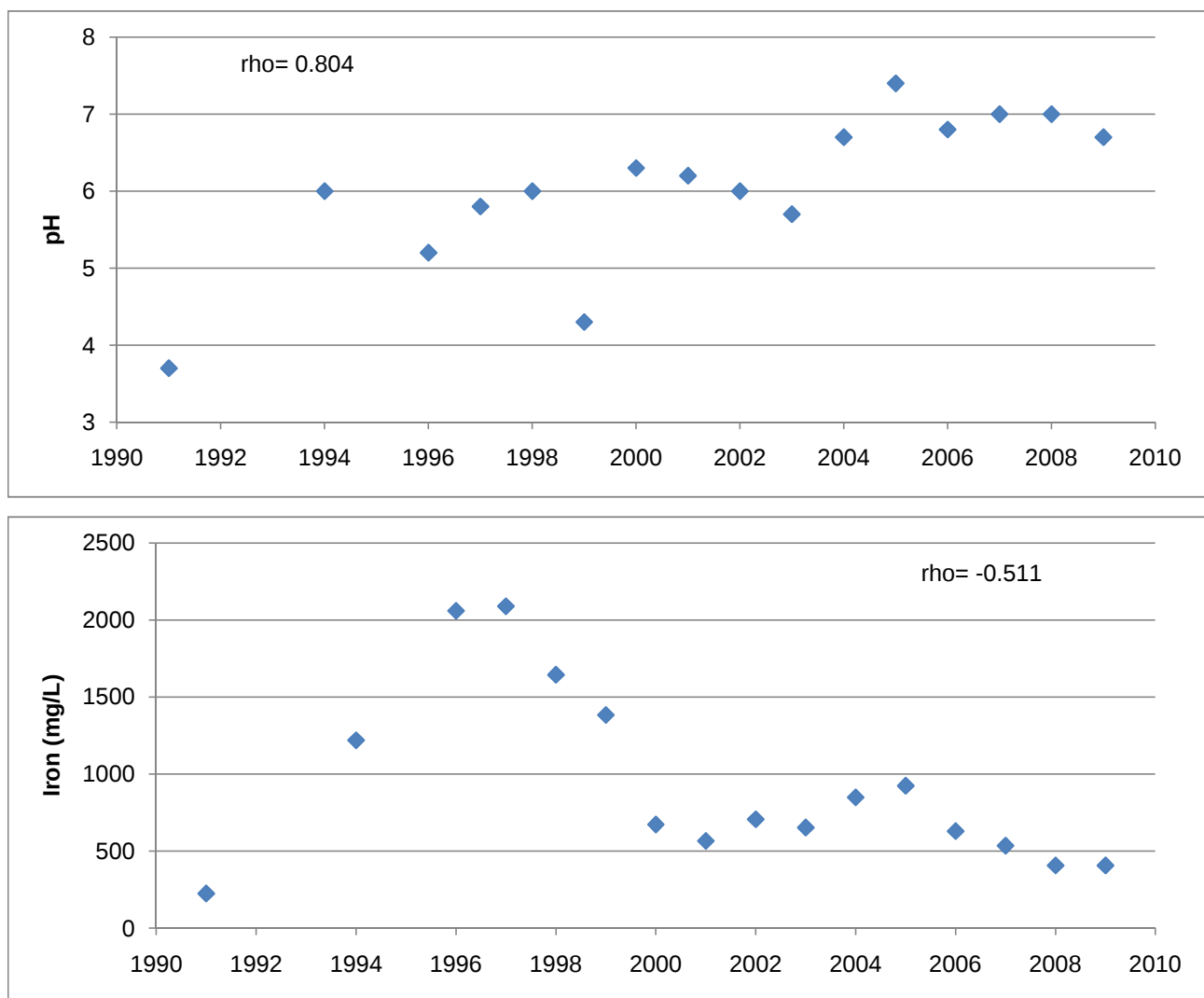
Appendix Figure C.1.4: Significant trends observed for pH and iron at station BH91-D9A, 1991 to 2009.



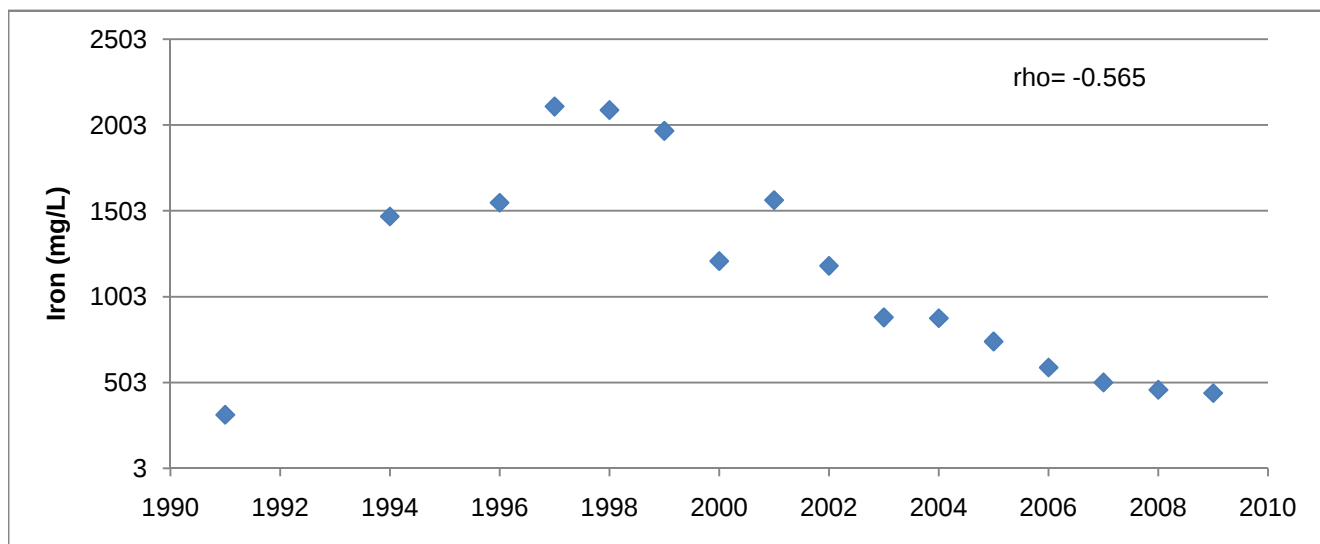
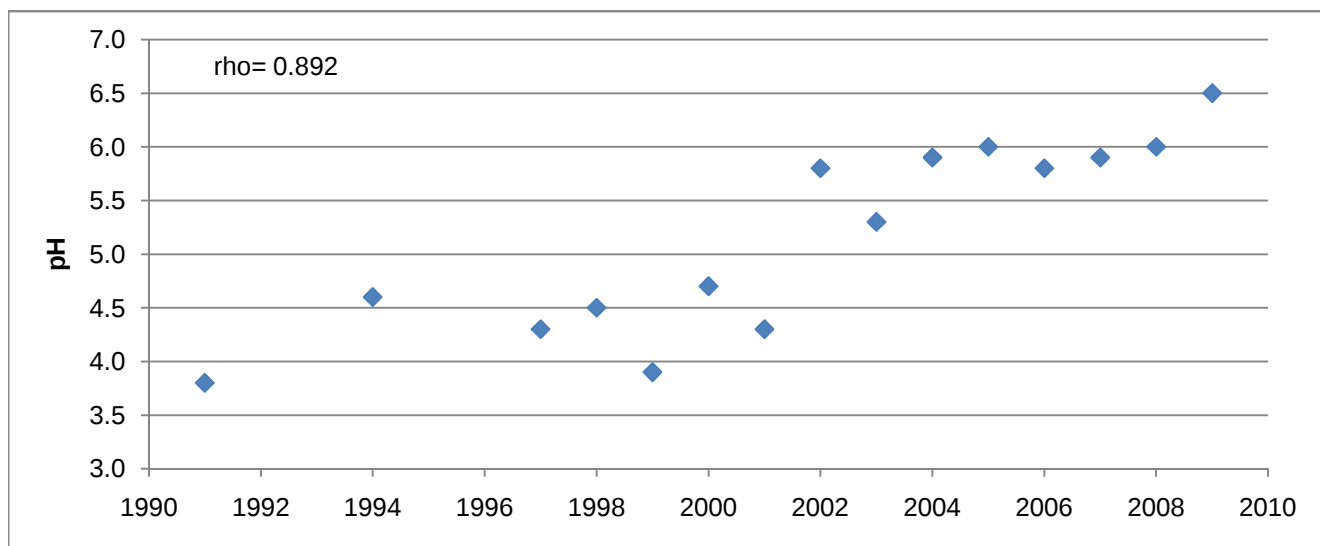
Appendix Figure C.1.5: Significant trends observed for pH and iron at station BH91-D1A, 1991 to 2009.



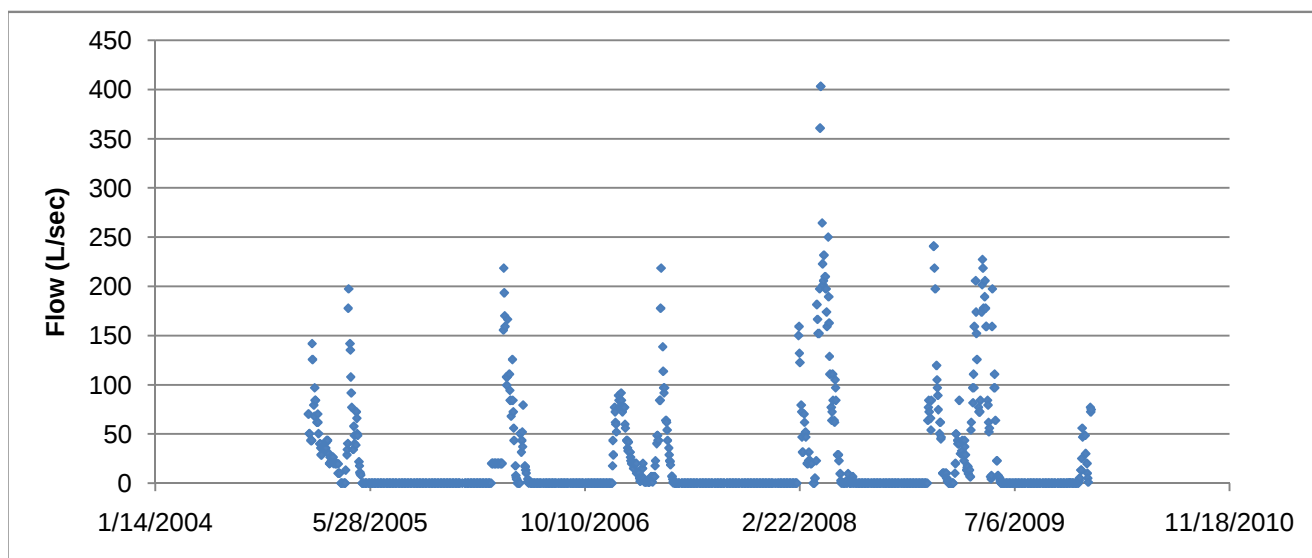
Appendix Figure C.1.6: Significant trends observed for sulphate at station BH91-D1B, 1991 to 2009.



Appendix Figure C.1.7: Significant trends observed for pH and iron at station BH91-D3A, 1991 to 2009.



Appendix Figure C.1.8: Significant trends observed for pH and iron at station BH91-D3B, 1991 to 2009.



Appendix Figure C.1.9: Flow at station D-1 from 2005 to 2009.

APPENDIX C.2

Spanish American TMA

Appendix Table C.2.1: Water quality at station ECA-128 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/11/2005	0.026	0.00025	0.032	0.005	7.2	0.86	112	0.01
4/14/2005	0.007	0.0004	0.072	0.024	7.3	0.24	17.7	0.005
11/28/2005	0.034	0.00025	0.063	0.007	6.9	0.91	103	0.007
1/10/2006	0.032	0.00025	0.03	0.007	7.1	0.8	93	0.0068
4/18/2006	0.027	0.00025	0.15	0.033	7.4	0.95	56	0.00431
10/19/2006	0.031	0.00025	0.06	0.023	7.7	0.92	71	0.006
1/9/2007	0.028	0.0010	0.09	0.032	7.0	0.590	53.0	0.0044
4/10/2007	0.014	0.0006	0.34	0.035	7.2	0.320	21.0	0.0017
11/15/2007	0.032	0.00025	0.09	0.015	7.6	1.030	71.0	0.0065
1/17/2008	0.024	0.0012	0.13	0.045	6.7	0.590	46.0	0.0034
4/30/2008	0.035	0.00025	0.35	0.130	7.4	1.470	54.0	0.0052
7/8/2008	0.031	0.00025	0.05	0.017	8.3	0.820	54.0	0.005
11/19/2008	0.031	0.00025	0.04	0.009	7.5	0.990	64.0	0.0071
1/8/2009	0.032	0.0005	0.08	0.019	7.0	0.790	58.0	0.0058
5/7/2009	0.033	0.0006	0.30	0.109	7.3	1.300	39.0	0.0056
8/6/2009	0.033	0.00025	0.06	0.029	7.4	0.920	45.0	0.0046
10/14/2009	0.043	0.00025	0.05	0.010	7.2	1.000	52.0	0.0048
Number	17	17	17	17	17	17	17	17
Minimum	0.007	0.00025	0.03	0.005	6.7	0.24	17.7	0.0017
Maximum	0.043	0.0012	0.35	0.13	8.3	1.47	112	0.01
Mean	0.029	0.00041	0.12	0.032	7.3	0.853	59.4	0.0055
Median	0.031	0.00025	0.07	0.023	7.3	0.910	54.0	0.0052
10th Perc.	0.02	0.00025	0.04	0.007	7.0	0.482	31.8	0.0039

 Concentration below maximum MDL.

Bold concentrations not used in statistics due to abnormally high MDL.

Appendix Table C.2.2: Summary of seasonal trends for station ECA-128, 2003 - 2009.

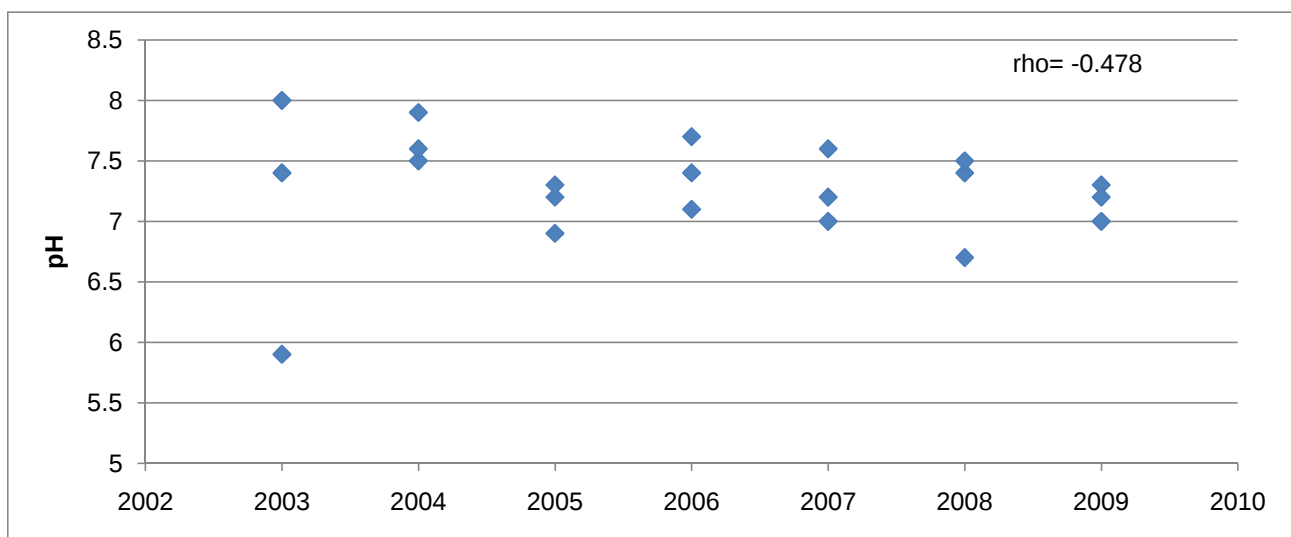
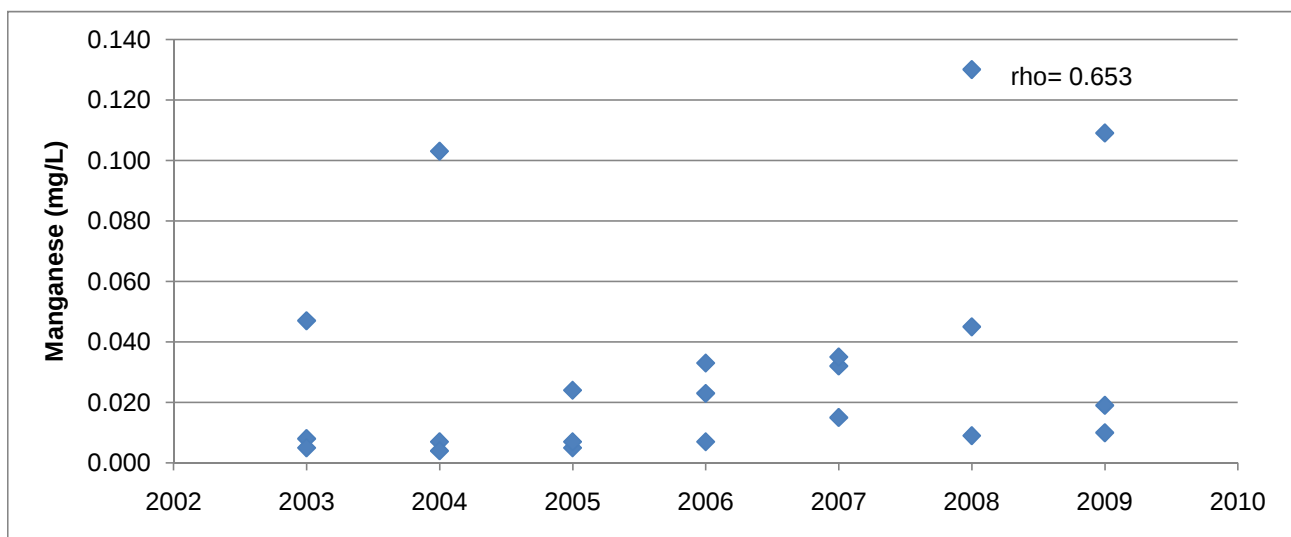
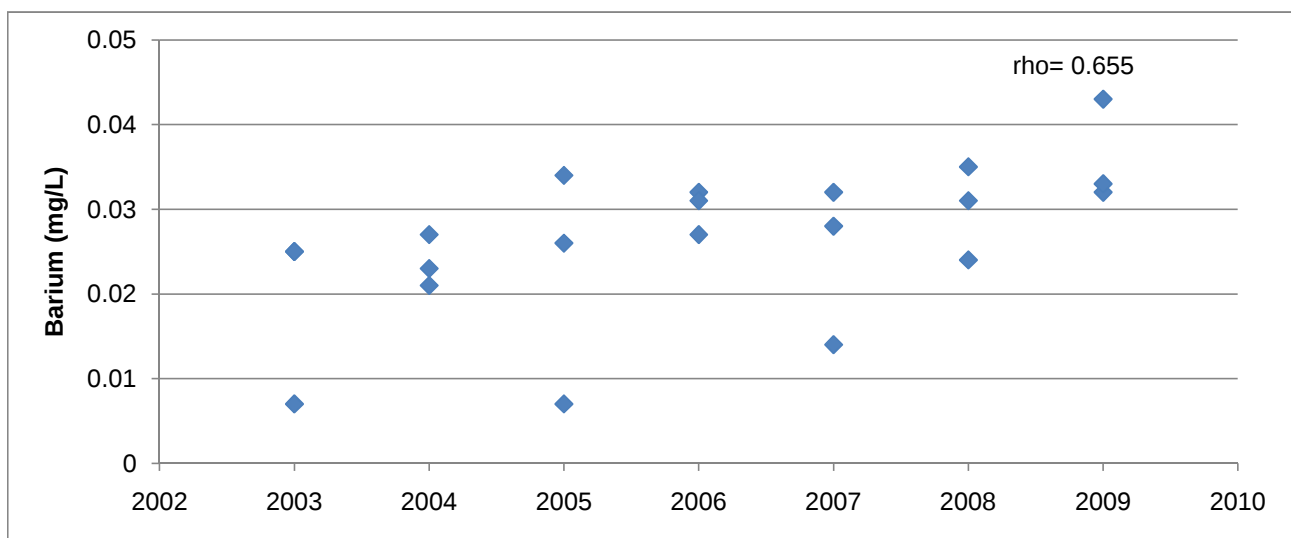
Season	Spearman rho	Ba	Co	Fe	Mn	pH	Ra-226	Sulphate	Uranium
January	Correlation Coefficient	0.487	-	0.541	0.613	-0.9009375	0.05405625	-0.892857143	-0.77480622
	Sig. (2-tailed)	0.268	-	0.210	0.144	0.0056206	0.90836528	0.006807187	0.040769463
	N	7	-	7	7	7	7	7	7
April/May	Correlation Coefficient	0.757	-0.112	0.536	0.703	0.1091089	0.78571429	0.214285714	0.036037499
	Sig. (2-tailed)	0.049	0.811	0.215	0.078	0.8158715	0.03623846	0.644511581	0.938860561
	N	7	7	7	7	7	7	7	7
October/November	Correlation Coefficient	0.721	-	-0.357	0.643	-0.6428571	0.89285714	-0.991031209	0.126131245
	Sig. (2-tailed)	0.068	-	0.432	0.119	0.1193924	0.00680719	1.45613E-05	0.787572159
	N	7	-	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

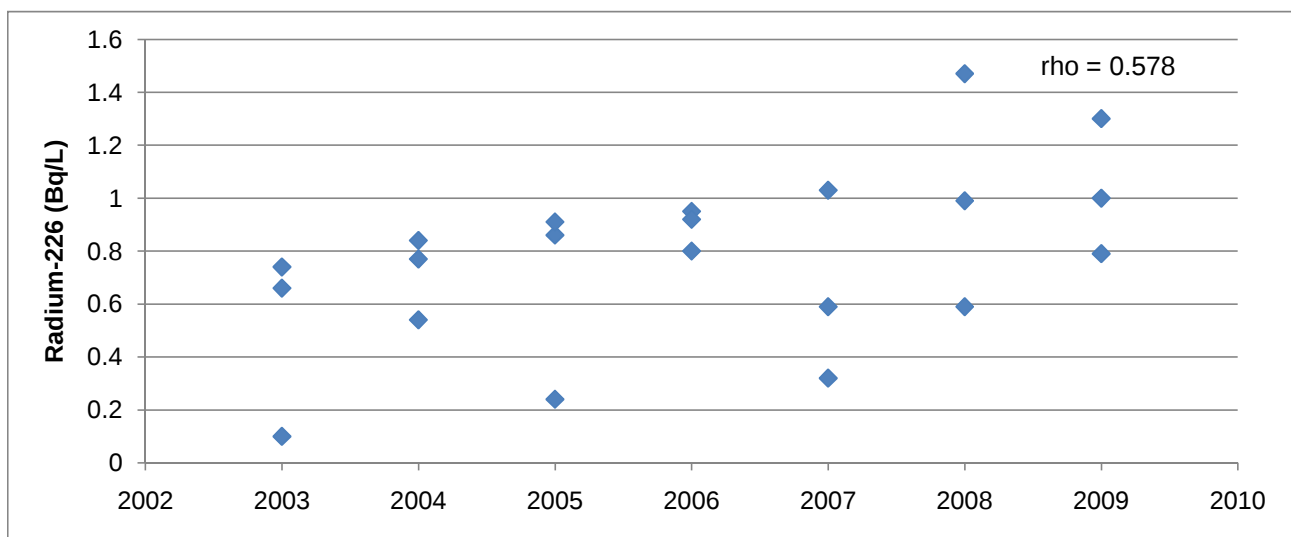
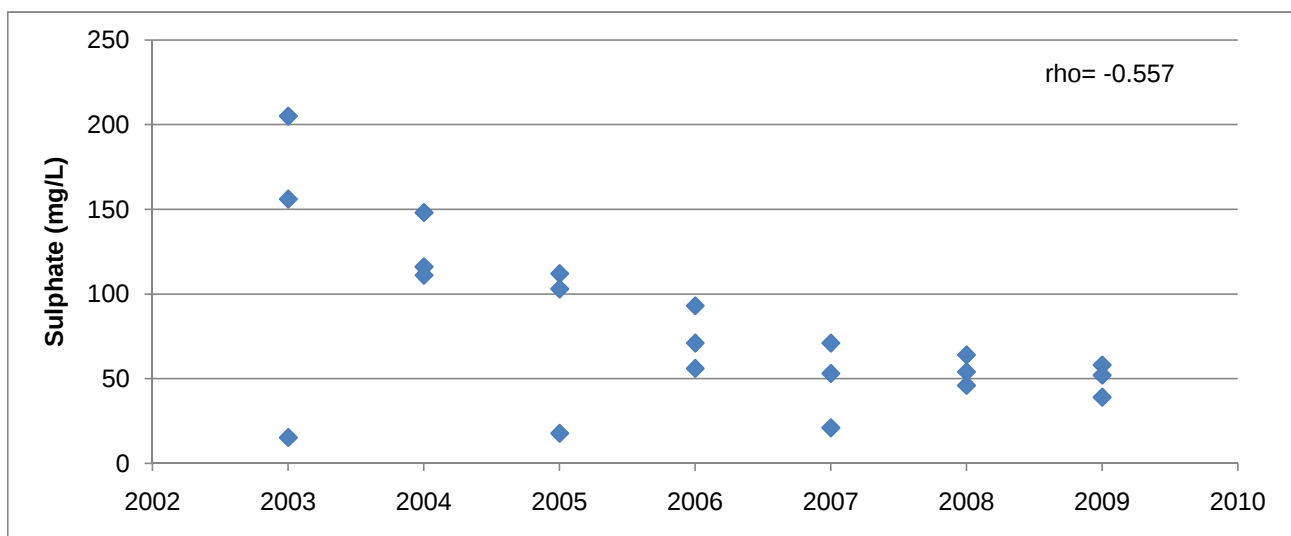
Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

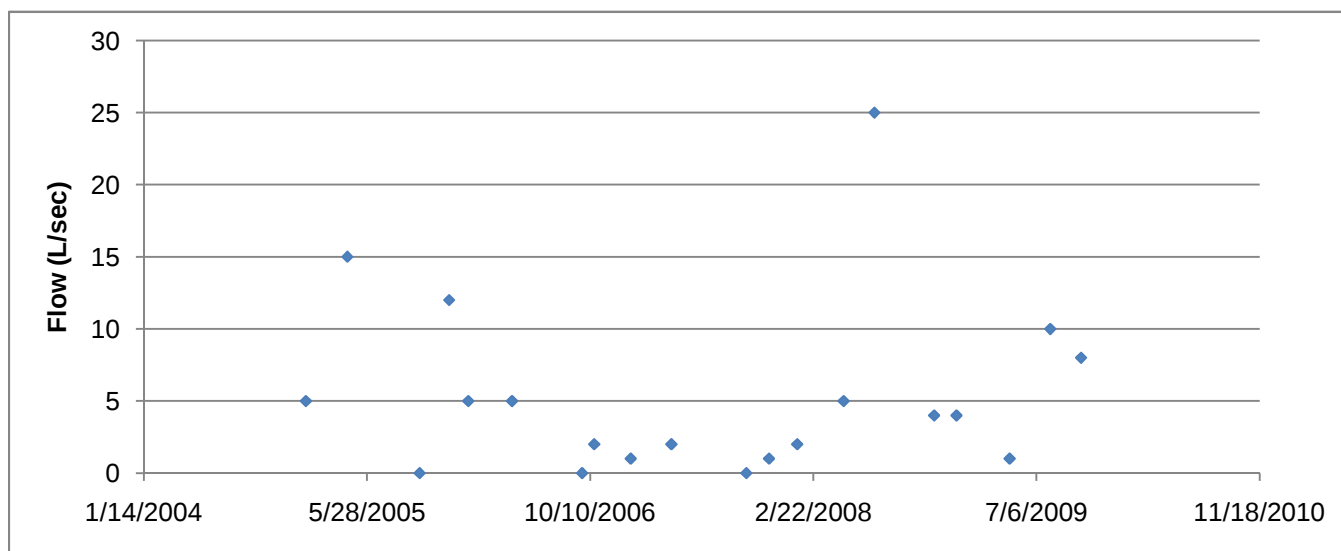
Significant trend where p<0.05.



Appendix Figure C.2.1: Significant common (average) trends observed for barium, manganese, pH, sulphate and radium-226 over all seasons at station ECA-128, 2003 to 2009.



Appendix Figure C.2.1: Significant common (average) trends observed for barium, manganese, pH, sulphate and radium-226 over all seasons at station ECA-128, 2003 to 2009.



Appendix Figure C.2.2: Flow at station ECA-128 from 2005 to 2009.

APPENDIX C.3

Quirke TMA

Appendix Table C.3.1: Quirke final point of control discharge criteria (Q-28).

Parameter ^f	Units	Discharge Criteria			Action Level	Internal Investigation
		Grab Sample ^a	Monthly Mean ^{b,d}	Composite ^e		
pH	pH units	5.5-9.5	6.5-9.5	6.0-9.5	<6.5 or >8.5	<7.0 or >8.0
Total Suspended Solids	mg/L	50	25	37.5	30	7.5
Dissolved Radium-226 ^{c,d,g}	Bq/L	1.11	0.37	0.74	0.37	0.20

^aSamples to be collected during periods of discharge.

^bArithmetic mean of twelve consecutive samples.

^cThe radium-226 criteria are waived if total radium-226 average loading < 30 Bq/s.

^d Discharge criteria are for dissolved radium-226, while measured and reported values are for total radium-226.

^e Consists of 3 equal volumes collected at equal time intervals over a 7 to 24 hour period.

^f Copper, lead, nickel and zinc monitoring discontinued in January 2010 as per regulatory approval of Cycle 3 design.

^g Radium-226 criterion are waived if total radium-226 average annual loading is < 30 Bq/s.

Appendix Table C.3.2: Water quality at station Q-03 from 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
1/3/2005	7.8	5/18/2005	7.8	10/5/2005	8.9	9/11/2006	8.6	7/14/2008	8.5
1/4/2005	7.8	5/19/2005	8	10/6/2005	8.9	9/18/2006	8.6	7/21/2008	8.6
1/5/2005	8	5/20/2005	7.9	10/7/2005	8.8	9/25/2006	8.3	7/28/2008	8.6
1/6/2005	7.6	5/24/2005	8.3	10/11/2005	8.7	10/2/2006	8.5	8/5/2008	8.7
1/7/2005	7.8	5/25/2005	8.3	10/12/2005	8.8	10/10/2006	8.6	8/11/2008	8.3
1/10/2005	7.8	5/26/2005	8.4	10/13/2005	8.7	10/16/2006	8.1	8/18/2008	8.5
1/11/2005	8	5/27/2005	8.2	10/14/2005	8.9	10/23/2006	8.5	8/25/2008	8.5
1/12/2005	8	5/30/2005	8.4	10/17/2005	8.4	10/30/2006	8.6	9/2/2008	8.4
1/13/2005	7.9	5/31/2005	8	10/18/2005	8.4	11/6/2006	8.5	9/8/2008	8.5
1/14/2005	7.9	6/1/2005	7.6	10/19/2005	8.5	11/13/2006	8.5	9/15/2008	8.6
1/17/2005	8.3	6/2/2005	7.6	10/20/2005	8.5	11/20/2006	8.7	9/22/2008	8.5
1/18/2005	8.3	6/3/2005	8.4	10/21/2005	8.6	11/27/2006	8.7	9/29/2008	8.8
1/19/2005	8.3	6/6/2005	8.6	10/24/2005	8.3	12/4/2006	8.5	10/6/2008	8.8
1/20/2005	8.6	6/7/2005	8.6	10/25/2005	8.3	12/11/2006	8.7	10/14/2008	8.6
1/21/2005	8.6	6/8/2005	8.5	10/26/2005	8.4	12/18/2006	7.1	10/20/2008	8.8
1/24/2005	8.2	6/9/2005	8.6	10/27/2005	8.2	12/27/2006	8.5	10/27/2008	8.3
1/25/2005	8.3	6/10/2005	8.6	10/28/2005	8.1	1/2/2007	8.2	11/3/2008	8.4
1/26/2005	8.3	6/13/2005	8.7	10/31/2005	8.5	1/8/2007	8.7	11/10/2008	8.7
1/27/2005	8.3	6/14/2005	8.7	11/1/2005	8.5	1/15/2007	8.6	11/17/2008	8.7
1/28/2005	8.2	6/15/2005	8.7	11/2/2005	8.5	1/22/2007	8.6	11/24/2008	8.9
1/31/2005	8.3	6/16/2005	8.7	11/3/2005	8.5	1/29/2007	8.4	12/1/2008	8.8
2/1/2005	8.3	6/17/2005	8.7	11/4/2005	8.6	2/5/2007	8.7	12/8/2008	8.5
2/2/2005	8.3	6/20/2005	8.7	11/7/2005	8.6	2/12/2007	8.8	12/15/2008	8.6
2/3/2005	8.3	6/21/2005	8.7	11/8/2005	8.6	2/19/2007	8.6	12/22/2008	8.8
2/4/2005	8.2	6/22/2005	8.5	11/9/2005	8.4	2/26/2007	8.4	12/29/2008	6.6
2/7/2005	8.5	6/23/2005	8.5	11/10/2005	8.3	3/5/2007	8.6	1/5/2009	8.5
2/8/2005	8.5	6/24/2005	8.5	11/11/2005	8.5	3/12/2007	8.6	1/12/2009	8.5
2/9/2005	8.5	6/27/2005	8.5	11/14/2005	8	3/19/2007	8.4	1/19/2009	8.6
2/10/2005	8.5	6/28/2005	8.6	11/15/2005	8.2	3/26/2007	8.7	1/26/2009	8.6
2/11/2005	8.5	6/29/2005	8.6	11/16/2005	8.2	4/2/2007	8.7	2/2/2009	8.6
2/14/2005	8.2	6/30/2005	8.6	11/17/2005	8.2	4/9/2007	8.7	2/9/2009	8.7
2/15/2005	8.3	7/4/2005	8.6	11/18/2005	8.2	4/16/2007	8.5	2/17/2009	8.7
2/16/2005	8.3	7/5/2005	8.6	11/21/2005	8.8	4/23/2007	8.3	2/23/2009	8.7
2/17/2005	8.3	7/6/2005	8.6	11/22/2005	8.8	4/30/2007	8.3	3/2/2009	8.7
2/18/2005	8.6	7/7/2005	8.6	11/23/2005	8.4	5/7/2007	8.4	3/9/2009	8.7
2/21/2005	8.7	7/8/2005	8.6	11/24/2005	8.6	5/14/2007	8.3	3/16/2009	8.7
2/22/2005	8.7	7/11/2005	8.7	11/25/2005	8.7	5/22/2007	8.6	3/23/2009	8.6
2/23/2005	8.7	7/12/2005	8.6	11/28/2005	8.5	5/28/2007	8.4	3/31/2009	8.5
2/24/2005	8.7	7/13/2005	8.5	11/29/2005	8.5	6/4/2007	8.5	4/6/2009	8.4
2/25/2005	8.7	7/14/2005	8.5	11/30/2005	8.5	6/11/2007	8.5	4/13/2009	8.5
2/28/2005	8.7	7/15/2005	8.4	12/1/2005	8.1	6/18/2007	8.6	4/20/2009	8.5
3/1/2005	8.7	7/18/2005	8.4	12/2/2005	8.1	6/25/2007	8.6	4/27/2009	8.2
3/2/2005	8.7	7/19/2005	8.4	12/5/2005	8	7/3/2007	8.6	5/4/2009	8.1
3/3/2005	8.6	7/20/2005	8.4	12/6/2005	8	7/9/2007	8.6	5/11/2009	8.5
3/4/2005	8.4	7/21/2005	8.4	12/7/2005	8.2	7/16/2007	8.6	5/19/2009	8.4
3/7/2005	8.3	7/22/2005	8.4	12/8/2005	8.1	7/23/2007	8.7	5/25/2009	8.5
3/8/2005	8.3	7/25/2005	8.4	12/9/2005	8.2	7/30/2007	8.7	6/1/2009	8.7
3/9/2005	8.7	7/26/2005	8.4	12/12/2005	8.4	8/7/2007	8.6	6/8/2009	8.6
3/10/2005	8.6	7/27/2005	8.5	12/13/2005	8.5	8/13/2007	8.8	6/15/2009	8.6
3/11/2005	8.6	7/28/2005	8.3	12/14/2005	8.4	8/20/2007	8.7	6/22/2009	8.5
3/14/2005	8.5	7/29/2005	8.3	12/15/2005	8.5	8/27/2007	8.7	6/29/2009	8.6
3/15/2005	8.5	8/2/2005	8.4	12/16/2005	8.5	9/4/2007	8.7	7/6/2009	8.6
3/16/2005	8.5	8/3/2005	8.4	12/19/2005	8.8	9/10/2007	8.7	7/13/2009	8.6
3/17/2005	8.6	8/4/2005	8.4	12/20/2005	8.8	9/17/2007	8.7	7/20/2009	8.6
3/18/2005	8.6	8/5/2005	8.4	12/21/2005	8.7	9/24/2007	8.7	7/27/2009	8.6
3/21/2005	8.7	8/8/2005	8.1	12/22/2005	8.8	10/1/2007	8.8	8/4/2009	8.5

Appendix Table C.3.2: Water quality at station Q-03 from 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
3/22/2005	8.7	8/9/2005	8.1	12/23/2005	8.5	10/9/2007	8.8	8/10/2009	8.6
3/23/2005	8.7	8/10/2005	8.2	12/28/2005	8.7	10/15/2007	8.8	8/17/2009	8.5
3/24/2005	8.7	8/11/2005	8.2	12/29/2005	8.7	10/22/2007	8.8	8/24/2009	8.5
3/28/2005	8.2	8/12/2005	8.2	12/30/2005	8.6	10/29/2007	8.6	8/31/2009	8.8
3/29/2005	8.2	8/15/2005	8	1/3/2006	8.7	11/5/2007	8.3	9/8/2009	8.5
3/30/2005	8.3	8/16/2005	8	1/9/2006	8.5	11/12/2007	8.5	9/15/2009	8.3
3/31/2005	8	8/17/2005	8.1	1/16/2006	8.7	11/19/2007	8.7	9/21/2009	9.0
4/1/2005	7.9	8/18/2005	8.2	1/23/2006	8.4	11/26/2007	8.5	9/29/2009	8.9
4/4/2005	7.9	8/19/2005	8.5	1/30/2006	8.5	12/3/2007	8.5	10/5/2009	8.8
4/5/2005	8.6	8/22/2005	8.7	2/6/2006	8.7	12/10/2007	8.5	10/13/2009	8.9
4/6/2005	8.7	8/23/2005	8.7	2/13/2006	8.5	12/17/2007	8.6	10/19/2009	8.9
4/7/2005	8.4	8/24/2005	8.7	2/20/2006	8.4	12/24/2007	8.5	10/26/2009	8.6
4/8/2005	8.5	8/25/2005	8.8	2/27/2006	8.5	1/2/2008	8.6	11/2/2009	8.4
4/11/2005	8.3	8/26/2005	8.9	3/6/2006	8.5	1/7/2008	8.4	11/9/2009	8.4
4/12/2005	8.5	8/29/2005	8.5	3/13/2006	8.2	1/14/2008	8.0	11/16/2009	8.2
4/13/2005	8.7	8/30/2005	8.5	3/20/2006	8.2	1/21/2008	8.6	11/23/2009	8.5
4/14/2005	8.8	8/31/2005	8.6	3/27/2006	8.4	1/29/2008	8.1	11/30/2009	8.6
4/15/2005	8.8	9/1/2005	8.8	4/3/2006	7.8	2/4/2008	7.8	12/7/2009	8.0
4/18/2005	8.5	9/2/2005	8.8	4/10/2006	8.5	2/11/2008	8.5	12/14/2009	8.7
4/19/2005	8.1	9/6/2005	8.8	4/17/2006	8.1	2/19/2008	8.6	12/21/2009	8.5
4/20/2005	7.7	9/7/2005	8.8	4/24/2006	7.9	2/25/2008	8.3	12/29/2009	8.7
4/21/2005	7.7	9/8/2005	8.8	5/1/2006	7.8	3/3/2008	8.5	Number	461
4/22/2005	7.7	9/9/2005	8.8	5/8/2006	8	3/10/2008	8.6	Minimum	6.6
4/25/2005	8	9/12/2005	8.9	5/15/2006	8	3/17/2008	8.5	Maximum	9.0
4/26/2005	8	9/13/2005	8.8	5/23/2006	8.2	3/24/2008	8.5	Mean	8.5
4/27/2005	8.2	9/14/2005	8.8	5/29/2006	8.5	3/31/2008	8.0	Median	8.5
4/28/2005	8	9/15/2005	8.8	6/5/2006	8.6	4/7/2008	7.8	10th Perc.	8
4/29/2005	8.3	9/16/2005	8.9	6/12/2006	8.6	4/14/2008	8.5		
5/2/2005	8	9/19/2005	8.9	6/19/2006	8.6	4/21/2008	8.1		
5/3/2005	8	9/20/2005	8.9	6/26/2006	8.5	4/28/2008	8.3		
5/4/2005	8.4	9/21/2005	8.9	7/4/2006	8.3	5/5/2008	8.7		
5/5/2005	8	9/22/2005	8.9	7/10/2006	8.3	5/12/2008	8.5		
5/6/2005	8	9/23/2005	8.9	7/17/2006	8.3	5/20/2008	8.6		
5/9/2005	8.3	9/26/2005	8.8	7/24/2006	8.5	5/26/2008	8.6		
5/10/2005	8.5	9/27/2005	8.8	7/31/2006	8.4	6/2/2008	8.3		
5/11/2005	8.4	9/28/2005	8.8	8/8/2006	8.2	6/9/2008	8.7		
5/12/2005	8.2	9/29/2005	8.8	8/14/2006	8.2	6/16/2008	8.6		
5/13/2005	8.3	9/30/2005	8.7	8/21/2006	8.3	6/23/2008	8.5		
5/16/2005	7.8	10/3/2005	8.9	8/28/2006	8.6	7/2/2008	8.5		
5/17/2005	8	10/4/2005	8.9	9/5/2006	8.6	7/7/2008	8.5		

Appendix Table C.3.3: Water quality at station Q-04P from 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH				
1/4/2005	9.4	5/19/2005	9.8	10/6/2005	10	2/23/2006	9.2	7/12/2006	9.6	11/28/2006	10	4/17/2007	9.5	9/4/2007	10.4	1/22/2008	9.4	6/9/2008	10.0	10/27/2008	10.3	3/16/2009	9.3	7/31/2009	10.4	12/17/2009	9.2
1/5/2005	9.2	5/20/2005	9.8	10/7/2005	9.9	2/24/2006	9.2	7/13/2006	9.4	11/29/2006	9.3	4/18/2007	9.5	9/5/2007	10.4	1/23/2008	9.4	6/10/2008	9.9	10/28/2008	10.3	3/17/2009	9.1	8/4/2009	10.3	12/18/2009	9.2
1/6/2005	9.2	5/24/2005	9.8	10/11/2005	10	2/27/2006	9.2	7/14/2006	9.2	11/30/2006	9.6	4/19/2007	8.3	9/6/2007	10.5	1/24/2008	9.4	6/11/2008	9.9	10/29/2008	10.2	3/18/2009	9.1	8/5/2009	10.3	12/21/2009	9.2
1/7/2005	9.3	5/25/2005	9.7	10/12/2005	9.9	2/28/2006	9.1	7/17/2006	9.4	12/1/2006	9.6	4/20/2007	9.6	9/7/2007	10.4	1/25/2008	9.3	6/12/2008	9.9	10/30/2008	10.2	3/19/2009	9.1	8/6/2009	10.2	12/22/2009	9.1
1/10/2005	9.3	5/26/2005	9.7	10/13/2005	10	3/1/2006	9.1	7/18/2006	9.4	12/4/2006	9.7	4/23/2007	9.6	9/10/2007	10.6	1/28/2008	9.3	6/13/2008	9.9	10/31/2008	10.2	3/20/2009	9.3	8/7/2009	10.3	12/23/2009	9.3
1/11/2005	9.3	5/27/2005	9.9	10/14/2005	10	3/2/2006	9.1	7/19/2006	9.4	12/5/2006	9.6	4/24/2007	9.7	9/11/2007	10.6	1/29/2008	9.3	6/16/2008	9.9	11/3/2008	10.2	3/23/2009	9.3	8/10/2009	10.2	12/24/2009	9.5
1/12/2005	9.3	5/30/2005	9.8	10/17/2005	10	3/3/2006	9.2	7/20/2006	9.4	12/6/2006	9.6	4/25/2007	9.6	9/12/2007	10.6	1/30/2008	9.2	6/17/2008	9.7	11/4/2008	10.4	3/24/2009	9.2	8/11/2009	10.2	12/29/2009	9.4
1/13/2005	9.3	5/31/2005	9.7	10/18/2005	10.1	3/6/2006	9.1	7/21/2006	9.4	12/7/2006	9.6	4/26/2007	9.9	9/13/2007	10.4	1/31/2008	9.3	6/18/2008	9.7	11/5/2008	10.4	3/25/2009	9.2	8/12/2009	10.0	12/30/2009	9.3
1/14/2005	9.3	6/1/2005	9.9	10/19/2005	10	3/7/2006	9.2	7/24/2006	9.5	12/8/2006	9.6	4/27/2007	9.9	9/14/2007	10.6	2/1/2008	9.1	6/19/2008	9.7	11/6/2008	10.3	3/26/2009	9.1	8/13/2009	9.9	12/31/2009	9.3
1/17/2005	9.3	6/2/2005	9.7	10/20/2005	10.2	3/8/2006	9.2	7/25/2006	9.4	12/11/2006	9.6	4/30/2007	9.7	9/17/2007	10.5	2/4/2008	9.1	6/20/2008	9.7	11/7/2008	10.3	3/27/2009	9.1	8/14/2009	9.7		
1/18/2005	9.3	6/3/2005	9.9	10/21/2005	10	3/9/2006	9.2	7/26/2006	9.3	12/12/2006	9.4	5/1/2007	9.7	9/18/2007	10.6	2/5/2008	9.1	6/23/2008	9.8	11/10/2008	10.3	3/30/2009	9.2	8/17/2009	9.8		
1/19/2005	9.3	6/6/2005	9.8	10/24/2005	9.8	3/10/2006	9.2	7/27/2006	9.4	12/13/2006	9.2	5/2/2007	9.8	9/19/2007	10.6	2/6/2008	9.1	6/24/2008	9.8	11/11/2008	10.3	3/31/2009	9.2	8/18/2009	9.9		
1/20/2005	9.3	6/7/2005	9.8	10/25/2005	10	3/13/2006	9.2	7/28/2006	10.5	12/14/2006	8.8	5/3/2007	9.8	9/20/2007	10.6	2/7/2008	9.2	6/25/2008	9.8	11/12/2008	10.1	4/1/2009	9.4	8/19/2009	9.8		
1/21/2005	9.3	6/8/2005	9.8	10/26/2005	10	3/14/2006	9.2	7/31/2006	10.4	12/15/2006	8.9	5/4/2007	9.8	9/21/2007	10.6	2/8/2008	9.2	6/26/2008	9.8	11/13/2008	10.1	4/2/2009	9.3	8/20/2009	9.8		
1/24/2005	9.2	6/9/2005	9.9	10/27/2005	9.9	3/15/2006	9.2	8/1/2006	10.4	12/18/2006	8.9	5/7/2007	9.7	9/24/2007	10.6	2/11/2008	9.3	6/27/2008	9.8	11/14/2008	10.1	4/3/2009	9.1	8/21/2009	9.9		
1/25/2005	9.2	6/10/2005	9.9	10/28/2005	9.8	3/16/2006	9.2	8/2/2006	9.3	12/19/2006	8.9	5/8/2007	10.6	9/25/2007	10.6	2/12/2008	9.2	7/1/2008	9.8	11/17/2008	10.1	4/6/2009	9.3	8/24/2009	9.9		
1/26/2005	9.2	6/13/2005	9.9	10/31/2005	10	3/17/2006	9.2	8/3/2006	9.2	12/20/2006	9	5/9/2007	10.5	9/26/2007	10.6	2/13/2008	9.2	7/2/2008	9.8	11/18/2008	10.1	4/7/2009	9.2	8/25/2009	9.8		
1/27/2005	9.2	6/14/2005	9.8	11/1/2005	10.1	3/20/2006	9.2	8/4/2006	9.2	12/21/2006	9	5/10/2007	10.5	9/27/2007	10.7	2/14/2008	9.2	7/3/2008	9.8	11/19/2008	10.1	4/8/2009	9.3	8/26/2009	9.9		
1/28/2005	9.2	6/15/2005	9.8	11/2/2005	10.1	3/21/2006	9.3	8/8/2006	9.3	12/22/2006	9	5/11/2007	10.5	9/28/2007	10.7	2/15/2008	9.1	7/4/2008	9.8	11/20/2008	10.1	4/9/2009	9.3	8/27/2009	9.9		
1/31/2005	9.2	6/16/2005	9.8	11/3/2005	10.1	3/22/2006	9.3	8/9/2006	9.1	12/27/2006	9	5/14/2007	10.4	10/1/2007	10.7	2/19/2008	9.1	7/7/2008	9.7	11/21/2008	9.9	4/13/2009	9.3	8/28/2009	9.9		
2/1/2005	9.3	6/17/2005	9.8	11/4/2005	10.1	3/23/2006	9.3	8/10/2006	9.1	12/28/2006	8.9	5/15/2007	10.3	10/2/2007	10.7	2/20/2008	9.2	7/8/2008	9.8	11/24/2008	9.8	4/14/2009	9.4	8/31/2009	10.0		
2/2/2005	9.3	6/20/2005	9.8	11/7/2005	10	3/24/2006	9.1	8/11/2006	9.1	12/29/2006	8.9	5/16/2007	10.2	10/3/2007	10.7	2/21/2008	9.2	7/9/2008	9.8	11/25/2008	9.6	4/15/2009	9.3	9/1/2009	10.0		
2/3/2005	9.3	6/21/2005	9.8	11/8/2005	10	3/27/2006	9.1	8/14/2006	9.1	1/2/2007	9.0	5/17/2007	10.5	10/4/2007	10.7	2/22/2008	9.2	7/10/2008	9.8	11/26/2008	9.5	4/16/2009	9.3	9/2/2009	9.9		
2/4/2005	9.2	6/22/2005	9.8	11/9/2005	10	3/28/2006	9.1	8/15/2006	9.1	1/3/2007	8.9	5/18/2007	10.5	10/5/2007	10.7	2/25/2008	9.1	7/11/2008	9.8	11/27/2008	9.6	4/17/2009	9.3	9/3/2009	9.7		
2/7/2005	9.2	6/23/2005	9.8	11/10/2005	10	3/29/2006	9.1	8/16/2006	9	1/4/2007	9.6	5/22/2007	10.5	10/9/2007	10.6	2/26/2008	9.2	7/14/2008	9.8	11/28/2008	9.5	4/20/2009	9.4	9/4/2009	9.7		
2/8/2005	9.3	6/24/2005	9.8	11/11/2005	10.1	3/30/2006	9	8/17/2006	9.2	1/5/2007	9.7	5/23/2007	10.5	10/10/2007	10.5	2/27/2008	9.2	7/15/2008	9.8	12/1/2008	9.3	4/21/2009	9.4	9/8/2009	9.7		
2/9/2005	9.3	6/27/2005	9.8	11/14/2005	10	3/31/2006	9.3	8/18/2006	9.1	1/8/2007	9.7	5/24/2007	10.3	10/11/2007	10.6	2/28/2008	9.1	7/16/2008	9.8	12/2/2008	9.2	4/22/2009	9.3	9/9/2009	9.6		
2/10/2005	9.3	6/28/2005	9.8	11/15/2005	10	4/3/2006	9.2	8/21/2006	9.1	1/9/2007	9.3	5/25/2007	10.3	10/12/2007	10.6	2/29/2008	9.0	7/17/2008	9.8	12/3/2008	9.4	4/23/2009	9.3	9/10/2009	9.8		
2/11/2005	9.3	6/29/2005	9.8	11/16/2005	10	4/4/2006	9.2	8/22/2006	9.1	1/10/2007	9.4	5/28/2007	10.3	10/15/2007	10.7	3/3/2008	9.1	7/18/2008	9.8	12/4/2008	9.3	4/24/2009	8.2	9/11/2009	9.8		
2/14/2005	9.3	6/30/2005	9.8	11/17/2005	10	4/5/2006	9.2	8/23/2006	9.1	1/11/2007	9.3	5/29/2007	10.4	10/16/2007	10.7	3/4/2008	9.2	7/21/2008	9.8	12/5/2008	9.2	4/27/2009	9.3	9/14/2009	9.8		
2/15/2005	9.3	7/4/2005	9.8	11/18/2005	10	4/6/2006	9.2	8/24/2006	9.1	1/12/2007	9.3	5/30/2007	10.4	10/17/2007	10.7	3/5/2008	9.2	7/22/2008	9.8	12/8/2008	9.4	4/28/2009	9.3	9/15/2009	9.8		
2/16/2005	9.2	7/5/2005	9.7	11/21/2005	10	4/7/2006	9.2	8/25/2006	10.3	1/15/2007	9.3	5/31/2007	10.2	10/18/2007	10.7	3/6/2008	9.2	7/23/2008	9.8	12/9/2008	9.4	4/29/2009	9.3	9/16/2009	9.8		
2/17/2005	9.7	7/6/2005	9.7	11/22/2005	9.7	4/10/2006	9.2	8/28/2006	10.2	1/16/2007	9.3	6/1/2007	10.2	10/19/2007	10.6	3/7/2008	9.1	7/24/2008	9.8	12/10/2008	9.3	4/30/2009	9.4	9/17/2009	9.8		
2/18/2005	9.7	7/7/2005	9.7	11/23/2005	9.7	4/11/2006	9.2	8/29/2006	10.5	1/17/2007	9.3	6/4/2007	10.2	10/22/2007	10.7	3/10/2008	9.1	7/25/2008	9.8	12/11/2008	9.4	5/1/2009	9.5	9/18/2009	10.1		
2/21/2005	9.6	7/8/2005	9.8	11/24/2005	9.5	4/12/2006	9.4	8/30/2006	10.6	1/18/2007	9.3	6/5/2007	10.3	10/23/2007	10.3	3/11/2008	9.1	7/28/2008	9.8	12/12/2008	9.4	5/4/2009	9.2	9/21/2009	10.1		
2/22/2005	9.4	7/11/2005	9.8	11/25/2005	9.3	4/13/2006	9.3	8/31/2006	10.6	1/19/2007	9.3	6/6/2007	10.5	10/24/2007	9.7	3/12/2008	9.2	7/29/2008	9.8	12/15/2008	9.4	5/5/2009	9.5	9/22/2009	10.1		
2/23/2005	9.4	7/12/2005	10	11/28/2005	9.3	4/17/2006	9.4	9/1/2006	10.6	1/22/2007	9.4	6/7/2007	10.4	10/25/2007	9.5	3/13/2008	9.1	7/30/2008	9.8	12/16/2008	9.4	5/6/2009	9.4	9/23/2009	9.9		
2/24/2005	9.4	7/13/2005	10.2	11/29/2005	9.3	4/18/2006	9.4	9/5/2006	10.1	1/23/2007	9.3	6/8/2007	10.4	10/26/2007	9.4	3/14/2008	9.1	7/31/2008	9.8	12/17/2008	9.1	5/7/2009	9.4	9/24/2009	10.1		
2/25/2005	9.4	7/14/2005	10.2	11/30/2005	9.3	4/19/2006	9.4	9/6/2006	10.2	1/24/2007	9.3	6/11/2007	10.4	10/29/2007	9.4	3/17/2008	9.2	8/1/2008	9.8	12/18/2008	9.2	5/8/2009	9.4	9/25/2009	10.0		
2/28/2005	9.4	7/15/2005	10.2	12/1/2005	9.3	4/20/2006	9.5	9/7/2006	10.1	1/25/2007	9.3	6/12/2007	10.4	10/30/2007	9.4	3/18/2008	9.0	8/5/2008	9.8	12/19/2008	9.3	5/11/2009	9.5	9/28/2009	10.1		

Appendix Table C.3.3: Water quality at station Q-04P from 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
3/31/2005	9.3	8/17/2005	10.8	1/5/2006	9.4	5/23/2006	9.7	10/10/2006	10.6	2/26/2007	9.3	7/13/2007	10.5	11/29/2007	9.2	4/18/2008	9.4	9/5/2008	9.6	1/23/2009	9.0	6/11/2009	9.7	10/29/2009	10.0
4/1/2005	9.5	8/18/2005	10.8	1/6/2006	9.3	5/24/2006	9.7	10/11/2006	10.7	2/27/2007	9.3	7/16/2007	10.5	11/30/2007	9.3	4/21/2008	9.4	9/8/2008	9.7	1/26/2009	9.1	6/12/2009	9.6	10/30/2009	9.9
4/4/2005	9.5	8/19/2005	10.8	1/9/2006	9.3	5/25/2006	9.7	10/12/2006	10.6	2/28/2007	9.3	7/17/2007	10.3	12/3/2007	9.3	4/22/2008	9.5	9/9/2008	9.7	1/27/2009	9.0	6/15/2009	9.5	11/2/2009	9.9
4/5/2005	9.5	8/22/2005	10.9	1/10/2006	9.3	5/26/2006	9.7	10/13/2006	10.6	3/1/2007	9.3	7/18/2007	10.5	12/4/2007	9.3	4/23/2008	9.5	9/10/2008	9.7	1/28/2009	9.0	6/16/2009	9.5	11/3/2009	9.9
4/6/2005	9.5	8/23/2005	10.8	1/11/2006	9.3	5/29/2006	9.7	10/16/2006	10.7	3/2/2007	9.3	7/19/2007	10.5	12/5/2007	9.2	4/24/2008	9.8	9/11/2008	9.7	1/29/2009	9.0	6/17/2009	9.5	11/4/2009	9.9
4/7/2005	9.5	8/24/2005	10.8	1/12/2006	9.2	5/30/2006	9.7	10/17/2006	10.8	3/5/2007	9.3	7/20/2007	10.4	12/6/2007	9.1	4/25/2008	9.7	9/12/2008	9.6	1/30/2009	9.0	6/18/2009	9.6	11/5/2009	9.9
4/8/2005	9.5	8/25/2005	10.8	1/13/2006	9.2	5/31/2006	9.7	10/18/2006	10.8	3/6/2007	9.3	7/23/2007	10.6	12/7/2007	9.1	4/28/2008	9.7	9/15/2008	9.7	2/2/2009	9.0	6/19/2009	9.6	11/6/2009	9.5
4/11/2005	9.6	8/26/2005	10.8	1/16/2006	9.3	6/1/2006	9.7	10/19/2006	10.8	3/7/2007	9.2	7/24/2007	10.6	12/10/2007	9.4	4/29/2008	9.6	9/16/2008	9.7	2/3/2009	9.0	6/22/2009	9.5	11/9/2009	9.5
4/12/2005	9.7	8/29/2005	10.8	1/17/2006	9.3	6/2/2006	9.7	10/20/2006	10.8	3/8/2007	9.2	7/25/2007	10.6	12/11/2007	9.0	4/30/2008	9.6	9/17/2008	9.7	2/4/2009	9.1	6/23/2009	9.5	11/10/2009	9.4
4/13/2005	9.6	8/30/2005	10.9	1/18/2006	9.2	6/5/2006	9.7	10/23/2006	10.6	3/9/2007	9.2	7/26/2007	10.6	12/12/2007	9.1	5/1/2008	9.7	9/18/2008	9.7	2/5/2009	9.3	6/24/2009	10.2	11/11/2009	9.3
4/14/2005	9.6	8/31/2005	10.9	1/19/2006	9.2	6/6/2006	9.7	10/24/2006	10.7	3/12/2007	9.2	7/27/2007	10.6	12/13/2007	9.1	5/2/2008	9.9	9/19/2008	9.8	2/6/2009	9.2	6/25/2009	10.2	11/12/2009	9.3
4/15/2005	9.6	9/1/2005	10.9	1/20/2006	9.3	6/7/2006	9.7	10/25/2006	10.6	3/13/2007	9.2	7/30/2007	10.6	12/14/2007	9.0	5/5/2008	9.6	9/22/2008	9.7	2/9/2009	9.1	6/26/2009	10.3	11/13/2009	9.3
4/18/2005	9.6	9/2/2005	10.9	1/23/2006	9.3	6/8/2006	9.7	10/26/2006	10.7	3/14/2007	9.2	7/31/2007	10.6	12/17/2007	9.2	5/6/2008	9.5	9/23/2008	10.1	2/10/2009	9.0	6/29/2009	10.3	11/16/2009	9.3
4/19/2005	9.7	9/6/2005	11.2	1/24/2006	9.3	6/9/2006	9.7	10/27/2006	10.6	3/15/2007	9.2	8/1/2007	10.4	12/18/2007	9.0	5/7/2008	9.4	9/24/2008	10.1	2/11/2009	9.0	6/30/2009	10.3	11/17/2009	9.4
4/20/2005	9.7	9/7/2005	10.9	1/25/2006	9.3	6/12/2006	9.6	10/30/2006	10.4	3/16/2007	9.2	8/2/2007	10.5	12/19/2007	9.0	5/8/2008	9.4	9/25/2008	10.0	2/12/2009	9.3	7/2/2009	10.4	11/18/2009	9.4
4/21/2005	9.7	9/8/2005	10.7	1/26/2006	9.3	6/13/2006	9.6	10/31/2006	10.4	3/19/2007	9.2	8/3/2007	10.5	12/20/2007	9.0	5/9/2008	9.4	9/26/2008	10.1	2/13/2009	9.0	7/3/2009	10.2	11/19/2009	9.3
4/22/2005	9.6	9/9/2005	10.6	1/27/2006	9.3	6/14/2006	9.7	11/1/2006	10.3	3/20/2007	9.2	8/7/2007	10.4	12/21/2007	9.0	5/12/2008	9.4	9/29/2008	10.0	2/17/2009	9.2	7/6/2009	10.2	11/20/2009	9.4
4/25/2005	9.7	9/12/2005	10.6	1/30/2006	9.3	6/15/2006	9.6	11/2/2006	10.4	3/21/2007	9.3	8/8/2007	10.4	12/24/2007	9.1	5/13/2008	9.3	9/30/2008	10.0	2/18/2009	9.2	7/7/2009	10.3	11/23/2009	9.4
4/26/2005	9.7	9/13/2005	10.6	1/31/2006	9.2	6/16/2006	9.7	11/3/2006	10.4	3/22/2007	9.3	8/9/2007	10.4	12/27/2007	9.3	5/14/2008	9.4	10/1/2008	10.2	2/19/2009	9.4	7/8/2009	10.3	11/24/2009	9.4
4/27/2005	9.7	9/14/2005	10.6	2/1/2006	9.3	6/19/2006	9.7	11/6/2006	10.4	3/23/2007	9.3	8/10/2007	10.3	12/28/2007	9.5	5/15/2008	9.5	10/2/2008	10.4	2/20/2009	9.3	7/9/2009	10.2	11/25/2009	9.2
4/28/2005	9.7	9/15/2005	10.6	2/2/2006	9.3	6/20/2006	9.6	11/7/2006	8.7	3/26/2007	9.4	8/13/2007	10.6	12/31/2007	9.3	5/16/2008	9.5	10/3/2008	10.3	2/23/2009	9.3	7/10/2009	10.2	11/26/2009	9.4
4/29/2005	9.7	9/16/2005	10.7	2/3/2006	9.2	6/21/2006	9.7	11/8/2006	10.4	3/27/2007	9.4	8/14/2007	10.6	1/2/2008	9.3	5/20/2008	9.5	10/6/2008	10.4	2/24/2009	9.2	7/13/2009	10.2	11/27/2009	9.4
5/2/2005	9.6	9/19/2005	10.7	2/6/2006	9.2	6/22/2006	9.7	11/9/2006	10.4	3/28/2007	9.4	8/15/2007	10.5	1/3/2008	9.5	5/21/2008	9.3	10/7/2008	10.4	2/25/2009	9.2	7/14/2009	10.2	11/30/2009	9.3
5/3/2005	9.6	9/20/2005	10.7	2/7/2006	9.2	6/23/2006	9.9	11/10/2006	10.3	3/29/2007	9.4	8/16/2007	10.5	1/4/2008	9.3	5/22/2008	9.3	10/8/2008	10.4	2/26/2009	9.2	7/15/2009	10.2	12/1/2009	9.2
5/4/2005	9.6	9/21/2005	10.7	2/8/2006	9.2	6/26/2006	9.9	11/13/2006	10.3	3/30/2007	9.5	8/17/2007	10.6	1/7/2008	9.1	5/23/2008	9.4	10/9/2008	10.4	2/27/2009	9.3	7/16/2009	10.2	12/2/2009	9.4
5/5/2005	9.6	9/22/2005	10.7	2/9/2006	9.2	6/27/2006	9.8	11/14/2006	10.3	4/2/2007	9.4	8/20/2007	10.5	1/8/2008	9.1	5/26/2008	9.4	10/10/2008	10.5	3/2/2009	9.2	7/17/2009	10.2	12/3/2009	9.3
5/6/2005	9.6	9/23/2005	10.6	2/10/2006	9.3	6/28/2006	9.9	11/15/2006	10.3	4/3/2007	9.4	8/21/2007	10.7	1/9/2008	9.2	5/27/2008	9.5	10/14/2008	10.4	3/3/2009	9.2	7/20/2009	10.2	12/4/2009	9.3
5/9/2005	9.6	9/26/2005	10.6	2/13/2006	9.2	6/29/2006	9.9	11/16/2006	10.2	4/4/2007	9.4	8/22/2007	10.7	1/10/2008	9.4	5/28/2008	9.5	10/15/2008	10.3	3/4/2009	9.2	7/21/2009	10.1	12/7/2009	9.3
5/10/2005	9.7	9/27/2005	10.6	2/14/2006	9.3	6/30/2006	9.8	11/17/2006	10.4	4/5/2007	9.4	8/23/2007	10.6	1/11/2008	9.4	5/29/2008	9.5	10/16/2008	10.1	3/5/2009	9.3	7/22/2009	10.1	12/8/2009	9.2
5/11/2005	9.6	9/28/2005	10.2	2/15/2006	9.2	7/4/2006	9.9	11/20/2006	10.4	4/9/2007	9.4	8/24/2007	10.6	1/14/2008	9.4	5/30/2008	9.5	10/17/2008	10.2	3/6/2009	9.2	7/23/2009	10.2	12/9/2009	9.2
5/12/2005	9.5	9/29/2005	10.3	2/16/2006	9.2	7/5/2006	9.9	11/21/2006	10.2	4/10/2007	9.4	8/27/2007	10.5	1/15/2008	9.3	6/2/2008	9.6	10/20/2008	10.3	3/9/2009	9.3	7/24/2009	10.2	12/10/2009	9.2
5/13/2005	9.5	9/30/2005	10.3	2/17/2006	9.2	7/6/2006	9.9	11/22/2006	10	4/11/2007	9.4	8/28/2007	10.6	1/16/2008	9.3	6/3/2008	10.0	10/21/2008	10.3	3/10/2009	9.3	7/27/2009	10.3	12/11/2009	9.2
5/16/2005	9.4	10/3/2005	10.3	2/20/2006	9.2	7/7/2006	9.8	11/23/2006	9.9	4/12/2007	9.4	8/29/2007	10.6	1/17/2008	9.4	6/4/2008	10.0	10/22/2008	10.2	3/11/2009	9.3	7/28/2009	10.3	12/14/2009	9.2
5/17/2005	9.8	10/4/2005	10.1	2/21/2006	9.2	7/10/2006	9.8	11/24/2006	9.9	4/13/2007	9.5	8/30/2007	10.6	1/18/2008	9.3	6/5/2008	10.0	10/23/2008	10.3	3/12/2009	9.3	7/29/2009	10.3	12/15/2009	9.3
5/18/2005	9.8	10/5/2005	9.9	2/22/2006	9.2	7/11/2006	9.8	11/27/2006	10	4/16/2007	9.5	8/31/2007	10.5	1/21/2008	9.3	6/6/2008	10.0	10/24/2008	10.3	3/13/2009	9.3	7/30/2009	10.2	12/16/2009	9.2

Appendix Table C.3.4: Water quality data for station Q-05 from 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	SO4 (mg/L)	U (mg/L)
1/6/2005							0.84		
2/10/2005	23	0.0146	0.023	3.15	2.18	5	0.71	1235	0.032
3/10/2005							0.91		
4/9/2005							0.86		
5/5/2005	16	0.0204	0.0173	2.52	1.74	4.3	0.61	794	0.022
6/9/2005							0.78		
7/7/2005							0.98		
8/4/2005	33	0.0146	0.018	5.25	2.58	4	0.91	1283	0.033
9/8/2005							0.92		
10/6/2005							1.17		
11/10/2005	21	0.0167	0.0193	1.65	2.59	3.9	1.21	1360	0.049
12/8/2005							1.31		
1/10/2006							1		
2/6/2006	20	0.016	0.0267	2.48	2.64	5	0.96	1200	0.0186
3/6/2006							0.87		
4/3/2006							0.92		
5/1/2006	5	0.0121	0.0123	2.19	1.3	6.6	0.62	610	0.00806
6/5/2006							0.92		
7/4/2006							1		
8/8/2006	24	0.016	0.0208	0.78	2.78	4	0.7	1100	0.0395
9/5/2006							1.4		
10/2/2006							1.5		
11/6/2006	23	0.018	0.0309	2.38	3.2	4	1.1	1100	0.0778
12/4/2006							1.2		
1/2/2007							1.100		
2/12/2007	17	0.015	0.0288	3.43	2.490	4.4	0.940	1100.0	0.0534
3/12/2007							1.000		
4/9/2007							0.810		
5/14/2007	20	0.013	0.0245	2.23	2.060	3.8	0.730	830.0	0.0394
6/11/2007							0.910		
7/9/2007							1.100		
8/13/2007	27	0.016	0.0296	2.03	3.480	4.4	1.200	1200.0	0.059
9/10/2007							1.200		
10/9/2007							1.100		
11/12/2007	16	0.016	0.0227	1.15	2.610	4.5	0.940	1200.0	0.038
12/10/2007							0.640		
1/14/2008							1.000		
2/11/2008	4	0.014	0.0261	1.93	2.140	6.6	0.790	1300.0	0.0125
3/10/2008							0.860		
4/14/2008							0.790		
5/12/2008	8	0.012	0.0175	3.06	1.720	6.1	0.740	740.0	0.0123
6/9/2008							0.740		
7/14/2008							0.880		
8/11/2008	12	0.014	0.0168	1.14	2.090	9.8	0.850	960.0	0.0168
9/8/2008							0.780		
10/15/2008							0.930		
11/10/2008	18	0.016	0.0166	2.01	2.340	5.0	0.910	1100.0	0.0236
12/8/2008							1.010		
1/12/2009							0.940		
2/9/2009	1	0.015	0.0216	2.05	1.910	6.2	0.780	1100.0	0.0112
3/9/2009							0.990		
4/13/2009							0.790		
5/11/2009	4	0.012	0.0109	1.76	1.130	6.9	0.500	530.0	0.0045
6/8/2009							0.830		
7/13/2009							0.950		
8/10/2009	12	0.015	0.0201	0.66	2.420	5.0	1.260	980.0	0.0202
9/15/2009							0.850		
10/14/2009							1.000		
11/9/2009	8	0.015	0.0150	1.26	2.040	5.9	0.550	960.0	0.0156
12/14/2009							0.940		
Number	20	20	20	20	20	20	60	20	20
Minimum	1	0.012	0.0109	0.66	1.13	3.8	0.5	530	0.0045
Maximum	33	0.0204	0.0309	5.25	3.48	9.8	1.5	1360	0.0778
Mean	16	0.0151	0.0209	2.16	2.272	5.3	0.929	1034	0.0293
Median	17	0.0150	0.0205	2.04	2.260	5.0	0.920	1100	0.0228
10th Perc.	4.0	0.0121	0.0147	1.10	1.678	4.0	0.709	727	0.0109

Appendix Table C.3.5: Water quality data for station Cell 14 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)
4/13/2005	6	38		6.5	0.19	
8/10/2005		69.1		7.1		
8/17/2005	2				0.45	18.3
9/14/2005	2	57		7	0.42	19.3
10/12/2005	3	48.8		7.4	0.31	22
11/16/2005	3	39		6.8	0.38	20
12/14/2005	3	45		7.2	0.38	21.9
5/10/2006	0.5	42		7	0.22	15
6/14/2006	2	43		6.8	0.32	21
7/12/2006	0.5	48		7.1	0.36	12
8/9/2006	1	44		7.8	0.34	13
10/11/2006	0.5	36.8		7.1	0.49	13
11/8/2006	3	34		6.5	0.31	13
3/14/2007	0.5	41		6.2	0.38	16
5/10/2007	0.5	32		6.8	0.290	10.0
8/8/2007	1	44		7.0	0.320	12.0
11/14/2007	0.5	55		6.2	0.410	16.0
2/13/2008	0.5	30	0.31	6.6	0.190	8.6
5/15/2008	0.5	29	0.06	6.9	0.250	9.7
8/13/2008	0.5	42	0.04	7.1	0.360	18.0
11/12/2008	0.5	54	0.06	6.7	0.550	15.0
5/21/2009	0.5	39	0.08	6.5	0.350	11.0
11/12/2009	2	51	0.14	6.8	0.690	15.0
Number	22	22	6	22	22	21
Minimum	0.5	29	0.04	6.2	0.19	8.6
Maximum	6	69.1	0.31	7.8	0.69	22
Mean	1.5	43.7	0.12	6.9	0.362	15.2
Median	0.75	42.5	0.07	6.9	0.355	15.0
10th Perc.	0.5	32.2	0.05	6.5	0.223	10

Concentration below maximum MDL.

Appendix Table C.3.6: Water quality data for station Cell 15 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	Ra-226 (Bq/L)	SO4 (mg/L)
4/13/2005	3	17		6	0.05	
8/10/2005		826		6.9		
8/17/2005	3				0.4	515
10/12/2005	5	784		6.8	0.33	730
5/10/2006	0.5	682		6.7	0.34	470
8/9/2006	2	832		7.5	0.22	490
11/8/2006	4	672		6.5	0.2	580
3/14/2007	0.5	412		6.2	0.64	310
5/10/2007	0.5	686		6.8	0.32	430
8/8/2007	4	1071		7	0.2	640
11/14/2007	2	1236		6.7	0.35	740
2/13/2008	0.5	45	1.07	6.6	0.25	8.7
5/15/2008	0.5	616	0.58	6.9	0.32	380
8/13/2008	0.5	852	0.41	7.0	0.20	480
11/12/2008	0.5	765	1.1	6.7	0.26	690
5/21/2009	0.5	751	0.67	6.6	0.40	440
11/12/2009	0.5	885	0.83	6.9	0.36	560
Number	16	16	6	16	16	15
Minimum	0.5	17	0.41	6	0.05	8.7
Maximum	5	1236	1.1	7.5	0.64	740
Mean	1.7	696	0.78	6.7	0.303	498
Median	0.5	758	0.75	6.8	0.32	490
10th Perc.	0.5	229	0.50	6.4	0.2	338

 Concentration below maximum MDL.

Appendix Table C.3.7: Water quality data for station Cell 16S from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Iron (mg/L)	pH	Ra-226 (Bq/L)	SO4 (mg/L)
4/13/2005	7	94		5.5	0.044	
8/10/2005		1663		6.4		
8/17/2005	7				0.74	1245
10/12/2005	5	1421		7.8	0.61	1697
5/10/2006	14	1367		4.2	0.63	1000
8/9/2006	10	1742		7.3	0.71	1100
11/8/2006	17	1136		4.5	0.6	1100
3/14/2007	20	1203		4	0.73	1100
5/10/2007	24	1463		4	0.65	960
8/8/2007	9	1837		6.8	0.61	1200
11/14/2007	4	1358		6.9	0.78	1200
2/13/2008	3	1113	2.65	6.5	0.81	1100
5/15/2008	13	1265	3.85	6.2	0.57	990
8/13/2008	4	1591	0.69	7.0	0.59	910
11/12/2008	0.5	1438	1.49	7.3	0.63	1000
5/21/2009	8	1411	2.61	6.4	0.61	940
11/12/2009	0.5	1397	1.68	8.0	0.48	1000
Number	16	16	6	16	16	15
Minimum	0.5	94	0.69	4	0.044	910
Maximum	24	1837	3.85	8	0.81	1697
Mean	9	1344	2.16	6.2	0.612	1103
Median	7.5	1404	2.15	6.45	0.620	1100
10th Perc.	1.75	1125	1.09	4.1	0.525	948

Concentration below maximum MDL.

Appendix Table C.3.8: Water quality data for station Cell 17 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)
4/13/2005	8	212		6	0.15	
8/10/2005		1752		7.2		
8/17/2005	6				1.28	1422
10/12/2005	9	1538		6.5	1.5	1768
5/10/2006	26	1496		3.9	1.2	1100
8/9/2006	24	1873		7.1	1.2	1200
11/8/2006	20	1217		4	1.3	1200
3/14/2007	19	1212		4	0.93	1200
5/10/2007	18	1502		4.1	1.1	980
8/8/2007	0.5	1976		7.7	1.4	1400
11/14/2007	7	1370		6.9	1.05	1200
2/13/2008	3	1110	2.38	6.2	0.700	1100
5/15/2008	16	1311	3.87	4.9	0.940	930
8/13/2008	0.5	1641	0.37	8.8	0.530	980
11/12/2008	0.5	1527	1.52	7.0	1.200	880
5/21/2009	12	1399	3.31	4.9	1.400	980
11/12/2009	2	1403	1.82	7.5	0.690	1100
Number	16	16	6	16	16	15
Minimum	0.5	212	0.37	3.9	0.15	880
Maximum	26	1976	3.87	8.8	1.5	1768
Mean	10.7	1409	2.21	6.0	1.036	1163
Median	8.5	1450	2.10	6.4	1.150	1100
10th Perc.	0.5	1161	0.95	4.0	0.610	950

Concentration below maximum MDL.

Appendix Table C.3.9: Water quality at station DK145C (Depth 5.91 m).

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO ₄ (mg/L)
7/1/2005	13.00	2884	0.08	8.10	
6/1/2006	0.50	2387	0.01	8.00	
8/24/2007	0.50		0.10	8.20	1800
7/24/2008	0.50		0.04	8.10	1700
6/15/2009	0.50		0.04	7.90	1600
Number	5	2	5	5	3
Minimum	0.50	2387	0.01	7.9	1600
Maximum	13.00	2884	0.10	8.2	1800
Mean	3.0	2636	0.05	8.06	1700
Median	0.50	2636	0.04	8.10	1700
10th Perc.	0.50	2437	0.02	7.94	1620

 Concentration below maximum MDL.

Appendix Table C.3.10: Water quality at station DK-15-2 A, B, C, D from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
DK-15-2A	7/1/2005	2510	3236	717	6.0	
	6/1/2006	2290	2595	656	6.0	
	8/7/2007	1110		555	6.1	2400
	7/21/2008	976		579	6.0	2300
	6/17/2009	996		571	6.1	2300
DK-15-2A Summary	Number	5	2	5	5.0	3
	Minimum	976	2595	555	6.0	2300
	Maximum	2510	3236	717	6.1	2400
	Mean	1576	2916	616	6.0	2333
	Median	1110	2916	579	6.0	2300
	10th Perc.	984	2659	561	6.0	2300
DK-15-2B	7/1/2005	2370	3279	695	5.9	
	6/1/2006	1210	2571	638	6.2	
	8/7/2007	1070		547	6.1	2400
	7/21/2008	840		474	5.9	2300
	6/17/2009	1010		537	5.9	2200
DK-15-2B Summary	Number	5	2	5	5.0	3
	Minimum	840	2571	474	5.9	2200
	Maximum	2370	3279	695	6.2	2400
	Mean	1300	2925	578	6.0	2300
	Median	1070	2925	547	5.9	2300
	10th Perc.	908	2642	499	5.9	2220
DK-15-2C	7/1/2005	2260	3263	699	5.9	
	6/1/2006	2420	2484	591	6.1	
	8/7/2007	1100		557	6.0	2400
	7/21/2008	805		490	5.9	2200
	6/17/2009	864		473	5.9	2100
DK-15-2C Summary	Number	5	2	5	5.0	3
	Minimum	805	2484	473	5.9	2100
	Maximum	2420	3263	699	6.1	2400
	Mean	1490	2874	562	6.0	2233
	Median	1100	2874	557	5.9	2200
	10th Perc.	829	2562	480	5.9	2120
DK-15-2D	7/1/2005	2120	3077	541	6.5	
	6/1/2006	1780	2336	411	6.5	
	8/7/2007	848		417	6.4	2200
	7/21/2008	711		400	6.4	2000
	6/17/2009	719		363	6.4	1900
DK-15-2D Summary	Number	5	2	5	5.0	3
	Minimum	711	2336	363	6.4	1900
	Maximum	2120	3077	541	6.5	2200
	Mean	1236	2707	426	6.4	2033
	Median	848	2707	411	6.4	2000
	10th Perc.	714	2410	378	6.4	1920

Appendix Table C.3.11: Water quality at DK15-4 A, B, C, D from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
DK15-4A	Jul-05	2260.00	2799.00	327.40	6.4	
	Jun-06	401.00	2088.00	251.00	6.3	
	Aug-07	412.00		257.00	6.5	1800.00
	Jul-08	348.00		212.00	6.5	1800.00
	Jun-09	317.00		226.00	6.5	1700.00
DK15-4A Summary	Number	5	2	5	5.0	3
	Minimum	317	2088	212	6.3	1700
	Maximum	2260	2799	327	6.5	1800
	Mean	747.60	2443.50	254.68	6.4	1766.67
	Median	401.00	2443.50	251.00	6.5	1800.00
	10th Perc.	329.40	2159.10	217.60	6.3	1720.00
DK15-4B	Jul-05	1840.00	2955.00	382.60	6.2	
	Jun-06	483.00	2163.00	295.00	6.4	
	Aug-07	463.00		300.00	6.5	1900.00
	Jul-08	392.00		249.00	6.4	1900.00
	Jun-09	412.00		285.00	6.3	1800.00
DK15-4B Summary	Number	5	2	5	5.0	3
	Minimum	392	2163	249	6.2	1800
	Maximum	1840	2955	383	6.5	1900
	Mean	718.00	2559.00	302.32	6.4	1866.67
	Median	463.00	2559.00	295.00	6.4	1900.00
	10th Perc.	400.00	2242.20	263.40	6.2	1820.00
DK15-4C	Jul-05	665.00	2985.00	383.00	6.20	
	Jun-06	494.00	2200.00	297.00	6.30	
	Aug-07	487.00		306.00	6.40	2000.00
	Jul-08	447.00		278.00	6.40	1900.00
	Jun-09	494.00		325.00	6.30	2000.00
DK15-4C Summary	Number	5	2	5	5.0	3
	Minimum	447	2200	278	6.2	1900
	Maximum	665	2985	383	6.4	2000
	Mean	517.40	2592.50	317.80	6.3	1966.67
	Median	494.00	2592.50	306.00	6.3	2000.00
	10th Perc.	463.00	2278.50	285.60	6.2	1920.00
DK15-4D	Jul-05	701.00	3034.00	411.50	6.10	
	Jun-06	1310.00	2336.00	321.00	6.10	
	Aug-07	486.00		314.00	6.30	2000.00
	Jul-08	506.00		304.00	6.40	2000.00
	Jun-09	505.00		330.00	6.30	1900.00
DK15-4D Summary	Number	5	2	5	5.0	3
	Minimum	486	2336	304	6.1	1900
	Maximum	1310	3034	412	6.4	2000
	Mean	701.60	2685.00	336.10	6.2	1966.67
	Median	506.00	2685.00	321.00	6.3	2000.00
	10th Perc.	493.60	2405.80	308.00	6.1	1920.00

Appendix Table C.3.12: Water quality at station DK16-2 A, B, C, D from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
DK16-2A	7/1/2005	217.00	2555.00	100.30	6.90	
	6/1/2006	66.00	1945.00	58.80	7.00	
	8/8/2007	62.00		57.60	7.10	1700.00
	7/24/2008	29.00		58.10	7.10	1600.00
	7/1/2009	18.00		50.80	6.90	1600.00
DK-16-2A Summary	Number	5	2	5	5.0	3
	Minimum	18	1945.00	51	6.9	1600.00
	Maximum	217	2555.00	100	7.1	1700.00
	Mean	78.40	2250.00	65.12	7.00	1633.33
	Median	62.00	2250.00	58.10	7.00	1600.00
	10th Perc.	22.40	2006.00	53.52	6.90	1600.00
DK16-2B	7/1/2005	0.50	2322.00	0.21	8.40	
	6/1/2006	0.50	1790.00	0.10	8.70	
	8/28/2007	0.50		0.03	8.80	1600.00
	7/24/2008	0.50		0.02	8.70	1500.00
	7/1/2009	2.00		0.01	7.80	1500.00
DK-16-2B Summary	Number	5	2	5	5.0	3
	Minimum	1	1790.00	0	7.8	1500.00
	Maximum	2	2322.00	0	8.8	1600.00
	Mean	0.80	2056.00	0.07	8.48	1533.33
	Median	0.50	2056.00	0.03	8.70	1500.00
	10th Perc.	0.50	1843.20	0.01	8.04	1500.00
DK16-2C	7/1/2005	19.00	2330.00	4.44	6.10	
	6/1/2006	15.00	1788.00	4.80	7.20	
	8/8/2007	15.00		4.84	6.50	1600.00
	7/28/2008	12.00		4.79	6.20	1500.00
	7/1/2009	15.00		4.34	6.50	1500.00
DK-16-2C Summary	Number	5	2	5	5.0	3
	Minimum	12	1788.00	4	6.1	1500.00
	Maximum	19	2330.00	5	7.2	1600.00
	Mean	15.20	2059.00	4.64	6.50	1533.33
	Median	15.00	2059.00	4.79	6.50	1500.00
	10th Perc.	13.20	1842.20	4.38	6.14	1500.00
DK16-2D	7/1/2005	201.00	2360.00	9.45	4.90	
	6/1/2006	32.00	1833.00	9.18	5.60	
	8/8/2007	30.00		8.98	5.20	1600.00
	7/28/2008	30.00		10.60	5.30	1500.00
	7/1/2009	15.00		10.30	5.30	1500.00
DK-16-2D Summary	Number	5	2	5	5.0	3
	Minimum	15	1833.00	9	4.9	1500.00
	Maximum	201	2360.00	11	5.6	1600.00
	Mean	61.60	2096.50	9.70	5.26	1533.33
	Median	30.00	2096.50	9.45	5.30	1500.00
	10th Perc.	21.00	1885.70	9.06	5.02	1500.00

 Concentration below maximum MDL.

Appendix Table C.3.13: Water quality at station DK17-2 A, B, C, D from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
DK17-2A	7/1/2005	2284.00	5120.00	1286.00	5.10	
	6/1/2006	2590.00	3976.00	1160.00	5.00	
	8/13/2007	2340.00		1490.00	5.90	4600.00
	7/18/2008	0.50		1410.00	6.20	4000.00
	7/6/2009	2180.00		1240.00	5.80	3900.00
DK-17-2A Summary	Number	5	2	5	5.0	3
	Minimum	0.50	3976.00	1160.00	5.00	3900.00
	Maximum	2590.00	5120.00	1490.00	6.20	4600.00
	Mean	1878.90	4548.00	1317.20	5.60	4166.67
	Median	2284.00	4548.00	1286.00	5.80	4000.00
	10th Perc.	872.30	4090.40	1192.00	5.04	3920.00
DK17-2B	7/1/2005	369.00	3481.00	212.60	7.00	
	6/1/2006	267.00	2732.00	216.00	6.70	
	8/13/2007	351.00		315.00	6.90	2500.00
	7/18/2008	429.00		296.00	6.90	2100.00
	7/6/2009	451.00		285.00	6.60	2100.00
DK-17-2B Summary	Number	5	2	5	5.0	3
	Minimum	267.00	2732.00	212.60	6.60	2100.00
	Maximum	451.00	3481.00	315.00	7.00	2500.00
	Mean	373.40	3106.50	264.92	6.82	2233.33
	Median	369.00	3106.50	285.00	6.90	2100.00
	10th Perc.	300.60	2806.90	213.96	6.64	2100.00
DK17-2C	7/1/2005	0.50	2682.00	0.05	9.50	
	6/1/2006	0.50	2221.00	0.12	9.60	
	8/10/2007	0.50		0.03	9.70	1500.00
	7/18/2008	0.50		0.08	9.70	1500.00
	7/6/2009	0.50		0.06	9.60	1400.00
DK-17-2C Summary	Number	5	2	5	5.0	3
	Minimum	0.50	2221.00	0.03	9.50	1400.00
	Maximum	0.50	2682.00	0.12	9.70	1500.00
	Mean	0.50	2451.50	0.07	9.62	1466.67
	Median	0.50	2451.50	0.06	9.60	1500.00
	10th Perc.	0.50	2267.10	0.04	9.54	1420.00
DK17-2D	7/1/2005	0.50	2557.00	1.78	10.30	
	6/1/2006	0.50	2056.00	1.23	10.30	
	8/10/2007	0.50		0.11	10.10	1500.00
	7/18/2008	0.50		0.10	10.10	1500.00
	7/6/2009	0.50		0.05	10.20	1500.00
DK-17-2D Summary	Number	5	2	5	5.0	3
	Minimum	0.50	2056.00	0.05	10.10	1500.00
	Maximum	0.50	2557.00	1.78	10.30	1500.00
	Mean	0.50	2306.50	0.65	10.20	1500.00
	Median	0.50	2306.50	0.11	10.20	1500.00
	10th Perc.	0.50	2106.10	0.07	10.10	1500.00

Concentration below maximum MDL.

Appendix Table C.3.14: Water quality at station QPW1 1, 4, 8 from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
QPW1-1	6/1/2005	44	150	13.48	6.1	2.5
	7/1/2006	0.5	100.4	1.89	6.2	36
	8/16/2007	0.5		13.30	6.3	2.5
	7/18/2008	0.5		15.20	6.5	2.5
QPW1-1 Summary	Number	4	2	4	4.0	4
	Minimum	0.5	100.4	1.89	6.1	2.5
	Maximum	44	150	15.20	6.5	36.0
	Mean	11.4	125.2	10.97	6.3	10.9
	Median	0.5	125.2	13.39	6.3	2.5
	10th Perc.	0.5	105.4	5.31	6.1	2.5
QPW1-4	6/1/2005	31	358.8	5.39	6.2	52.1
	7/1/2006	0.5	170.9	4.93	7	50
	8/17/2007	0.5		5.03	6.7	54.0
	7/18/2008	0.5		4.15	6.6	56.0
	7/7/2009	0.5		3.27	6.7	63.0
QPW1-4 Summary	Number	5	2	5	5.0	5
	Minimum	0.5	171	3.27	6.2	50.0
	Maximum	31	359	5.39	7.0	63.0
	Mean	6.6	264.9	4.55	6.6	55.0
	Median	0.5	264.9	4.93	6.7	54.0
	10th Perc.	0.5	189.7	3.62	6.4	50.8
QPW1-8	6/1/2005	36	853	16.18	7.6	268
	7/1/2006	0.5	515	16.8	7.1	260
	8/17/2007	0.5		16.60	7.1	270.0
	7/21/2008	0.5		17.60	7.0	270.0
	7/8/2009	0.5		17.70	7.0	280.0
QPW1-8 Summary	Number	5	2	5	5.0	5
	Minimum	0.5	515	16.18	7.0	260.0
	Maximum	36	853	17.70	7.6	280.0
	Mean	7.6	684	16.98	7.2	269.6
	Median	0.5	684	16.80	7.1	270.0
	10th Perc.	0.5	549	16.35	7.0	263.2

Concentration below maximum MDL.

Appendix Table C.3.15: Water quality at station 95QW-3 A, C, D from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
95QW-3A	7/1/2005	532	2721	280	6.4	
	6/1/2006	360	2056	236	6.2	
	8/14/2007	325		229.00	6.3	1800.0
	7/23/2008	296		230.00	6.3	1600.0
	7/13/2009	252		179.00	6.0	1600.0
95QW-3A Summary	Number	5	2	5	5.0	3
	Minimum	252	2056	179.00	6.0	1600.0
	Maximum	532	2721	280.00	6.4	1800.0
	Mean	353	2389	230.80	6.2	1666.7
	Median	325	2389	230.00	6.3	1600.0
	10th Perc.	270	2123	199.00	6.1	1600.0
95QW-3C	7/1/2005	566	2679	292.1	6.1	
	6/1/2006	384	2106	237	6	
	8/14/2007	343		235.00	6.2	1700.0
	7/23/2008	308		226.00	6.2	1500.0
	7/9/2009	332		203.00	6.1	1500.0
95QW-3C Summary	Number	5	2	5	5.0	3
	Minimum	308	2106	203.00	6.0	1500.0
	Maximum	566	2679	292.10	6.2	1700.0
	Mean	387	2393	238.62	6.1	1566.7
	Median	343	2393	235.00	6.1	1500.0
	10th Perc.	318	2163	212.20	6.0	1500.0
95QW-3D	7/1/2005	510	2568	215.6	4.9	
	6/1/2006	320	1913	162	4.8	
	8/14/2007	302		167.00	5.3	1600.0
	7/23/2008	251		141.00	4.8	1400.0
	7/13/2009	267		13.50	4.5	1500.0
95QW-3D Summary	Number	5	2	5	5.0	3
	Minimum	251	1913	13.50	4.5	1400.0
	Maximum	510	2568	215.60	5.3	1600.0
	Mean	330	2241	139.82	4.9	1500.0
	Median	302	2241	162.00	4.8	1500.0
	10th Perc.	257	1979	64.50	4.6	1420.0

Appendix Table C.3.16: Water quality at station 95QW-4 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
7/1/2005	10	1926	0.197	7.5	1103
6/1/2006	0.5	1345	0.2	7.2	1000
8/13/2007	0.5		0.01	7.5	1100.0
7/29/2008	0.5		0.01	7.3	1000.0
7/14/2009	0.5		0.01	7.0	960.0
Number	5	2	5	5	5
Minimum	0.5	1345	0.01	7.0	960.0
Maximum	10	1926	0.200	7.5	1103.0
Mean	2.4	1636	0.085	7.3	1032.6
Median	0.5	1636	0.010	7.3	1000.0
10th Perc.	0.5	1403	0.010	7.1	976.0

Concentration below maximum MDL.

Appendix Table C.3.17: Water quality at station 95QW-5 A, D from 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
95QW-5A	7/1/2005	54	1111	12.89	5.7	608
	6/1/2006	22	751	14.4	6	500
	8/28/2007	7		15.90	5.7	770.0
	7/29/2008	29		24.00	5.8	670.0
	7/14/2009	42		18.30	5.6	700.0
95QW-5A Summary	Number	5	2	5	5	5
	Minimum	7	751	12.89	5.6	500
	Maximum	54	1111	24.00	6.0	770.0
	Mean	31	931	17.10	5.8	649.6
	Median	29	931	15.90	5.7	670.0
	10th Perc.	13	787	13.49	5.6	543.2
95QW-5D	7/1/2005	17	197.1	0.142	6.4	8.51
	6/1/2006	0.5	57.6	0.04	5.8	8.1
	8/21/2007	0.5		0.01	6.2	9.2
	7/28/2008	0.5		0.04	6.2	7.3
	7/14/2009	0.5		0.67	6.0	22.0
95QW-5D Summary	Number	5	2	5	5	5
	Minimum	0.5	57.6	0.01	5.8	7.3
	Maximum	17.0	197.1	0.67	6.4	22.0
	Mean	3.8	127.4	0.18	6.1	11.0
	Median	0.5	127.4	0.04	6.2	8.5
	10th Perc.	0.5	71.6	0.02	5.9	7.6

 Concentration below maximum MDL.

Appendix Table C.3.18: Summary of seasonal trends for station Q-05, 2003 - 2009.

Season	Spearman rho	Acidity	Barium	Cobalt	Iron	Manganese	pH	Ra-226	Sulphate	Uranium
January	Correlation Coefficient							0.03637		
	Sig. (2-tailed)							0.938298		
	N							7		
February	Correlation Coefficient	-0.9910312	-0.180187	-0.428571	-0.321	-0.535714286	0.738769	-0.464286	-0.50452498	-0.75
	Sig. (2-tailed)	1.4561E-05	0.699046	0.337368	0.482	0.215217456	0.057858	0.293934	0.248203114	0.052181
	N	7	7	7	7	7	7	7	7	7
March	Correlation Coefficient							-0.285714		
	Sig. (2-tailed)							0.534509		
	N							7		
April	Correlation Coefficient							0.306319		
	Sig. (2-tailed)							0.504027		
	N							7		
May	Correlation Coefficient	-0.7142857	-0.198206	-0.285714	-0.75	-0.23424374	0.612637	-0.285714	-0.39285714	-0.678571
	Sig. (2-tailed)	0.07134356	0.670085	0.534509	0.052	0.613155037	0.143589	0.534509	0.38331687	0.09375
	N	7	7	7	7	7	7	7	7	7
June	Correlation Coefficient							0.428571		
	Sig. (2-tailed)							0.337368		
	N							7		
July	Correlation Coefficient							-0.285714		
	Sig. (2-tailed)							0.534509		
	N							7		
August	Correlation Coefficient	-0.3783937	-0.162169	-0.178571	0	0.25	0.704187	0.178571	-0.57142857	-0.464286
	Sig. (2-tailed)	0.4026022	0.7283	0.701658	1	0.588724448	0.07735	0.701658	0.180201989	0.293934
	N	7	7	7	7	7	7	7	7	7
September	Correlation Coefficient							-0.306319		
	Sig. (2-tailed)							0.504027		
	N							7		
October	Correlation Coefficient							0.035714		
	Sig. (2-tailed)							0.939408		
	N							7		
November	Correlation Coefficient	-0.7567875	-0.918956	-0.571429	-0.143	-0.357142857	0.815374	-0.714286	-0.82886247	-0.678571
	Sig. (2-tailed)	0.0489051	0.003437	0.180202	0.76	0.431611352	0.025399	0.071344	0.021173516	0.09375
	N	7	7	7	7	7	7	7	7	7
December	Correlation Coefficient							0.107143		
	Sig. (2-tailed)							0.819151		
	N							7		

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.

Appendix Table C.3.19: Summary of seasonal trends for station Cell 14, 2003 - 2009.

Season	Spearman rho	Acidity	pH	Ra-226	Sulphate
April/May	Correlation Coefficient	-0.78811041	0.5766	-0.14285714	
	Sig. (2-tailed)	0.0352827	0.175382	0.7599453	
	N	7	7	7	
October/November	Correlation Coefficient	-0.47809144	-0.212512	0.23190841	-0.359092423
	Sig. (2-tailed)	0.33750186	0.686031	0.65837357	ns
	N	6	6	6	5

Note: p-values for $n < 10$ where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

	Significant trend where $p < 0.05$.
--	--------------------------------------

Appendix Table C.3.20: Summary of seasonal trends for station Cell 15, 2003 - 2009.

Season	Spearman rho	pH	Ra-226	Sulphate
April/May	Correlation Coefficient	0.75	0.774806218	
	Sig. (2-tailed)	0.052181	0.040769463	
	N	7	7	
October/November	Correlation Coefficient	-0.52254	0.090093746	-0.5
	Sig. (2-tailed)	0.228878	0.84767208	ns
	N	7	7	5

Note: p-values for $n < 10$ where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where $p < 0.05$.

Appendix Table C.3.21: Summary of seasonal trends for station cell 16S, 2003 - 2009.

Season	Spearman rho	pH	Ra-226	Sulphate
April/May	Correlation Coefficient	0.678571429	0.571428571	
	Sig. (2-tailed)	0.093750254	0.180201989	
	N	7	7	
October/November	Correlation Coefficient	0.432449982	-0.035714286	-0.872081599
	Sig. (2-tailed)	0.332526778	0.939408205	ns
	N	7	7	5

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where p<0.05.

Appendix Table C.3.22: Summary of seasonal trends for station Cell 17, 2003 - 2009.

Season	Spearman rho	pH	Ra-226	Sulphate
April/May	Correlation Coefficient	0.126131245	0.714285714	
	Sig. (2-tailed)	0.787572159	0.071343561	
	N	7	7	
October/November	Correlation Coefficient	0.75	-0.535714286	-0.872081599
	Sig. (2-tailed)	0.0521814	0.215217456	ns
	N	7	7	5

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.

Appendix Table C.3.23: Summary of seasonal trends for Quirke porewater stations.

Station	Spearman rho	year	Iron	pH	Sulphate
DK14-5C	Correlation Coefficient	1	-0.481870745	0.600005822	-0.09011
	Sig. (2-tailed)	.	0.050	0.006611653	0.759339
	N	19	17	19	14
DK15-2A	Correlation Coefficient	1	-0.951648352	0.768111124	-0.778119
	Sig. (2-tailed)	.	0.000001	0.000823998	<0.05
	N	15	14	15	10
DK15-2B	Correlation Coefficient	1	-0.981233636	0.71997752	-0.743864
	Sig. (2-tailed)	.	0.000001	0.001117719	0.005541
	N	17	15	17	12
DK15-2C	Correlation Coefficient	1	-0.988382879	0.762554193	-0.705267
	Sig. (2-tailed)	.	0.000001	0.000371771	0.010405
	N	17	15	17	12
DK15-2D	Correlation Coefficient	1	-0.97469806	0.798250355	-0.592986
	Sig. (2-tailed)	.	0.000001	0.000210004	0.042136
	N	16	14	16	12
DK15-4A	Correlation Coefficient	1	-0.986813187	0.638972902	-0.948333
	Sig. (2-tailed)	.	0.000001	0.010337612	<0.001
	N	15	14	15	10
DK15-4B	Correlation Coefficient	1	-0.986813187	0.676935009	-0.960491
	Sig. (2-tailed)	.	0.000001	0.00557341	<0.001
	N	15	14	15	10
DK15-4C	Correlation Coefficient	1	-0.974084393	0.845689324	-0.871706
	Sig. (2-tailed)	.	0.000001	1.9007E-05	0.00022
	N	17	15	17	12
DK15-4D	Correlation Coefficient	1	-0.969230769	0.900119544	-0.911858
	Sig. (2-tailed)	.	0.000001	4.83567E-06	<0.001
	N	15	14	15	10
DK16-2A	Correlation Coefficient	1	-0.12967033	-0.084381834	0.048632
	Sig. (2-tailed)	.	0.658619276	0.764947218	ns
	N	15	14	15	10
DK16-2B	Correlation Coefficient	1	-0.986813187	0.784571524	-0.462008
	Sig. (2-tailed)	.	0.000001	0.000533034	ns
	N	15	14	15	10
DK16-2C	Correlation Coefficient	1	-0.886689205	0.68157533	-0.534957
	Sig. (2-tailed)	.	2.38375E-05	0.005137708	ns
	N	15	14	15	10
DK16-2D	Correlation Coefficient	1	-0.92967033	0.752017036	-0.607906
	Sig. (2-tailed)	.	1.49953E-06	0.001221688	ns
	N	15	14	15	10
DK17-2A	Correlation Coefficient	1	0.512087912	0.840788465	0.527273
	Sig. (2-tailed)	.	0.061198486	8.62861E-05	ns
	N	15	14	15	10
DK17-2B	Correlation Coefficient	1	0.09010989	0.459226419	-0.097265
	Sig. (2-tailed)	.	0.759338838	0.085069234	ns
	N	15	14	15	10
DK17-2C	Correlation Coefficient	1	-0.225167757	0.266677489	-0.486324
	Sig. (2-tailed)	.	0.438947765	0.336658217	ns
	N	15	14	15	10
DK17-2D	Correlation Coefficient	1	-0.705494505	0.745747004	0.116573
	Sig. (2-tailed)	.	0.004819558	0.001413349	ns
	N	15	14	15	10

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.

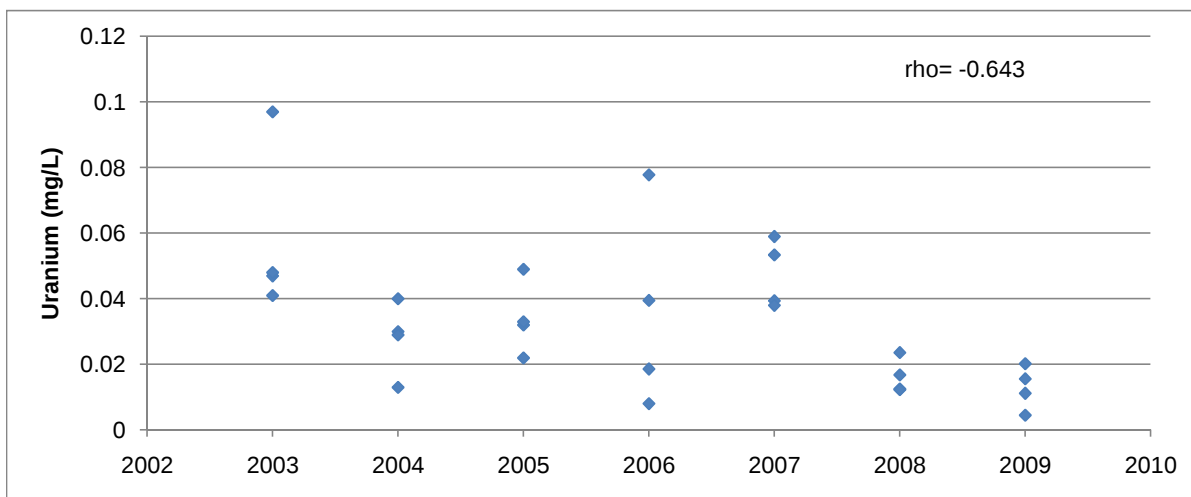
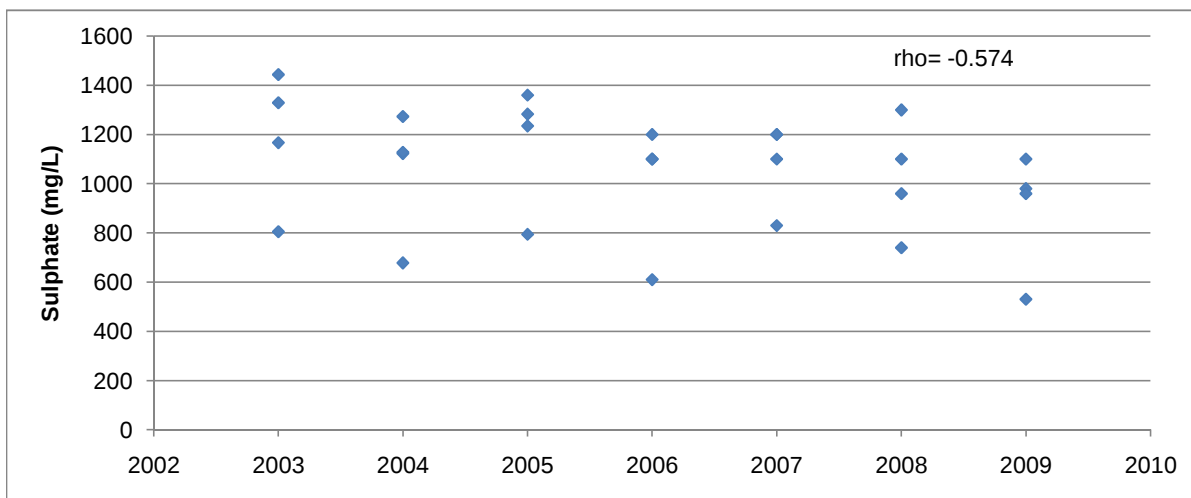
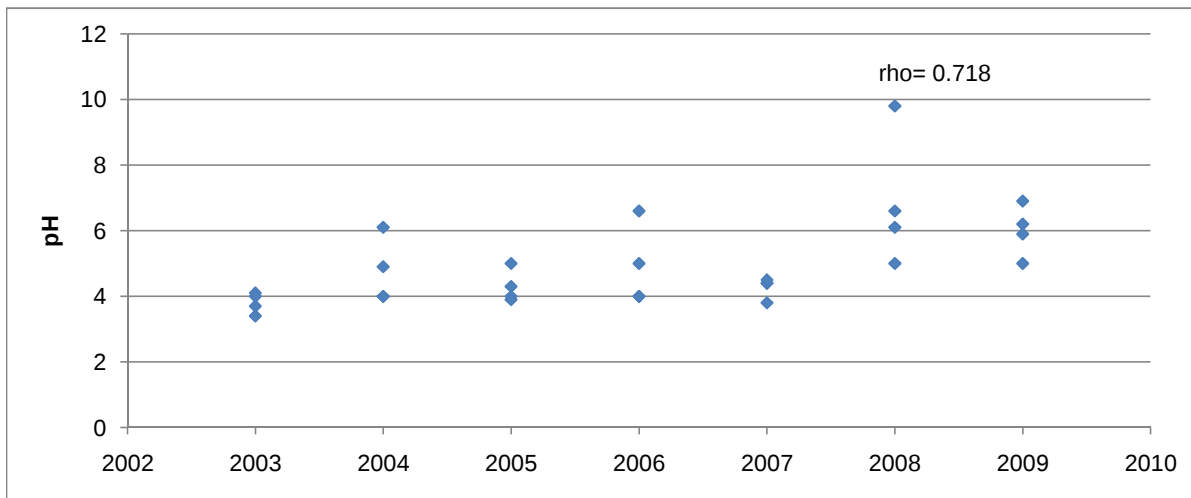
Appendix Table C.3.24: Summary of seasonal trends for Quirke groundwater stations.

Station	Spearman rho	Iron	pH	Sulphate
95QW3-A	Correlation Coefficient	-0.512088	-0.121261263	-0.67881725
	Sig. (2-tailed)	0.061198	0.666836279	0.02163658
	N	14	15	11
95QW3-C	Correlation Coefficient	-0.301099	0.871097856	-0.81549187
	Sig. (2-tailed)	0.295514	2.36081E-05	0.00221629
	N	14	15	11
95QW3-D	Correlation Coefficient	0.248352	0.83787184	-0.45454545
	Sig. (2-tailed)	0.39192	9.63748E-05	0.16014544
	N	14	15	11
95QW4	Correlation Coefficient	-0.258084	-0.628769645	0.60522753
	Sig. (2-tailed)	0.373005	0.012044345	0.02839544
	N	14	15	13
95QW5-A	Correlation Coefficient	0.279121	-0.061263747	0.26685032
	Sig. (2-tailed)	0.333845	0.828292933	0.37813584
	N	14	15	13
95QW5-D	Correlation Coefficient	-0.21586	-0.310877667	-0.03846154
	Sig. (2-tailed)	0.458586	0.259403688	0.9007243
	N	14	15	13
QPW1-1	Correlation Coefficient	0.220588	-0.608109944	0.04583492
	Sig. (2-tailed)	0.394889	0.009599956	0.87114732
	N	17	17	15
QPW1-4	Correlation Coefficient	0.631942	-0.323354212	0.14145588
	Sig. (2-tailed)	0.002798	0.164326334	0.57555494
	N	20	20	18
QPW1-8	Correlation Coefficient	0.603008	-0.361305133	0.9168819
	Sig. (2-tailed)	0.004887	0.117540533	0.000001
	N	20	20	18

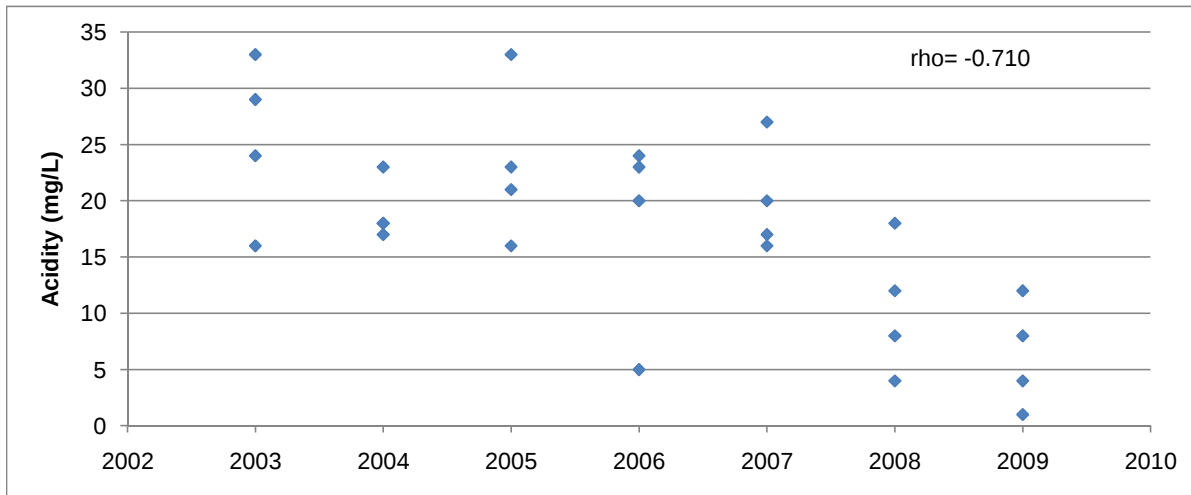
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

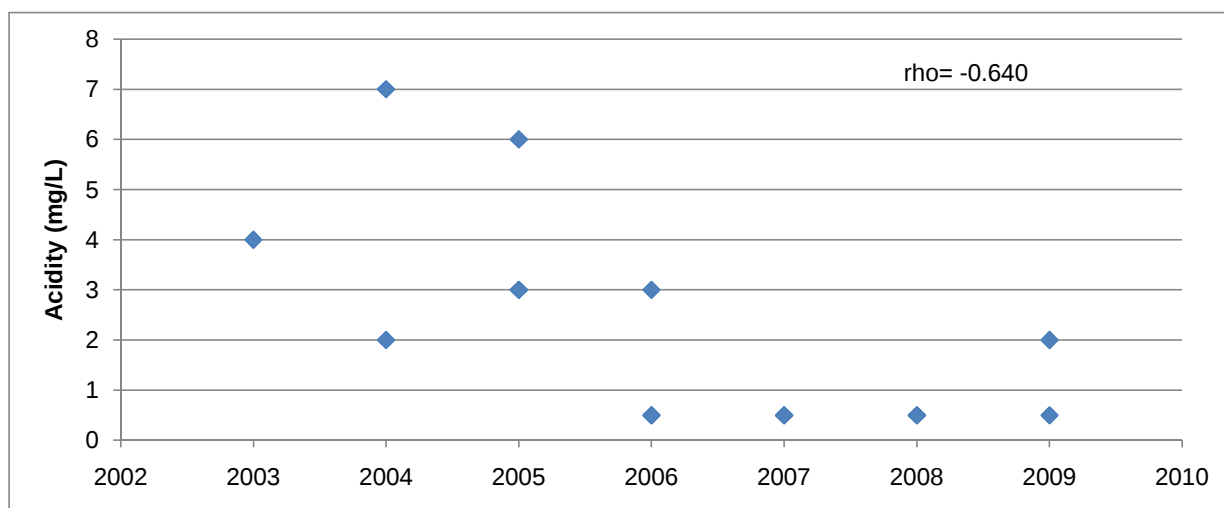
Significant trend where p<0.05.



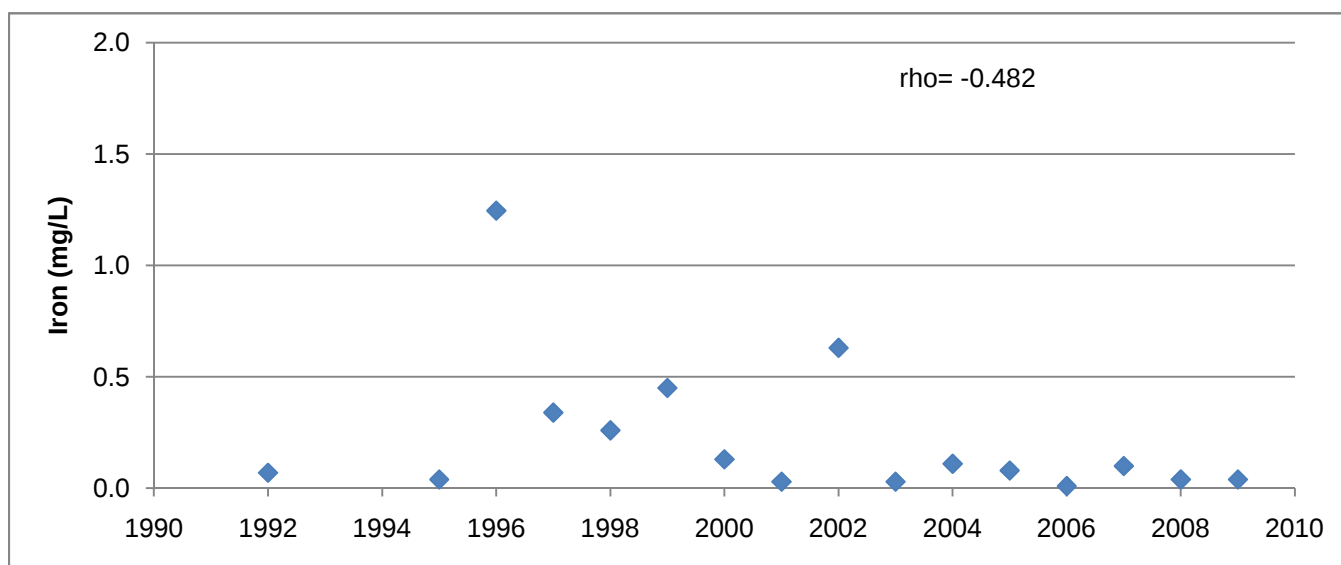
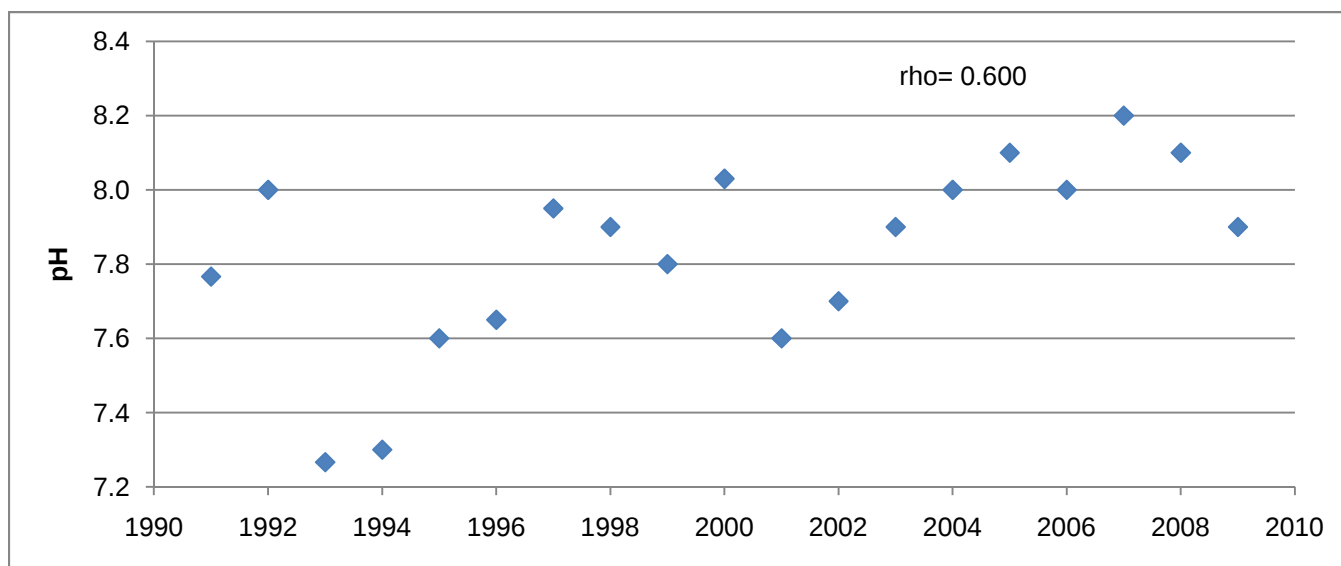
Appendix Figure C.3.1: Significant common (average) trends observed for pH, sulphate, uranium and acidity over all seasons at station Q-05, 2003 to 2009.



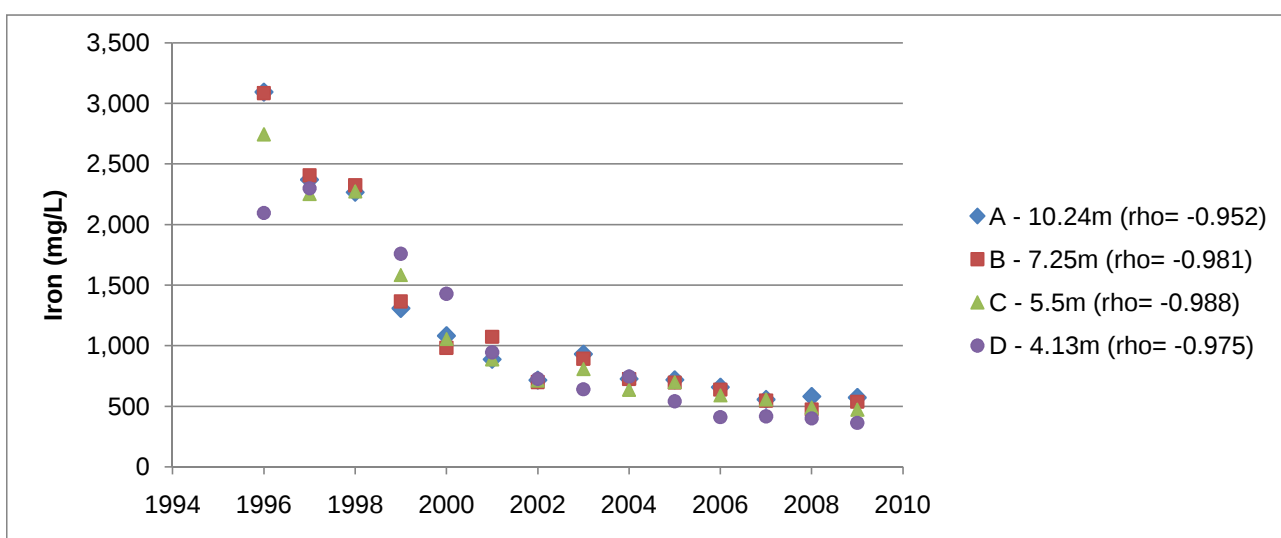
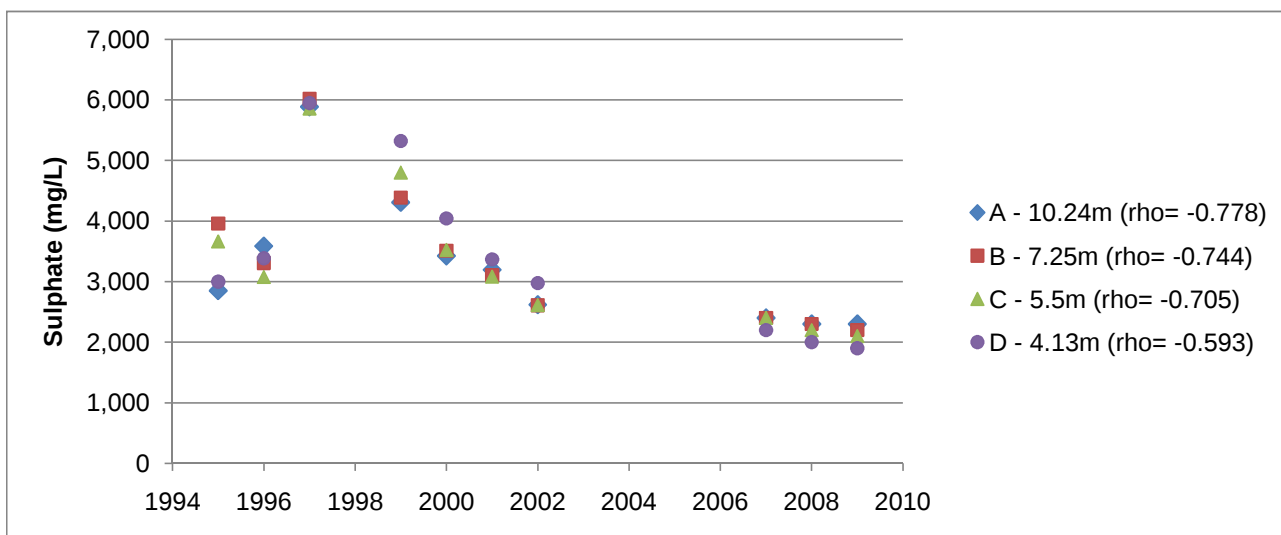
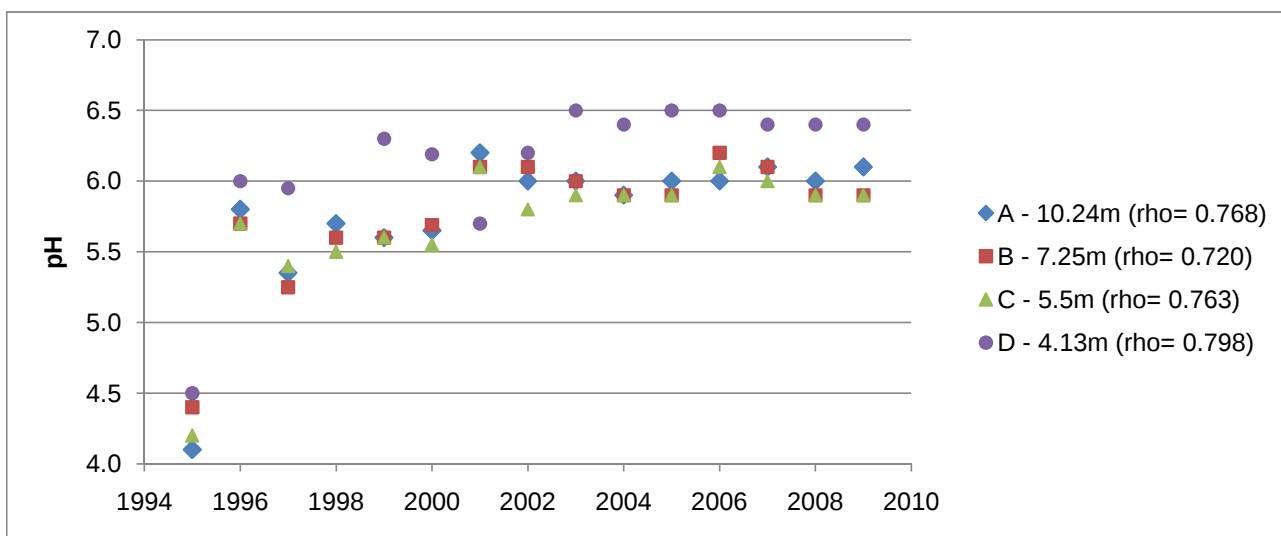
Appendix Figure C.3.1: Significant common (average) trends observed for pH, sulphate, uranium and acidity over all seasons at station Q-05, 2003 to 2009.



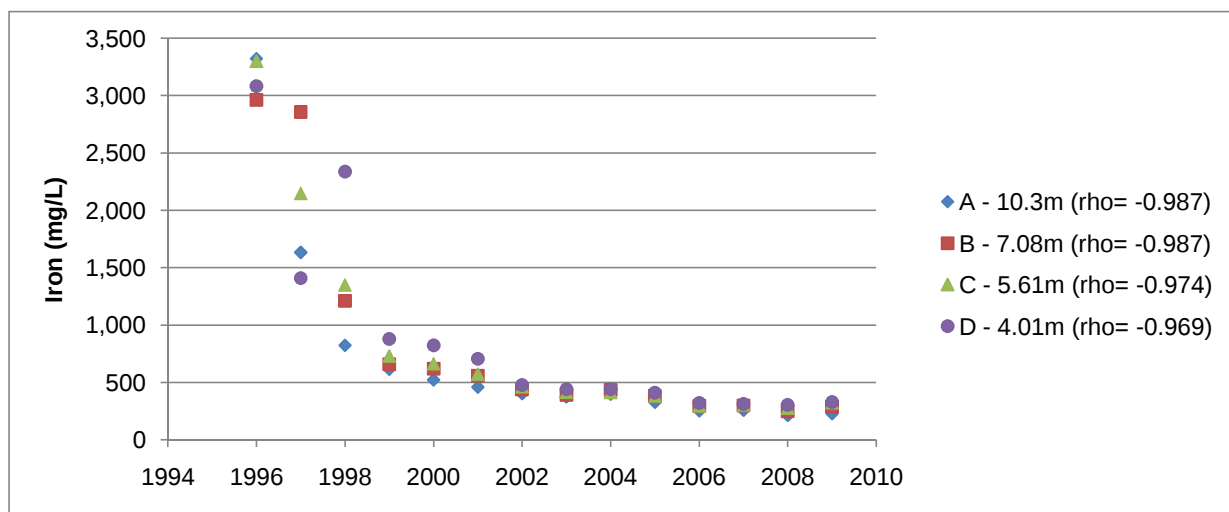
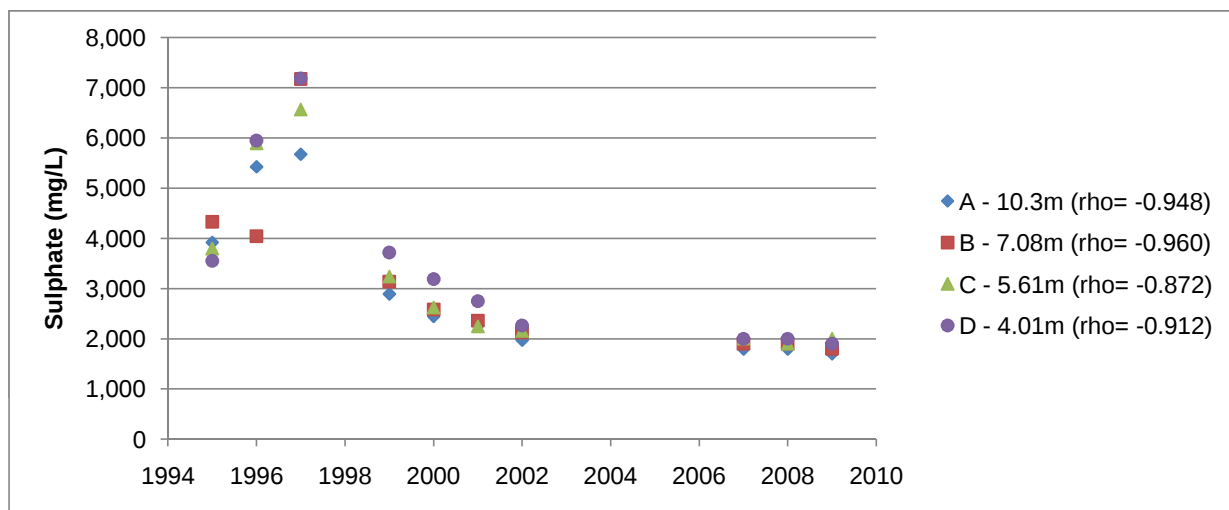
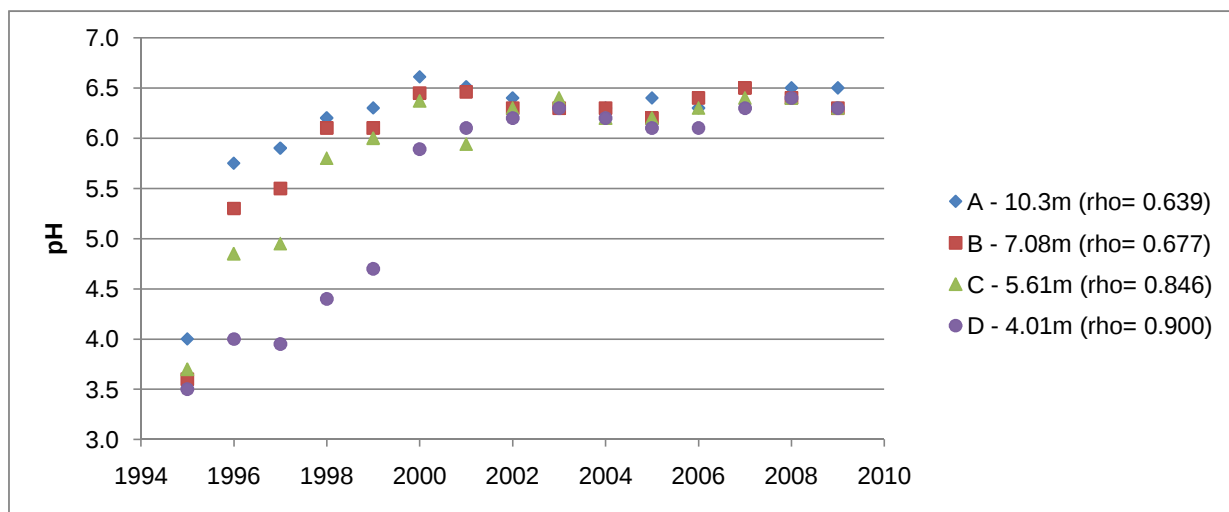
Appendix Figure C.3.2: Significant common (average) trends observed for acidity over all seasons at station Cell 14, 2003 to 2009.



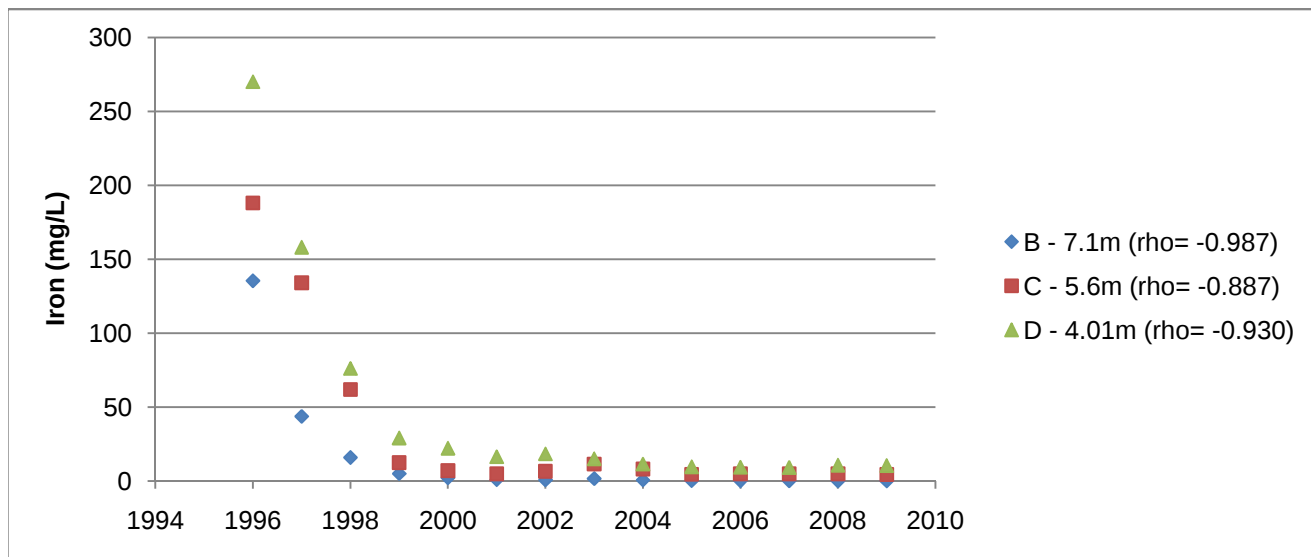
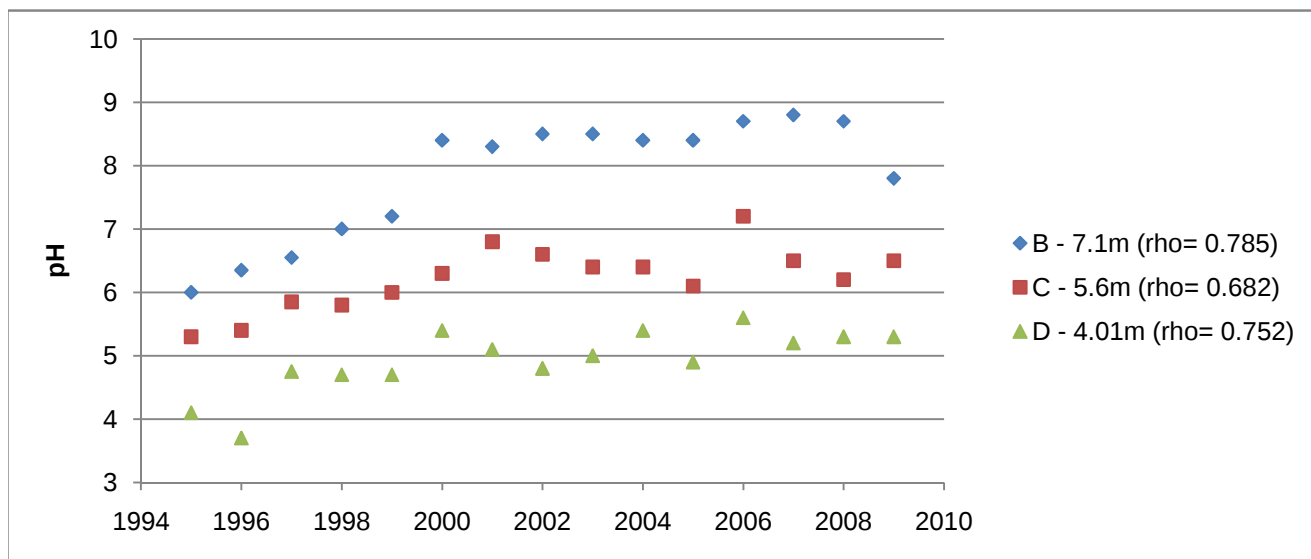
Appendix Figure C.3.3: Significant trends observed for pH, and iron at station DK14-5 C, 1991 to 2009.



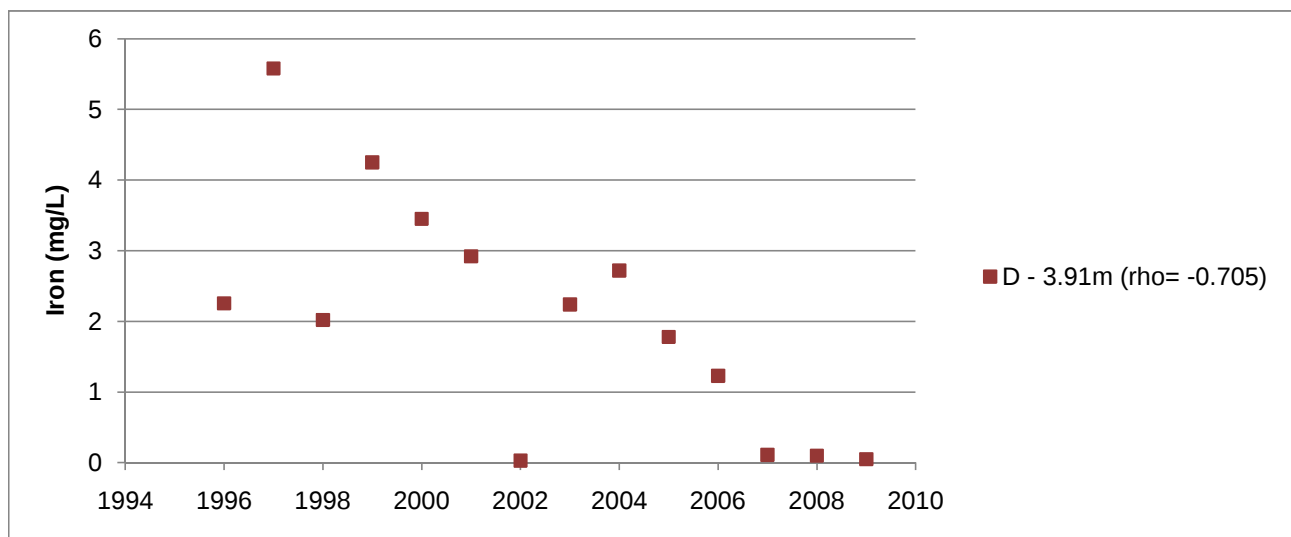
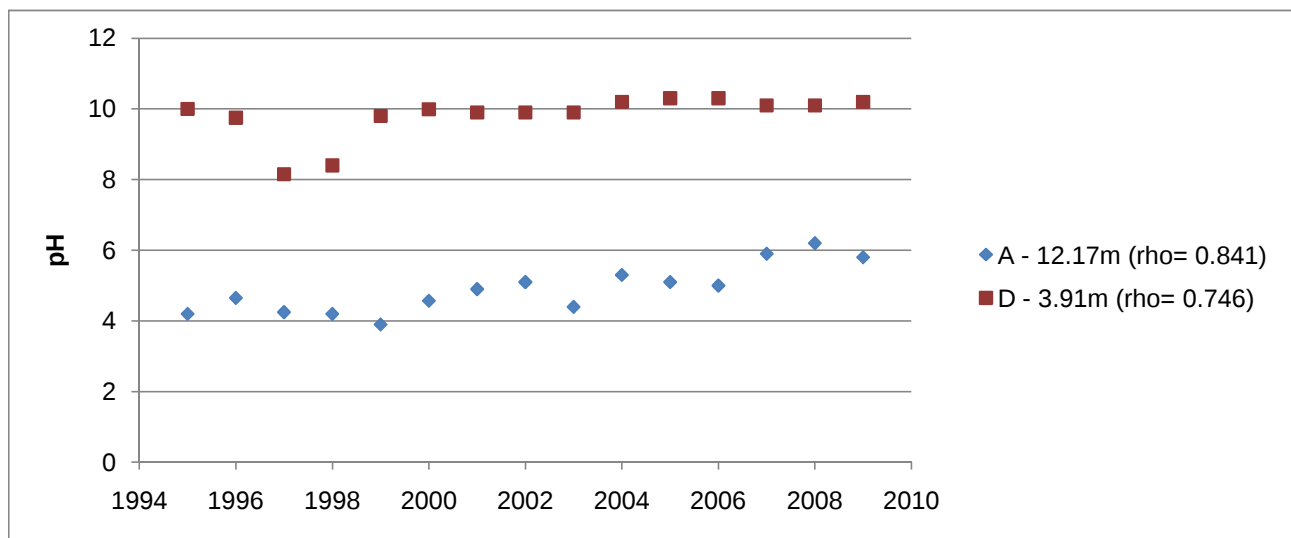
Appendix Figure C.3.4: Significant trends observed for pH, sulphate, and iron at station DK15-2 A, B, C, D, 1995 to 2009.



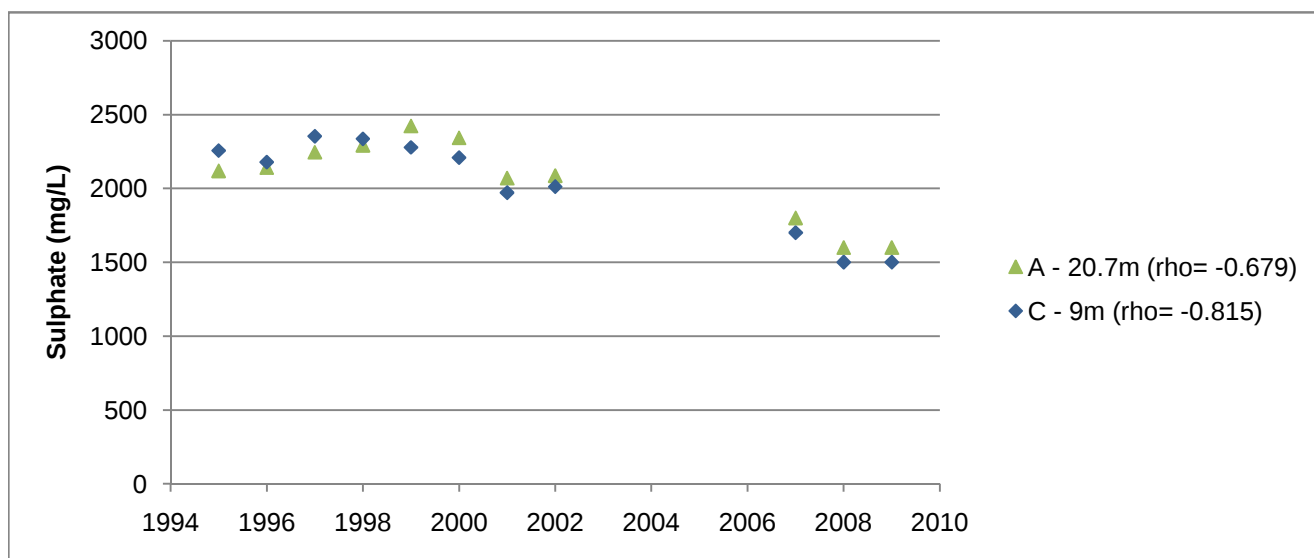
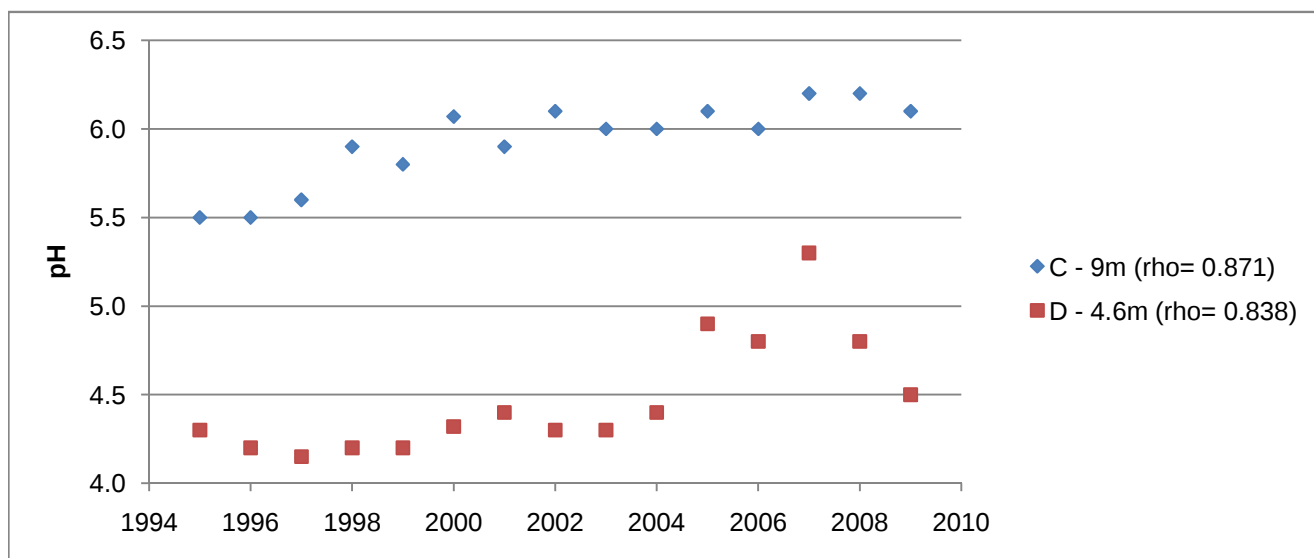
Appendix Figure C.3.5: Significant trends observed for pH, sulphate, and iron at station DK15-4 A, B, C, D, 1995 to 2009.



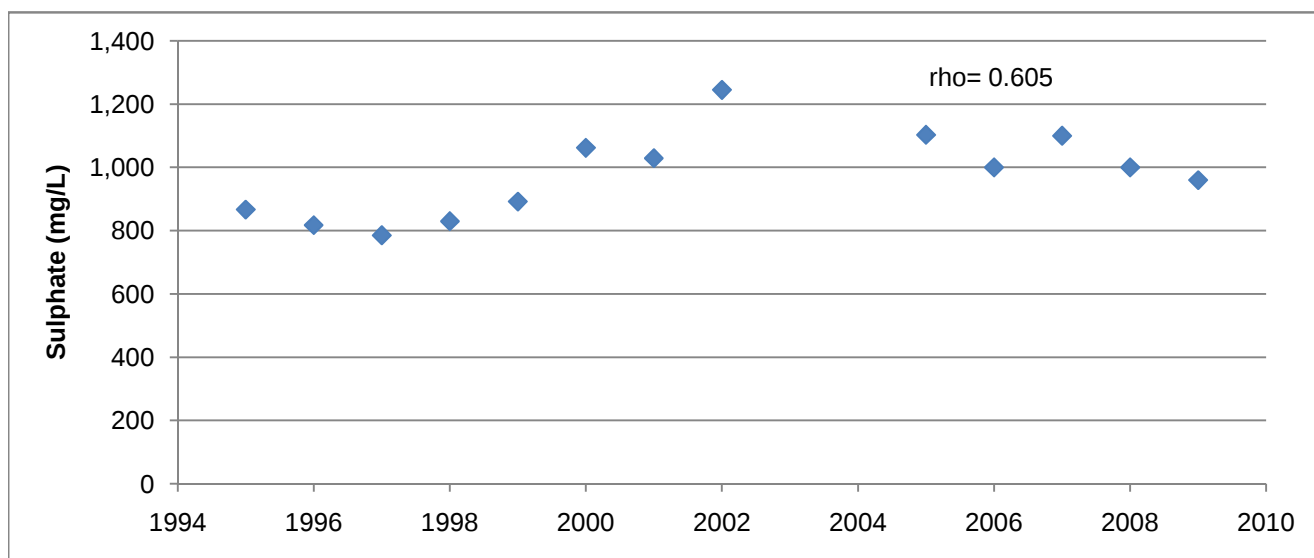
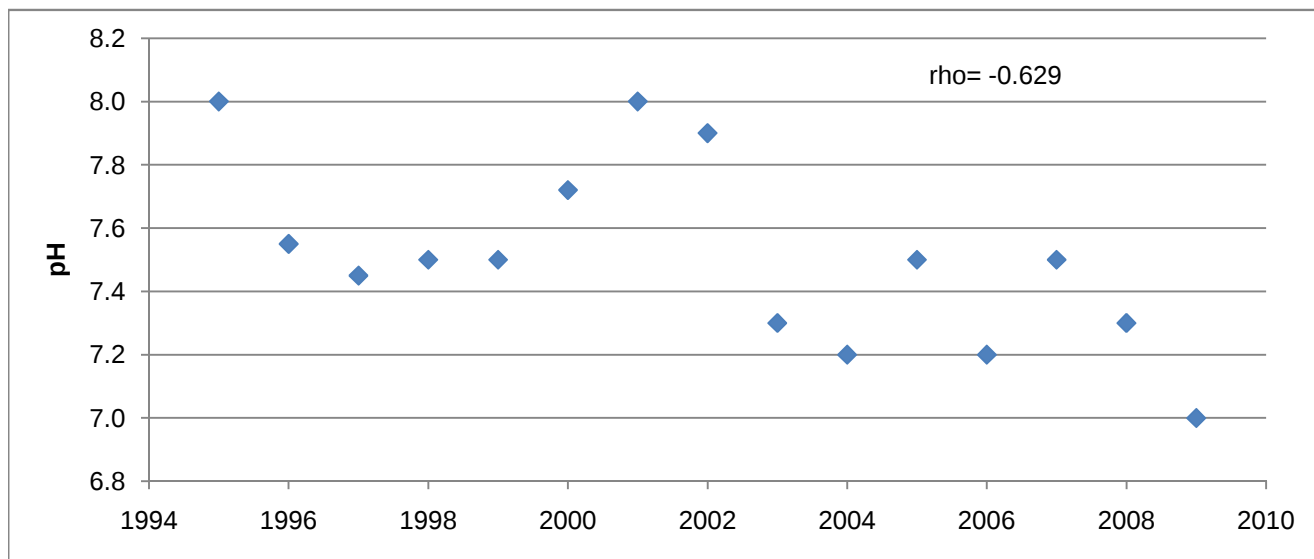
Appendix Figure C.3.6: Significant trends observed for pH and iron at station DK16-2 B, C, D, 1995 to 2009.



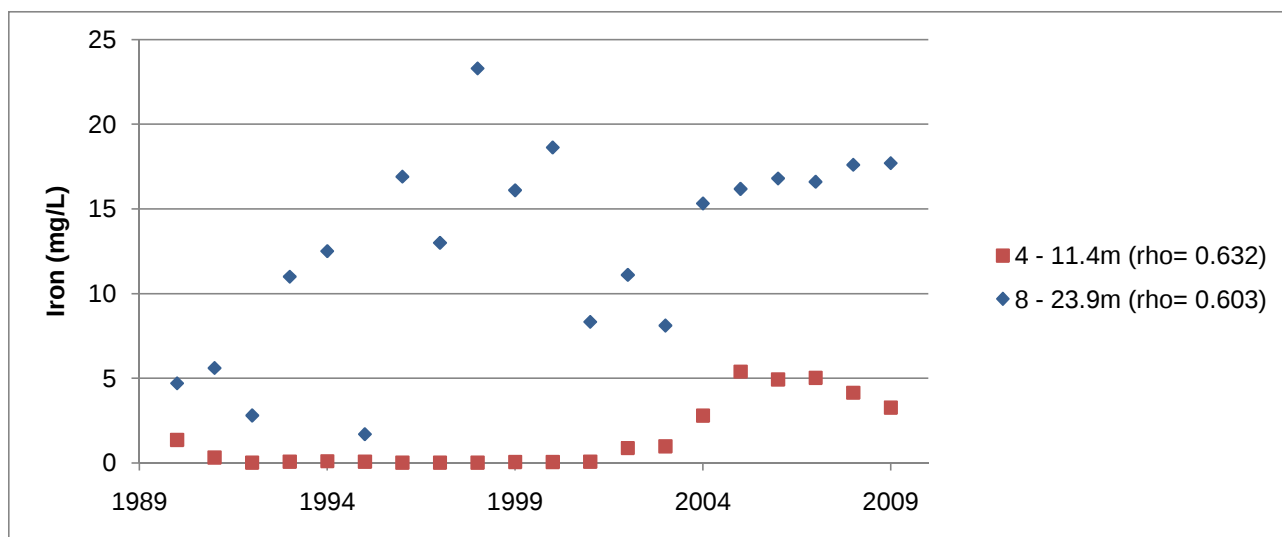
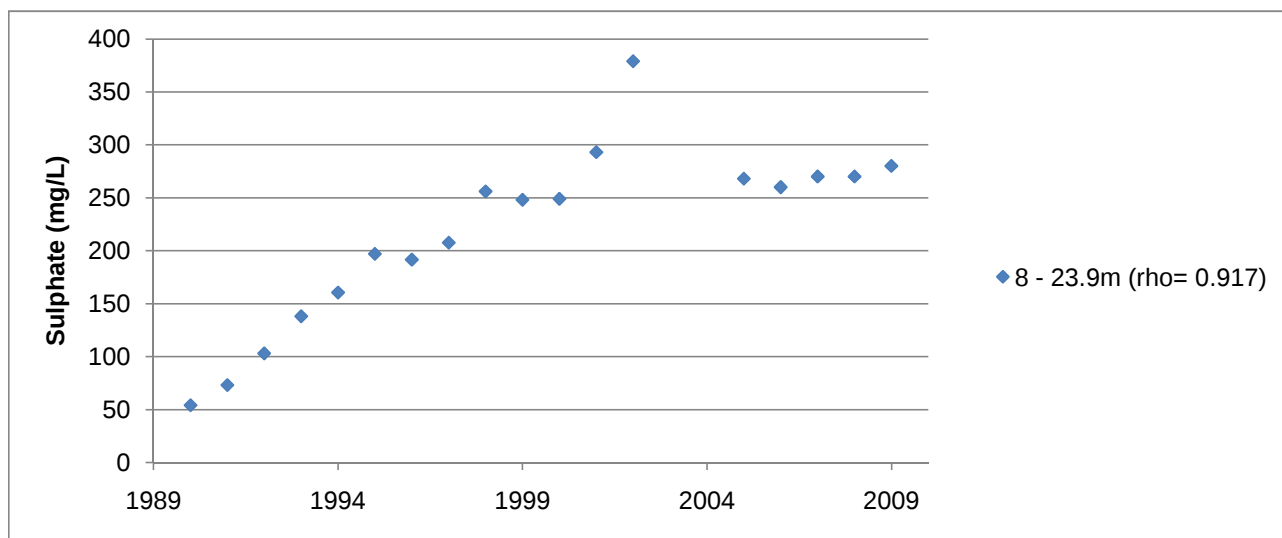
Appendix Figure C.3.7: Significant trends observed for pH and iron at station DK17-2 A, D, 1995 to 2009.



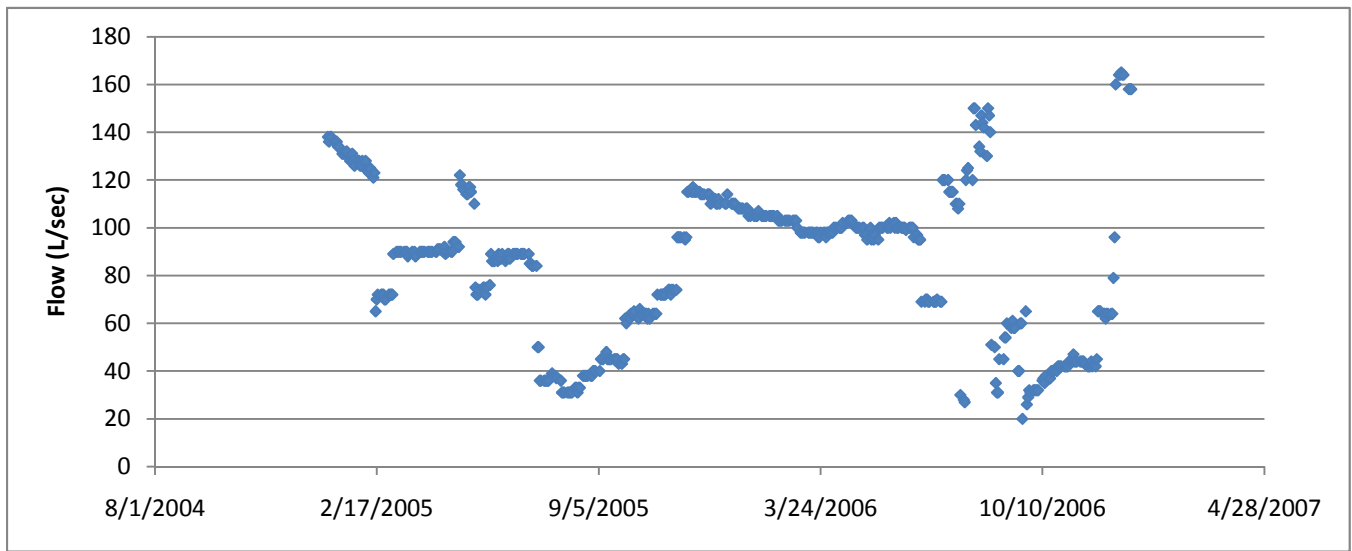
Appendix Figure C.3.8: Significant trends observed for pH and sulphate at station 95QW-3 A, C, D, 1995 to 2009.



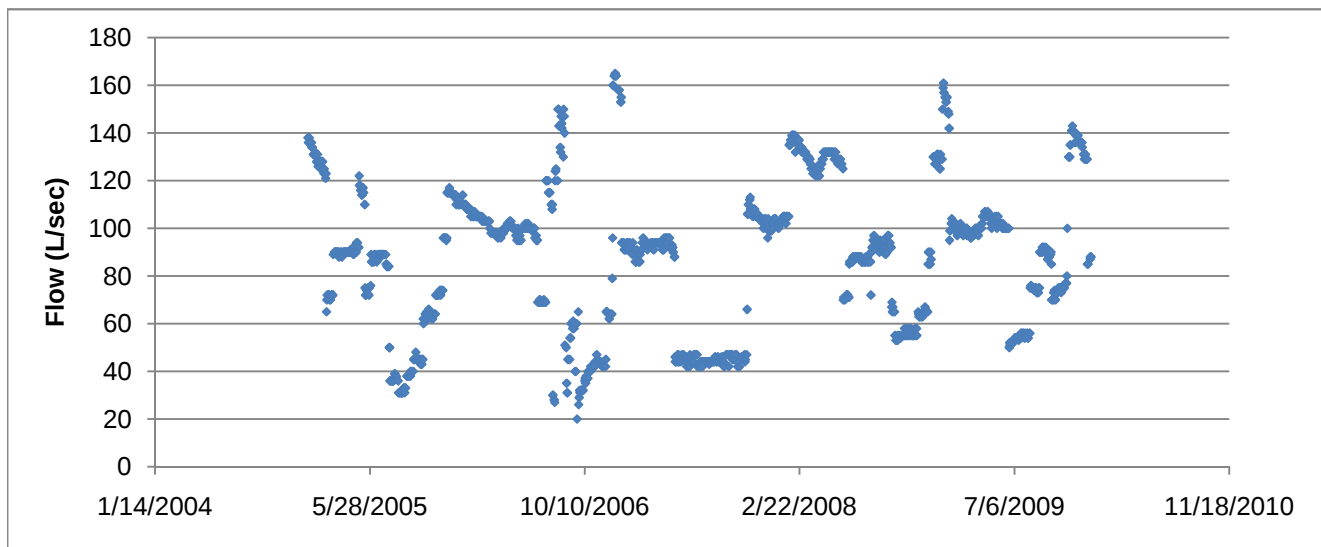
Appendix Figure C.3.9: Significant trends observed for pH and sulphate at station 95QW-4, 1995 to 2009.



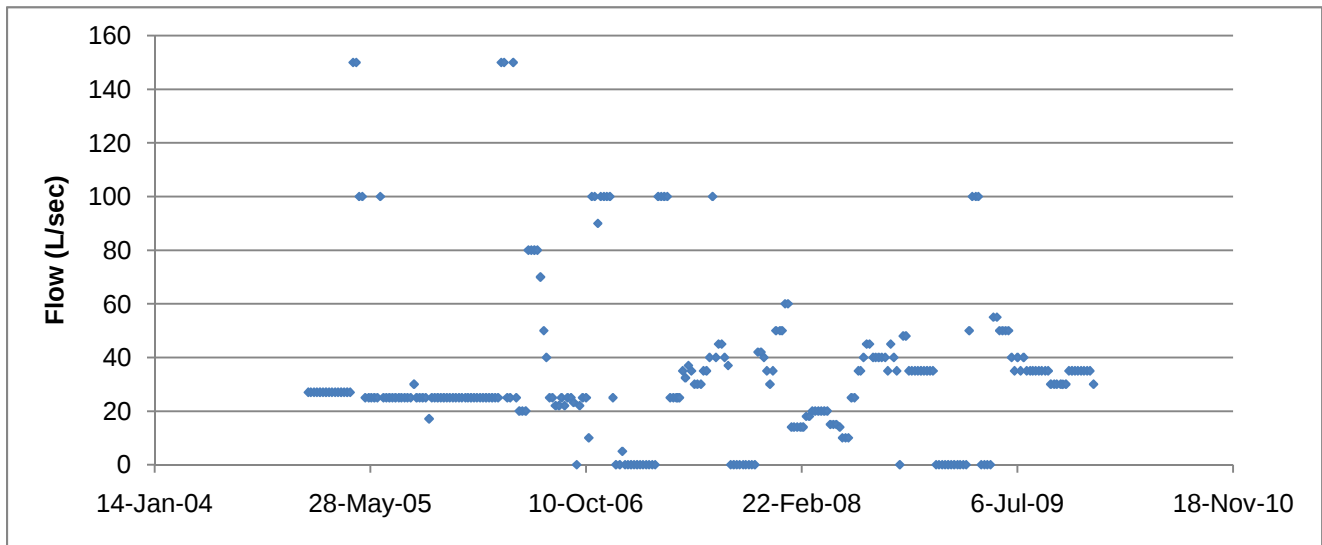
Appendix Figure C.3.10: Significant trends observed for iron and sulphate at station QPW1-4 and -8, 1990 to 2009.



Appendix Figure C.3.11: Flows at Station CL-05 from 2006 to 2007.



Appendix Figure C.3.12: Flows at station Q-05 from 2005 to 2009.



Appendix Figure C.3.13: Flows at station Q-29 from 2005 to 2009.

APPENDIX C.4

Panel TMA

Appendix Table C.4.1: Panel final point of control (P-14) discharge criteria.

Parameter ^f	Units	Discharge Criteria			Action Level	Internal Investigation
		Grab Sample ^a	Monthly Mean ^b	Composite ^e		
pH	pH units	5.5-9.5	6.5-9.5	6.0-9.5	<6.5 or >8.5	<7.0 or >8.0
Dissolved Radium-226 ^{c,d}	Bq/L	1.11	0.37	0.74	0.37	0.20
Total Suspended Solids	mg/L	50	25	37.5	30	7.5

^aSamples to be collected during periods of discharge.

^bArithmetic mean of twelve consecutive samples.

^cThe radium-226 criteria are waived if total radium-226 average loading < 12 Bq/s.

^dDischarge criteria are for dissolved radium-226, while measured and reported values are for total radium-226.

^eConsists of 3 equal volumes collected at equal intervals over a 7 to 24 hour period.

^fCopper, lead, nickel and zinc monitoring discontinued in January 2010 as per regulatory approval of Cycle 3 design.

^gRadium-226 criterion are waived if total radium-226 average annual loading is < 12 Bq/s.

Appendix Table C.4.2: Water quality at station ECA-349 from 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
1/6/2005	8.6	4/19/2006	7.8	4/16/2007	7.6	4/29/2008	8.2	4/21/2009	8.2
1/7/2005	8.6	4/20/2006	8.1	4/17/2007	7.8	4/30/2008	8.1	4/22/2009	8.2
1/10/2005	8.5	4/21/2006	8.1	4/18/2007	7.9	5/1/2008	8	4/23/2009	8
1/11/2005	8.5	4/24/2006	8	4/19/2007	7.7	5/2/2008	8.1	4/24/2009	8.2
1/12/2005	8.5	4/25/2006	7.8	4/20/2007	7.8	5/5/2008	8.1	4/27/2009	8.1
1/13/2005	8.5	4/26/2006	7.8	4/23/2007	8.7	5/6/2008	8.1	4/28/2009	8.2
1/14/2005	8.4	4/27/2006	8	4/24/2007	7.5	5/7/2008	8.2	4/29/2009	8.2
1/17/2005	8.4	4/28/2006	8.3	4/25/2007	8.3	5/8/2008	8.1	4/30/2009	8.2
1/18/2005	8.2	5/1/2006	7.9	4/26/2007	8	5/9/2008	8.3	5/1/2009	8.1
1/19/2005	8.2	5/2/2006	8.2	4/27/2007	8.3	5/12/2008	8.2	5/4/2009	8.6
1/20/2005	8	5/3/2006	8.2	4/30/2007	8.8	5/13/2008	8	5/5/2009	8.6
1/21/2005	8.2	5/4/2006	8	5/1/2007	7.7	5/14/2008	8	5/6/2009	8.2
1/24/2005	8	5/5/2006	7.7	5/2/2007	9	5/15/2008	8	5/7/2009	8.3
1/25/2005	8	5/8/2006	8.2	5/3/2007	8.5	5/16/2008	8	5/8/2009	8.2
1/26/2005	7.9	5/9/2006	7.9	5/4/2007	8	5/20/2008	8.4	5/11/2009	8.4
1/27/2005	7.9	5/10/2006	7.9	5/7/2007	7.9	5/21/2008	8.3	5/12/2009	8.2
1/28/2005	7.9	5/11/2006	7.9	5/8/2007	8.3	5/22/2008	8.2	5/13/2009	8.5
1/31/2005	8.3	5/12/2006	8	5/9/2007	8.4	5/23/2008	8.3	5/14/2009	8.3
2/1/2005	8.3	5/15/2006	8	5/10/2007	8.3	5/26/2008	8.2	5/15/2009	8.7
2/2/2005	8.3	5/16/2006	7.9	5/11/2007	8.4	6/24/2008	8.5	5/19/2009	8.6
2/3/2005	8.3	5/17/2006	8	5/14/2007	7.6	6/25/2008	8.5	5/20/2009	8.5
2/4/2005	8.2	5/18/2006	7.7	5/15/2007	7.9	6/26/2008	8.2	5/21/2009	8.5
2/7/2005	8	5/19/2006	7.9	5/16/2007	7.9	6/27/2008	8.2	5/22/2009	8.7
2/8/2005	8	5/23/2006	7.9	11/9/2007	8	7/1/2008	8.2	5/25/2009	8.7
2/9/2005	7.9	5/24/2006	7.9	11/12/2007	8	7/2/2008	8.3	5/26/2009	8.8
2/10/2005	8	5/25/2006	7.9	11/13/2007	8.1	7/3/2008	8.2	5/27/2009	8.6
2/11/2005	8	5/26/2006	7.9	11/14/2007	8.6	7/4/2008	8.1	5/28/2009	8.7
2/14/2005	8.2	5/29/2006	7.8	11/15/2007	8.4	7/7/2008	8.4	5/29/2009	8.7
2/15/2005	8.3	5/30/2006	8	11/16/2007	8.2	7/8/2008	8.4	6/1/2009	8.4
2/16/2005	8	5/31/2006	8	11/19/2007	8.5	7/9/2008	8.4	6/2/2009	8.5
2/17/2005	8.1	6/1/2006	7.9	11/20/2007	8.3	7/10/2008	8.2	6/3/2009	8.5
2/18/2005	8.2	6/2/2006	7.8	11/21/2007	8.5	8/6/2008	8.2	6/4/2009	8.5
2/21/2005	7.4	6/5/2006	8.2	11/22/2007	8.5	8/7/2008	8.1	6/5/2009	8.7
2/22/2005	7.9	6/6/2006	8.2	11/23/2007	8.5	8/8/2008	8.3	6/8/2009	8.8
5/2/2005	8.7	6/7/2006	8.2	11/26/2007	8.5	8/11/2008	8.1	6/9/2009	8.7
5/3/2005	8.7	6/8/2006	8.2	11/27/2007	8.5	8/12/2008	7.6	6/10/2009	8.7
5/4/2005	8.7	6/9/2006	8	11/28/2007	8.5	8/13/2008	8.3	11/2/2009	8.4
5/5/2005	8.6	10/17/2006	7.8	11/29/2007	8.4	8/14/2008	7.8	11/3/2009	8.8
5/6/2005	8.7	10/18/2006	8.2	11/30/2007	8.5	8/15/2008	8.2	11/4/2009	8.7
5/9/2005	8.7	10/19/2006	8.2	12/3/2007	7.8	8/18/2008	8	11/5/2009	8.8
5/10/2005	8.9	10/20/2006	8.2	12/4/2007	8.1	10/8/2008	8	11/6/2009	8.8
5/11/2005	8.8	10/23/2006	8.2	12/5/2007	8	10/9/2008	8.5	11/9/2009	8.8
5/12/2005	8.8	10/24/2006	8.3	12/6/2007	8.1	10/10/2008	8.5	11/10/2009	8.9
5/13/2005	8.9	10/25/2006	8.2	12/7/2007	8.2	10/14/2008	8.6	11/11/2009	9
5/16/2005	8.6	10/26/2006	8.2	12/10/2007	8.8	10/15/2008	8.6	11/12/2009	8.5
5/17/2005	8.6	10/27/2006	8.2	2/14/2008	7.9	10/16/2008	8.9	11/13/2009	8.5
5/18/2005	8.9	10/31/2006	8.2	2/15/2008	7.8	10/17/2008	8.6	11/16/2009	8.5
5/19/2005	8.7	11/1/2006	8.2	2/19/2008	7.7	10/20/2008	8.6	11/17/2009	8.8
5/20/2005	8.5	11/2/2006	8.2	2/20/2008	7.5	10/21/2008	8.4	11/18/2009	8.9
10/17/2005	8.6	11/3/2006	8.2	2/21/2008	7.5	10/22/2008	8.6	11/19/2009	8.8
10/18/2005	8.8	11/6/2006	8.2	2/22/2008	7.5	10/23/2008	8.5	11/20/2009	8.9
10/19/2005	8.8	11/7/2006	8.3	2/25/2008	7.6	10/24/2008	8.5	11/23/2009	8.4
10/20/2005	8.8	11/8/2006	8.2	2/26/2008	8	10/27/2008	7.3	11/24/2009	8.4
10/21/2005	8.8	11/9/2006	8.1	2/27/2008	8.2	10/28/2008	8.8	11/25/2009	8.4
10/24/2005	8.7	11/10/2006	7.9	2/28/2008	7.9	10/29/2008	8.8	11/26/2009	8.4

Appendix Table C.4.2: Water quality at station ECA-349 from 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
10/25/2005	8.7	11/13/2006	7.8	2/29/2008	8.2	10/30/2008	8.6	11/27/2009	8.4
10/26/2005	8.7	11/14/2006	8	3/3/2008	8.7	10/31/2008	8.5	11/30/2009	8.2
10/27/2005	8.6	11/15/2006	7.9	3/4/2008	8.1	11/3/2008	8.4	12/1/2009	8.1
10/28/2005	8.8	11/16/2006	7.9	3/5/2008	8	11/4/2008	8.4	12/2/2009	8.1
10/31/2005	8.5	11/17/2006	7.8	3/6/2008	8.1	2/3/2009	7.8	12/3/2009	8.2
11/1/2005	8.6	11/20/2006	8.1	3/7/2008	8	2/4/2009	8.2	12/4/2009	8.2
11/2/2005	8.5	11/21/2006	7.9	3/10/2008	7.8	2/5/2009	8.3	12/7/2009	8.1
11/3/2005	8.5	11/22/2006	7.8	3/11/2008	7.9	2/6/2009	7.9	12/8/2009	8.2
11/4/2005	8.5	11/23/2006	8	3/12/2008	8	2/9/2009	7.9	12/9/2009	8.2
11/7/2005	8.5	11/24/2006	7.9	3/13/2008	8	2/10/2009	7.9	12/10/2009	8.2
11/8/2005	8.5	11/27/2006	8	3/14/2008	8	2/11/2009	8.4	12/11/2009	8.2
11/9/2005	8.5	11/28/2006	8	3/17/2008	8	2/12/2009	8	12/14/2009	8
11/10/2005	8.5	11/29/2006	8	3/18/2008	8	2/13/2009	7.6	12/15/2009	8.2
11/11/2005	8.5	3/6/2007	8.1	3/19/2008	8	2/17/2009	8.4	Number	452
11/14/2005	8.5	3/7/2007	8	3/20/2008	7.8	2/18/2009	8.1	Minimum	7.3
11/15/2005	8.5	3/8/2007	8	3/24/2008	8.2	2/19/2009	8.4	Maximum	9
11/16/2005	8.5	3/9/2007	8	3/25/2008	8.2	2/20/2009	7.8	Mean	8.195575
11/17/2005	8.6	3/12/2007	7.8	3/26/2008	7.8	2/23/2009	8	Median	8.2
11/18/2005	8.6	3/13/2007	7.8	3/27/2008	7.8	2/24/2009	8	10th Percentile	7.8
11/21/2005	8.6	3/14/2007	7.9	3/28/2008	7.5	2/25/2009	8		
11/22/2005	8.6	3/15/2007	8	3/31/2008	7.8	2/26/2009	8.2		
11/23/2005	8.6	3/16/2007	7.9	4/1/2008	8	3/23/2009	7.3		
3/22/2006	8	3/19/2007	7.8	4/2/2008	7.8	3/24/2009	8.8		
3/23/2006	7.8	3/20/2007	7.8	4/3/2008	8	3/25/2009	8.7		
3/24/2006	8.4	3/21/2007	7.7	4/4/2008	8.4	3/26/2009	8.2		
3/27/2006	8.4	3/22/2007	7.8	4/7/2008	8.4	3/27/2009	8.2		
3/28/2006	8.4	3/23/2007	7.7	4/8/2008	8.5	3/30/2009	8.2		
3/29/2006	8.4	3/26/2007	7.6	4/9/2008	8.5	3/31/2009	8.3		
3/30/2006	8.4	3/27/2007	7.6	4/10/2008	8.5	4/1/2009	8.1		
3/31/2006	8.1	3/28/2007	7.5	4/11/2008	8.5	4/2/2009	8.2		
4/3/2006	8	3/29/2007	7.7	4/14/2008	8	4/3/2009	8.2		
4/4/2006	8.1	3/30/2007	7.7	4/15/2008	8.2	4/6/2009	8		
4/5/2006	8	4/2/2007	7.6	4/16/2008	8.1	4/7/2009	7.9		
4/6/2006	8.1	4/3/2007	7.6	4/17/2008	8.2	4/8/2009	7.9		
4/7/2006	8.6	4/4/2007	7.6	4/18/2008	7.5	4/9/2009	8		
4/10/2006	8.2	4/5/2007	7.7	4/21/2008	8.1	4/13/2009	7.8		
4/11/2006	7.7	4/9/2007	7.7	4/22/2008	7.7	4/14/2009	8.1		
4/12/2006	7.8	4/10/2007	7.7	4/23/2008	8	4/15/2009	8		
4/13/2006	7.8	4/11/2007	7.6	4/24/2008	8	4/16/2009	8.1		
4/17/2006	7.4	4/12/2007	7.6	4/25/2008	7.8	4/17/2009	8		
4/18/2006	7.8	4/13/2007	7.6	4/28/2008	8	4/20/2009	8.2		

Appendix Table C.4.3: Water quality at station P-13 from 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)
1/13/2005							0.570			
2/10/2005	3	0.019	0.0006	0.450	0.041	6.8	0.650	279		0.011
5/5/2005	3	0.031	0.0014	0.810	0.114	6.6	0.430	243		0.006
10/27/2005	2	0.016	0.00015	0.150	0.015	7.2	0.520	300		0.0025
11/10/2005							0.690			
3/23/2006	0.5	0.024	0.0009	0.410	0.079	6.6	0.640	250		0.005
4/13/2006							0.690			
5/4/2006	0.5	0.022	0.0015	0.730	0.096	6.9	0.530	180		0.0053
6/8/2006							0.480			
10/26/2006	0.5	0.022	0.0006	0.300	0.032	7.1	0.490	220		0.0039
11/9/2006							0.560			
1/4/2007	0.5	0.059	0.0007	0.550	0.050	6.7	0.550	220	1	0.0043
2/1/2007	0.5	0.024	0.0009	0.560	0.057	6.7	0.550	220	1	0.0051
3/1/2007	0.5	0.044	0.0007	0.650	0.067	6.7	0.580	230	3	0.0037
4/19/2007	0.5	0.043	0.0006	0.290	0.058	6.7	0.790	230	1	0.0043
5/10/2007	0.5	0.034	0.0013	0.330	0.096	6.9	0.520	200	1	0.0038
6/7/2007	0.5	0.021	0.0014	1.140	0.147	7.0	0.600	220	2	0.0032
7/5/2007	0.5	0.025	0.0094	2.180	0.817	6.9	1.000	220	5	0.0028
8/2/2007	0.5	0.017	0.00025	0.500	0.032	6.4	0.430	210	1	0.002
9/6/2007	0.5	0.019	0.00025	0.090	0.020	7.4	0.490	230	2	0.0026
10/4/2007	0.5	0.022	0.00025	0.080	0.018	7.1	0.540	220	2	0.0031
11/1/2007	0.5	0.022	0.00025	0.130	0.025	7.2	0.500	220	2	0.0039
11/22/2007	0.5	0.031	0.0006	0.460	0.025	7.0	0.470	210	2	0.0047
12/6/2007	0.5	0.034	0.00025	0.240	0.021	7.0	0.440	220	2	0.0044
1/3/2008	0.5	0.024	0.00025	0.450	0.027	6.9	0.500	230	2	0.0041
2/7/2008	0.5	0.315	0.0006	0.460	0.041	6.9	0.500	220	2	0.0041
2/21/2008	0.5	0.064	0.0006	0.230	0.045	6.9	0.440	210	1	0.005
3/6/2008	0.5	0.026	0.0005	0.240	0.043	6.9	0.400	230	0.5	0.005
4/3/2008	0.5	0.067	0.0006	0.320	0.056	6.9	0.430	220	1	0.0053
5/1/2008	0.5	0.019	0.0018	0.550	0.178	6.9	0.420	180	2	0.0055
5/22/2008	0.5	0.018	0.0015	0.550	0.149	6.9	0.480	180	2	0.0055
7/3/2008	0.5	0.017	0.00025	0.100	0.023	7.2	0.350	180	2	0.0032
8/7/2008	0.5	0.013	0.00025	0.070	0.020	7.2	0.280	180	1	0.0022
10/9/2008	0.5	0.016	0.00025	0.090	0.020	7.2	0.400	190	2	0.0028
10/16/2008	0.5	0.02	0.00025	0.130	0.029	7.1	0.420	190	2	0.003
11/13/2008	0.5	0.019	0.00025	0.110	0.019	7.2	0.440	180	2	0.0038
2/12/2009	0.5	0.033	0.00025	0.100	0.031	7.0	0.480	190	2	0.0033
3/26/2009							0.510		0.5	
4/8/2009	0.5	0.024	0.00025	0.170	0.081	6.7	0.530	200	0.5	0.0041
5/7/2009							0.520		0.5	
6/4/2009							0.390		1	
9/16/2009	0.5	0.014	0.00025	0.100	0.032	7.2	0.380	180	2	0.0029
11/5/2009	0.5	0.017	0.00025	0.050	0.014	7.2	0.420	190	1	0.004
12/10/2009							0.310		1	
Number	35	35	35	35	35	35	44	35	33	35
Minimum	0.5	0.013	0.00015	0.05	0.014	6.4	0.28	180	0.5	0.002
Maximum	3	0.315	0.0094	2.18	0.817	7.4	1	300	5	0.011
Mean	0.7	0.035	0.00086	0.39	0.075	6.9	0.507	213.5	1.6	0.0042
Median	0.5	0.022	0.00060	0.30	0.041	6.9	0.495	220.0	2.0	0.004
10th Percentile	0.5	0.016	0.00025	0.09	0.019	6.7	0.393	180.0	0.6	0.0027

Concentration below maximum MDL.

Appendix Table C.4.4: Water quality at station P-15 from 2005 to 2009.

Date	Conductivity (μ mho/cm)	Date	Conductivity (μ mho/cm)
1/6/2005	434	7/5/2007	436.7
2/18/2005	373.7	8/2/2007	593.0
3/11/2005	420	9/6/2007	490.0
4/7/2005	312.3	10/4/2007	522.0
5/5/2005	347.5	11/1/2007	450.7
6/9/2005	388.4	12/6/2007	418.5
7/12/2005	465	1/24/2008	345.9
8/4/2005	534	2/28/2008	412.5
9/9/2005	504	3/25/2008	421.8
10/14/2005	486	4/24/2008	305.5
11/17/2005	403.8	5/9/2008	331.2
12/8/2005	434.4	6/4/2008	349.3
1/23/2006	481	7/7/2008	354.6
2/2/2006	477	8/12/2008	347.7
3/13/2006	478	9/17/2008	386.7
4/13/2006	352.7	10/16/2008	400.5
5/4/2006	395.8	11/6/2008	405.1
6/6/2006	412.3	12/5/2008	293.3
7/6/2006	436.9	1/12/2009	418.2
8/22/2006	491	2/23/2009	387.5
9/7/2006	512	3/16/2009	450.4
10/26/2006	423.6	4/15/2009	378.4
11/30/2006	390.6	5/20/2009	344.8
12/18/2006	387.3	6/4/2009	382.5
1/4/2007	419.8	7/3/2009	399.7
2/2/2007	441.3	8/21/2009	418.4
3/1/2007	442.4	9/10/2009	444.1
4/19/2007	382.5	10/26/2009	439.8
5/3/2007	379.3	11/23/2009	412.3
6/7/2007	419.4	12/17/2009	417.7
Number			60
Minimum			293.3
Maximum			593
Mean			416.4
Median			418.0
10th Percentile			347.3

Appendix Table C.4.5: Water quality at station P-16A from 2005 to 2009.

Date	Acidity (mg/L)	Fe (mg/L)	pH	SO4 (mg/L)
7/1/2005	32	0.271	6.6	1,172
6/1/2006	0.5	0.19	6.6	1,200
7/30/2007	0.5	0.07	6.8	1200.0
7/14/2008	0.5	0.25	6.5	1100.0
9/3/2009	0.5	0.38	7.2	1100.0
Number	5	5	5	5
Minimum	0.5	0.07	6.5	1100
Maximum	32	0.38	7.2	1200.0
Mean	6.8	0.23	6.7	1154.4
Median	0.5	0.25	6.6	1172.0
10th Percentile	0.5	0.12	6.5	1100.0

 Concentration below maximum MDL.

Appendix Table C.4.6: Water quality at station P-20 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
7/1/2005	24.00	1298.00	1.10	7.1	
6/1/2006	0.50	1271.00	1.37	7	
7/31/2007	0.50		2.84	7.2	460.00
7/15/2008	0.50		3.58	6.8	390.00
6/15/2009	0.50		2.71	6.9	310.00
Number	5	2	5	5	3
Minimum	0.50	1271.00	1.10	6.8	310.00
Maximum	24.00	1298.00	3.58	7.2	460.00
Mean	5.20	1284.50	2.32	7.0	386.67
Median	0.50	1284.50	2.71	7.0	390.00
10th Percentile	0.50	1273.70	1.21	6.8	326.00

 Concentration below maximum MDL.

Appendix Table C.4.7: Water quality at station P-21 from 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)
4/18/2005	5					6.0	0.015			
12/1/2005	3					7.4	0.150			
4/25/2006	0.5					7.0	0.130			
12/18/2006	0.5					7.0	0.110			
1/4/2007	0.5	0.015	0.0025	0.01	0.01	7.1	0.140	300	1.0	0.0079
2/1/2007	0.5	0.015	0.00025	0.03	0.01	7.2	0.140	310	1.0	0.0081
3/1/2007	0.5	0.014	0.00025	0.01	0.01	7.2	0.120	320	1	0.0059
4/19/2007	1	0.0025	0.00025	0.05	0.02	6.1	0.024	36	0.5	0.0009
5/3/2007	0.5	0.013	0.00025	0.07	0.02	7.2	0.150	280	1	0.0067
6/7/2007	0.5	0.013	0.0014	0.06	0.01	6.9	0.140	290	0.5	0.0068
7/5/2007	0.5	0.014	0.0012	0.06	0.02	7.6	0.150	300	2	0.0070
8/2/2007	0.5	0.013	0.00025	0.03	0.01	7.7	0.110	280	1	0.0056
9/6/2007	0.5	0.013	0.00025	0.11	0.02	7.6	0.140	320	0.5	0.0089
10/4/2007	0.5	0.014	0.00025	0.06	0.02	7.0	0.150	310	1	0.0068
11/1/2007	0.5	0.014	0.0018	0.04	0.03	7.0	0.140	300	1	0.0076
12/6/2007	0.5	0.014	0.0005	0.05	0.02	7.2	0.130	300	1	0.0082
1/3/2008	0.5	0.014	0.00025	0.02	0.02	6.9	0.130	400	0.5	0.0081
4/3/2008	0.5					6.9	0.130			
11/6/2008	0.5					6.9	0.120			
4/15/2009	0.5			0.03		6.9	0.120	240		
11/23/2009	0.5			0.04		6.8	0.120	250		
Number	21	13	13	15	13	21	21	15	13	13
Minimum	0.5	0.0025	0.00025	0.01	0.007	6	0.015	36	0.5	0.0009
Maximum	5	0.015	0.0025	0.11	0.027	7.7	0.15	400	2	0.0089
Mean	0.9	0.013	0.00072	0.04	0.02	7.0	0.122	282	0.9	0.0068
Median	0.5	0.014	0.00025	0.04	0.017	7	0.13	300	1	0.007
10th Percentile	0.5	0.013	0.00025	0.01	0.0096	6.8	0.11	244	0.5	0.00566

Concentration below maximum MDL.

Appendix Table C.4.8: Water quality at station P-31 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
7/1/2005	24.00	2136.00	0.22	6.6	1171.00
6/1/2006	0.50	2112.00	0.13	6.5	1100.00
7/30/2007	0.50		0.01	6.7	1100.00
7/15/2008	0.50		0.05	6.5	990.00
6/11/2009	0.50		0.10	6.8	930.00
Number	5	2	5	5	5
Minimum	0.50	2112.00	0.01	6.5	930.00
Maximum	24.00	2136.00	0.22	6.8	1171.00
Mean	5.20	2124.00	0.10	6.6	1058.20
Median	0.50	2124.00	0.10	6.6	1100.00
10th Percentile	0.50	2114.40	0.03	6.5	954.00

concentration below maximum MDL.

Appendix Table C.4.9: Summary of seasonal trends for station P-13, 2003 - 2009.

Season	Spearman rho	Acidity	Barium	Cobalt	Iron	Manganese	pH	Ra-226	Sulphate	Uranium
January/February	Correlation Coefficient	-0.89442719	0.6	-0.66688593	-0.3	0.1	0.9	-0.8720816	-0.974679434	-0.9
	Sig. (2-tailed)	0.041	0.285	0.219	0.624	0.873	0.037	0.054	0.005	0.037
	N	5	5	5	5	5	5	5	5	5
March	Correlation Coefficient							-0.88571429		
	Sig. (2-tailed)							0.019		
	N							6		
April	Correlation Coefficient	-0.78262379	0.6	-0.35909242	-0.7	0.6	0.7181848	-0.2	-1	-0.8
	Sig. (2-tailed)	0.118	0.285	0.553	0.188	0.285	0.172	0.704	0.000	0.104
	N	5	5	5	5	5	5	6	5	5
May	Correlation Coefficient							-0.54056248		
	Sig. (2-tailed)							0.210		
	N							7		
June	Correlation Coefficient							-0.7		
	Sig. (2-tailed)							0.188		
	N							5		
October	Correlation Coefficient	-0.9258201	0.34786262	0.13093073	-0.02857143	0.142857143	0.6179144	-0.82857143	-0.753702346	
	Sig. (2-tailed)	0.008	0.499	0.805	0.957	0.787	0.191	0.042	0.084	
	N	6	6	6	6	6	6	6	6	
November	Correlation Coefficient							-0.82857143		
	Sig. (2-tailed)							0.042		
	N							6		

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where $p < 0.05$.

Appendix Table C.4.10: Seasonal trend Spearman correlation for TOMP station P-21, 2003 - 2009.

Season	Spearman rho	pH	Ra-226
April	Correlation Coefficient	0.490990253	0.432449982
	Sig. (2-tailed)	0.263	0.333
	N	7	7
Oct/Nov/Dec	Correlation Coefficient	-0.778311782	-0.774806218
	Sig. (2-tailed)	0.039	0.041
	N	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.

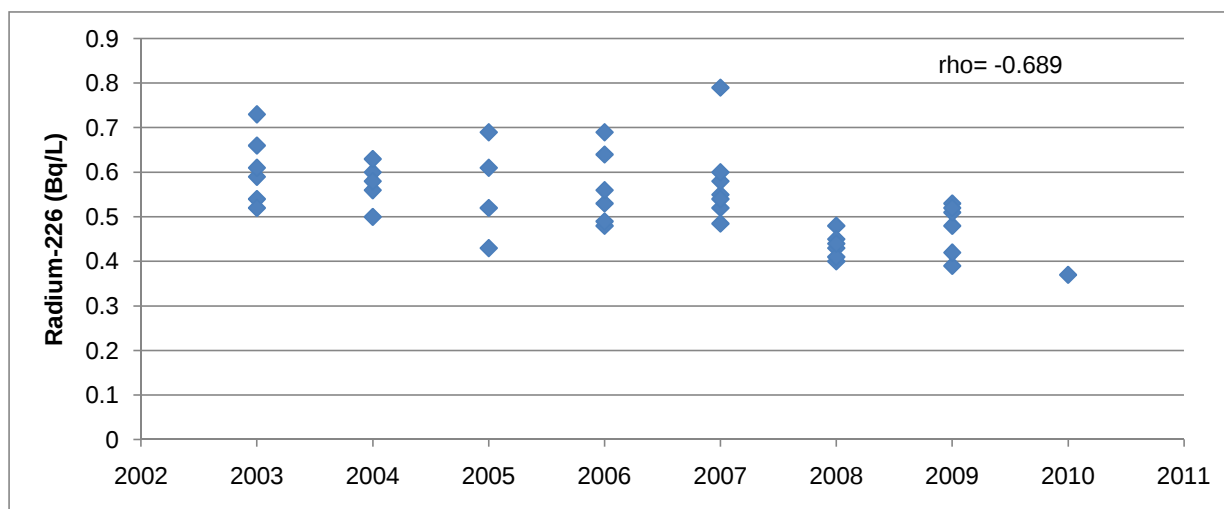
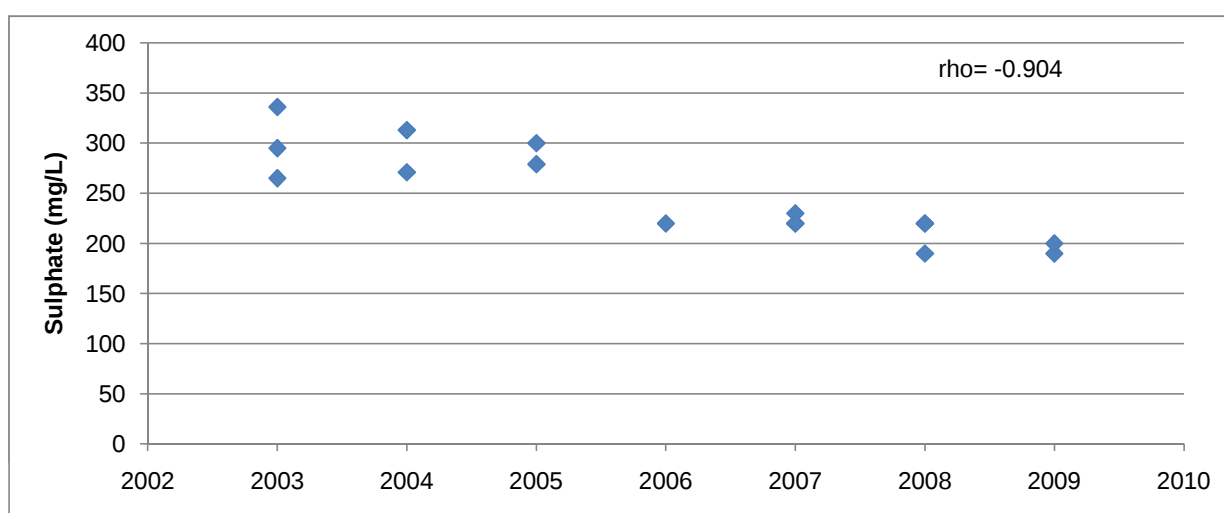
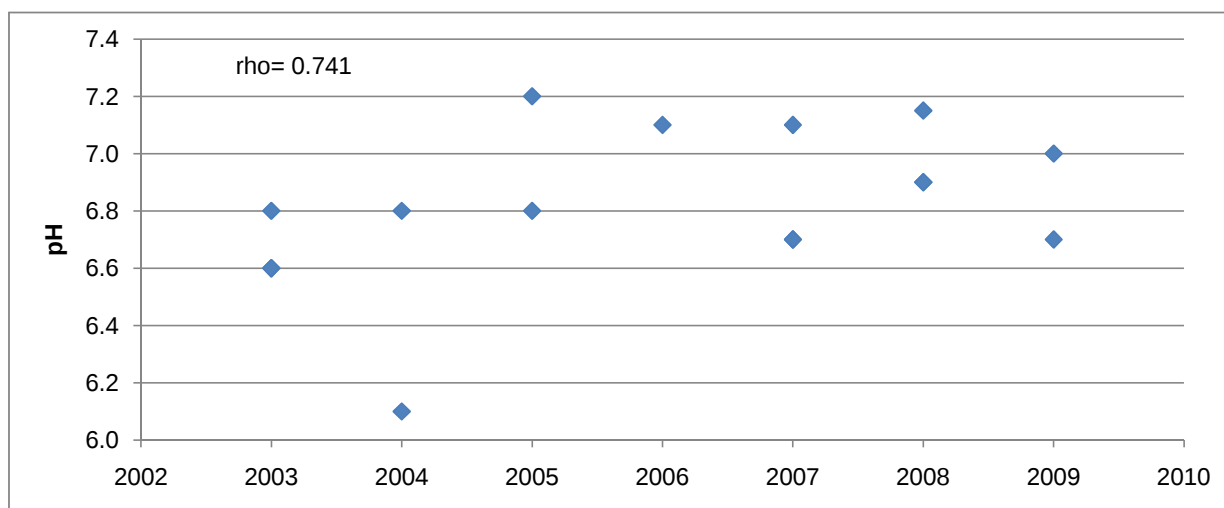
Appendix Table C.4.11: Summary of seasonal trends for Panel groundwater stations, 2003 - 2009.

Station	Spearman rho	Iron	pH	Sulphate
P-16A	Correlation Coefficient	-0.085714	-0.751333	0.69938054
	Sig. (2-tailed)	0.719366	0.000134	0.00123679
	N	20	20	18
P-20	Correlation Coefficient	-0.374436	-0.428494	-0.9029412
	Sig. (2-tailed)	0.103841	0.05943	1.6777E-06
	N	20	20	16
P-31	Correlation Coefficient	0.012158	-0.332486	0.16868694
	Sig. (2-tailed)	ns	ns	ns
	N	10	10	8

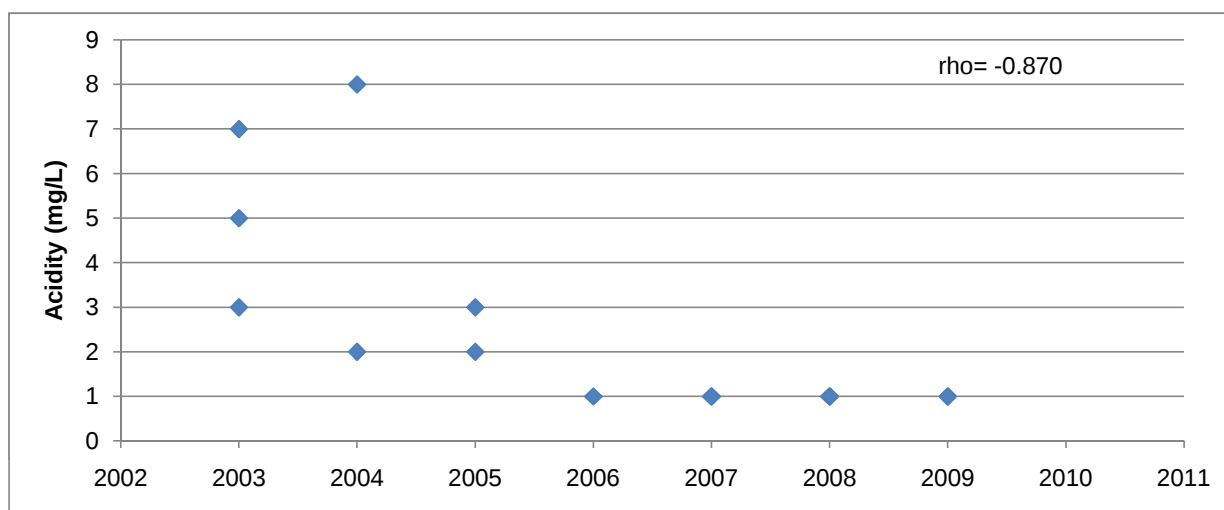
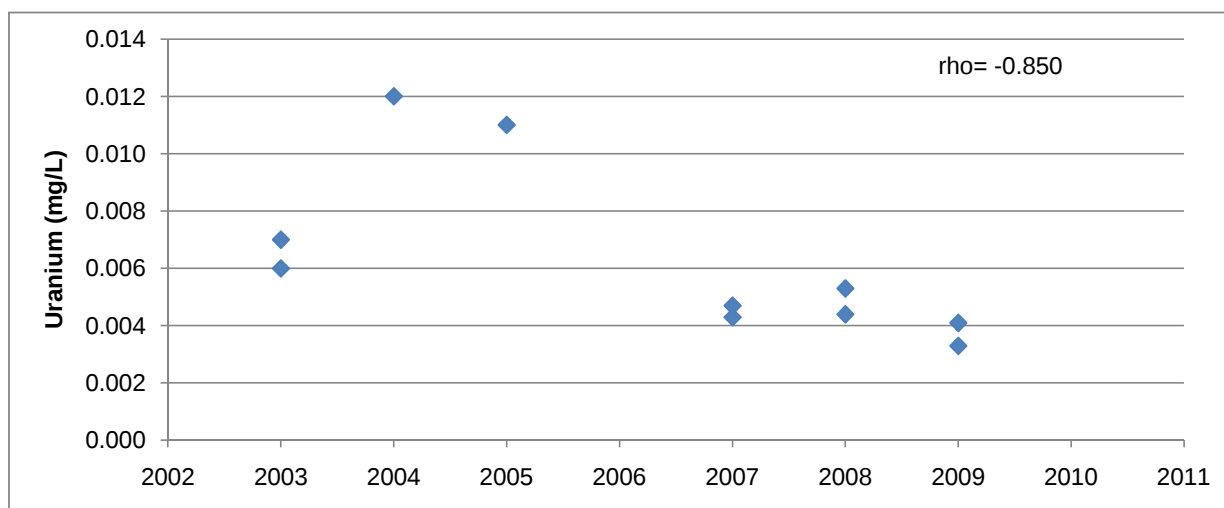
Note: p-values for $n < 10$ where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

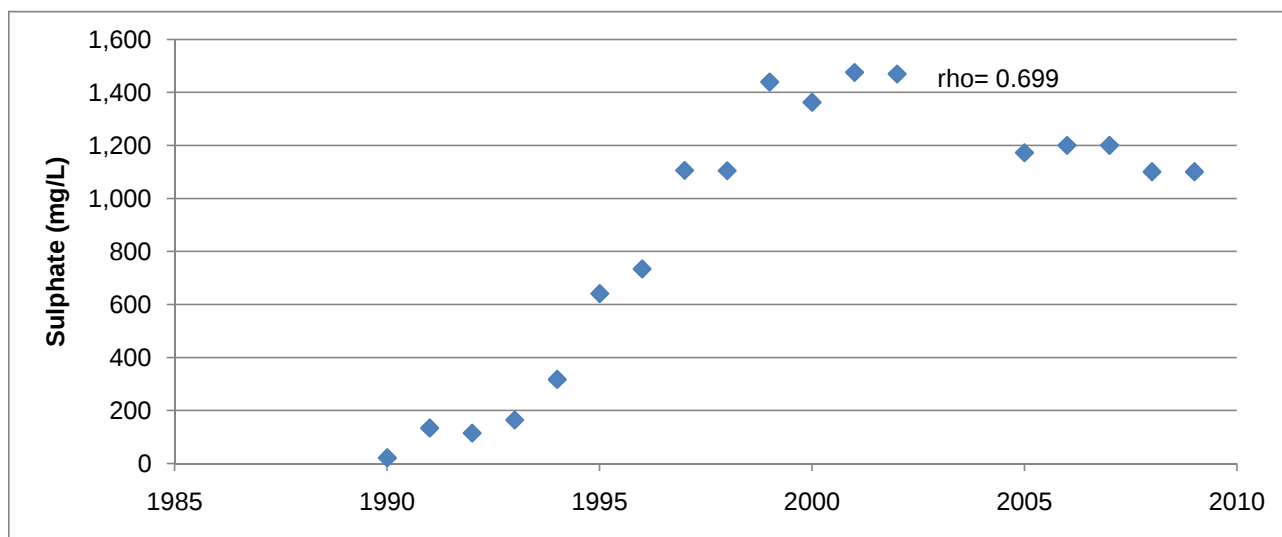
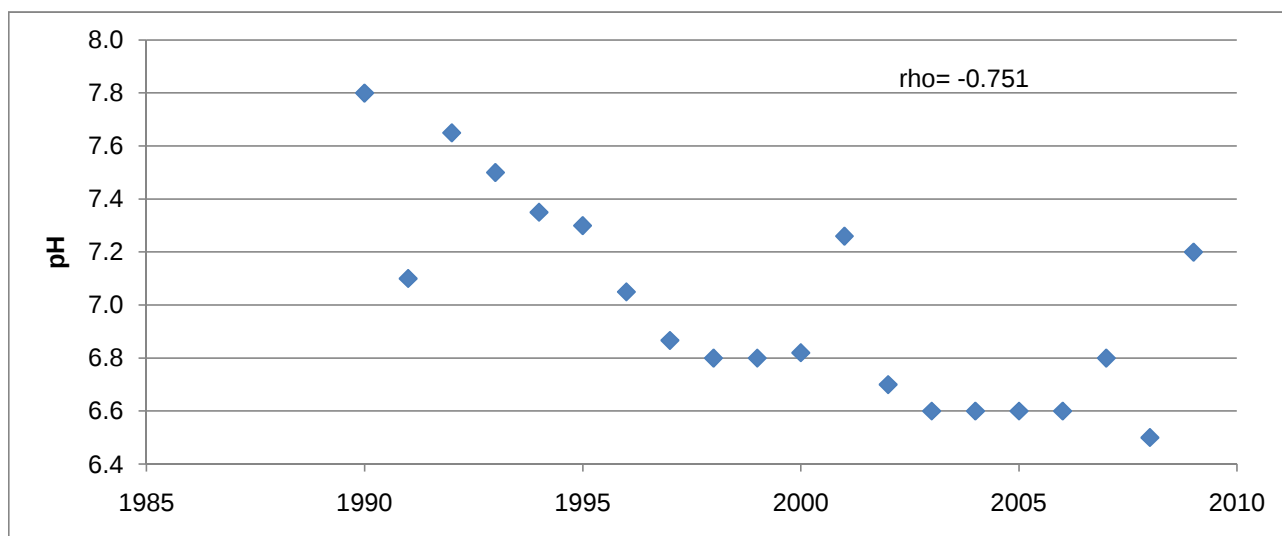
 Significant trend where $p < 0.05$.



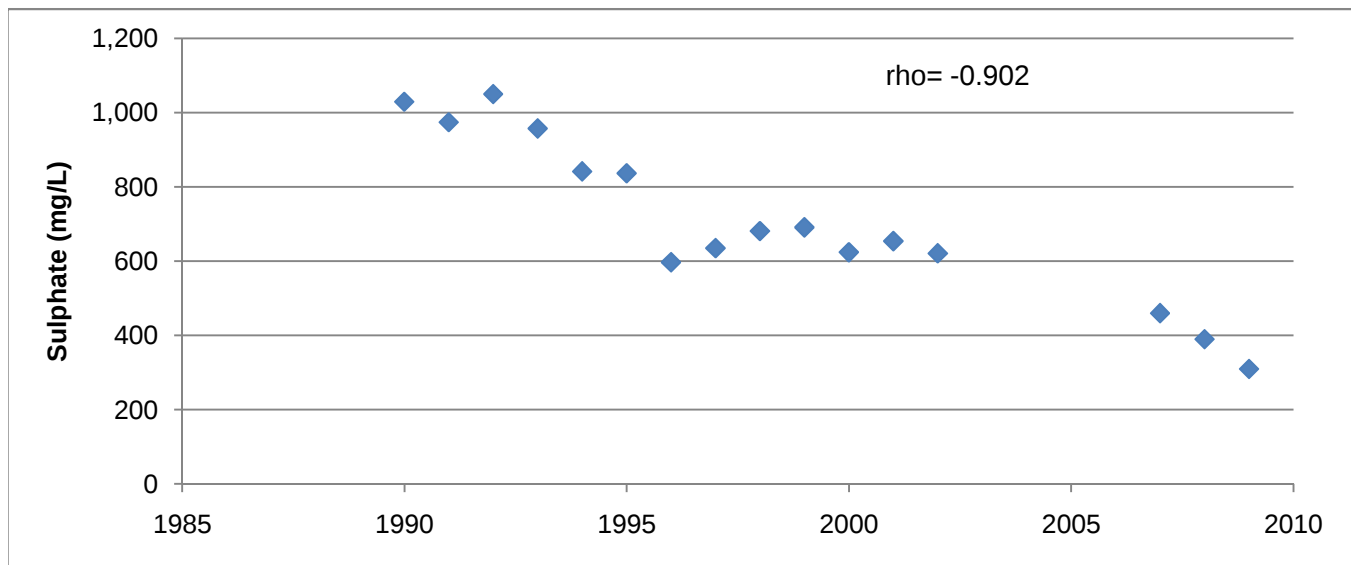
Appendix Figure C.4.1: Significant common (average) trends for pH, sulphate, radium-226, uranium and acidity over all seasons at station P-13, 2003 to 2009.



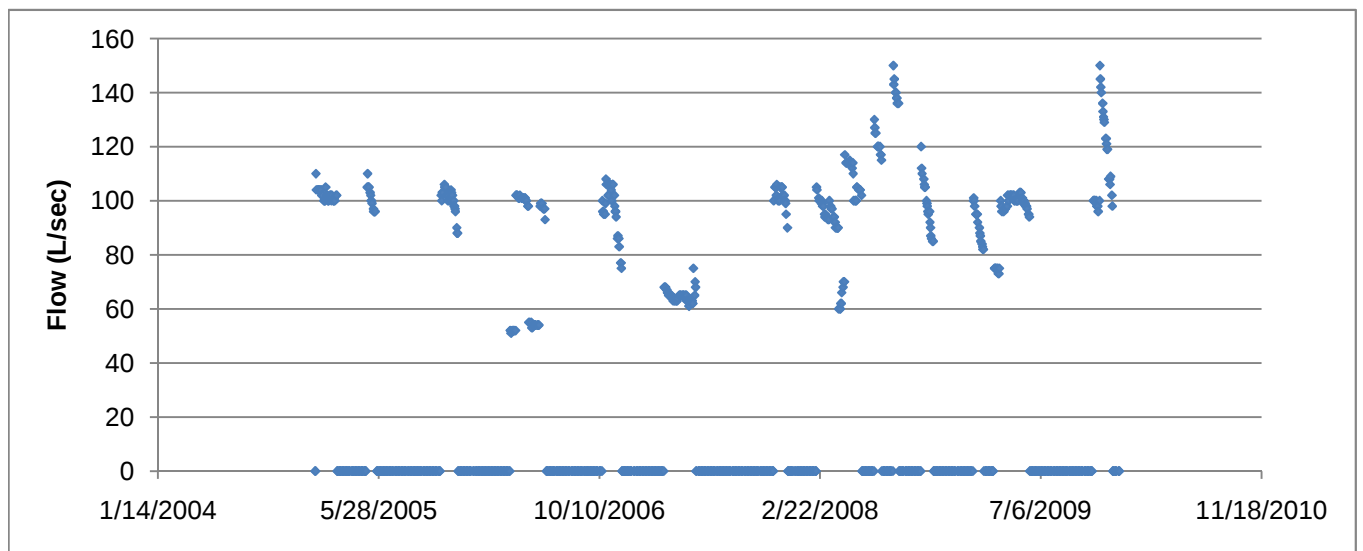
Appendix Figure C.4.1: Significant common (average) trends for pH, sulphate, radium-226, uranium and acidity over all seasons at station P-13, 2003 to 2009.



Appendix Figure C.4.2: Significant trends observed for pH and sulphate at station P-16A, 1990 to 2009.



Appendix Figure C.4.3: Significant trends observed for sulphate at station P-20, 1990 to 2009.



Appendix Figure C.4.4: Flows at station P-13 from 2005 to 2009.

APPENDIX C.5

Stanrock TMA

Appendix Table C.5.1: Stanrock final point of control (DS-4) discharge criteria.

Parameter	Units	Discharge Criteria	
		Grab Sample ^a	Monthly Mean ^b
pH	pH units	5.5-9.5	6.5-9.5
Dissolved Radium-226 ^c	Bq/L	1.11	0.37
Total Suspended Solids	mg/L	50.0	25.0

^aSamples to be collected during periods of discharge.

^bArithmetic mean of twelve consecutive samples.

^cDischarge criteria are for dissolved radium-226, while measured and reported values are for total radium-226.

Appendix Table C.5.2: Water quality at station DS-1, 2005 - 2009.

Date	pH ^a	Ra (Bq/L)
3/15/2005	7.2	0.069
6/14/2005	7.8	0.018
9/13/2005	7.4	0.029
12/13/2005	8.7	0.029
3/14/2006	7.8	0.015
6/13/2006	7.9	0.033
9/12/2006	7.7	0.037
12/12/2006	7.4	0.014
3/13/2007	7.1	0.028
6/12/2007	7.6	0.037
9/11/2007	7.8	0.044
12/11/2007	7.7	0.025
3/11/2008	8.0	0.020
6/10/2008	7.5	0.026
9/9/2008	7.6	0.025
12/9/2008	7.1	0.018
3/10/2009	7.1	0.016
6/9/2009	7.1	0.028
9/8/2009	7.2	0.021
12/8/2009	6.8	0.015
Number	1225	20
Minimum	6.4	0.014
Maximum	10.6	0.069
Mean	7.5	0.027
Median	7.5	0.026
10th Percentile	7.0	0.015

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table C.5.3: Water quality at station DS-2, 2005 - 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	Sulphate (mg/L)	U (mg/L)
1/14/2005						3.1	0.29		
4/12/2005						3.5	0.093		
6/15/2005	565	0.0099	0.127	69.4	4.2	2.7	0.2	2592	0.049
7/20/2005						2.5	0.2		
8/9/2005						2.6	0.24		
11/10/2005						2.6	0.16		
12/13/2005	570	0.0194	0.196	100.9	1.89	2.9	0.28	1465	0.169
3/14/2006	580	0.009	0.31	192.0	3.95	3	0.12	1200	0.179
4/11/2006						3.2	0.023		
6/13/2006						2.6	0.14		
10/11/2006						2.8	0.11		
11/14/2006	451	0.007	0.16	77.6	2.56	2.9	0.096	890	0.0816
12/12/2006						3	0.13		
1/9/2007						3.2	0.140		
2/20/2007						3.0	0.081		
3/13/2007	315	0.013	0.1680	91.6	4.480	2.9	0.100	1000.0	0.0624
4/12/2007						3.1	0.140		
6/12/2007	444	0.006	0.1570	78.1	4.040	2.6	0.100	1000.0	0.0840
10/9/2007						2.9	0.091		
11/13/2007						2.9	0.120		
12/18/2007	572	0.014	0.2730	117.0	2.620	2.7	0.097	1100.0	0.1300
1/8/2008						2.9	0.050		
2/12/2008						2.9	0.098		
3/13/2008	360	0.014	0.1800	99.7	2.550	2.9	0.110	520.0	0.085
4/8/2008						4.3	0.025		
5/13/2008						3.0	0.110		
6/10/2008	225	0.012	0.1200	57.9	1.780	2.8	0.120	670.0	0.0452
7/9/2008						2.7	0.160		
8/26/2008						2.7	0.100		
9/9/2008	323	0.009	0.1270	64.0	2.890	2.8	0.081	960.0	0.039
11/11/2008						2.9	0.070		
12/9/2008	417	0.011	0.1680	85.4	2.530	2.8	0.110	940.0	0.066
3/10/2009	446	0.03	0.2150	151.0	3.520	2.9	0.450	920.0	0.0713
4/14/2009						3.2	0.200		
5/12/2009						2.9	0.130		
6/9/2009	280	0.013	0.1290	50.4	1.720	2.8	0.240	730.0	0.0551
12/8/2009	362	0.016	0.1260	74.9	2.230	2.8	0.190	760.0	0.0470
Number	14	14	14	14	14	499	37	14	14
Minimum	225	0.006	0.1200	50.4	1.72	2.3	0.023	520	0.039
Maximum	580	0.03	0.3100	192	4.48	5.8	0.450	2592	0.179
Mean	422	0.013	0.1754	93.6	2.926	3.0	0.140	1053.4	0.083
Median	431	0.013	0.1640	81.8	2.590	2.9	0.120	950.0	0.069
10th Percentile	291	0.008	0.1263	59.7	1.813	2.7	0.077	688.0	0.046

Appendix Table C.5.4: Water quality at station DS-3, 2005 - 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
1/1/2005	10.2	11/13/2007	11.3	11/28/2005	10.3	4/25/2008	10.8	7/27/2006	9.5	12/12/2008	11.2	2/20/2007	9.9	6/8/2009	11.0
1/4/2005	11	11/19/2007	11.7	11/29/2005	11.5	4/28/2008	10.8	8/2/2006	9.8	12/15/2008	10.6	2/28/2007	9.9	6/9/2009	10.7
1/5/2005	10.6	11/20/2007	11.6	11/30/2005	10.3	4/29/2008	10.8	8/3/2006	9.5	12/16/2008	10.6	3/1/2007	10.1	6/16/2009	11.0
1/11/2005	10.7	11/21/2007	11.5	12/1/2005	10.7	4/30/2008	10.7	8/4/2006	9.6	12/17/2008	10.6	3/9/2007	10.1	6/17/2009	10.7
1/12/2005	10.5	11/23/2007	11.4	12/2/2005	10.7	5/1/2008	10.5	8/14/2006	9.7	12/18/2008	11.2	3/13/2007	10.1	7/3/2009	10.8
1/13/2005	10.5	12/6/2007	10.4	12/5/2005	10.8	5/6/2008	10.9	8/15/2006	9.6	12/19/2008	12.0	3/14/2007	10.0	7/7/2009	10.9
1/14/2005	11.1	12/7/2007	10.4	12/8/2005	10.5	5/7/2008	10.7	8/23/2006	10.3	12/22/2008	11.5	3/20/2007	10.1	7/8/2009	10.8
1/20/2005	10.8	12/18/2007	10.8	12/9/2005	10.1	5/8/2008	10.6	8/24/2006	10	12/23/2008	11.5	3/21/2007	10.1	7/9/2009	10.8
2/1/2005	11.1	12/19/2007	11.2	12/13/2005	10.8	5/9/2008	10.6	9/26/2006	10	12/24/2008	12.0	3/22/2007	10.7	7/28/2009	10.8
2/14/2005	10.8	12/21/2007	10.5	12/14/2005	11.5	5/12/2008	10.8	9/27/2006	10	12/29/2008	11.2	3/23/2007	10.7	7/29/2009	11.0
2/15/2005	10.9	12/24/2007	10.2	12/16/2005	10	5/13/2008	10.6	9/28/2006	10.5	12/30/2008	11.0	3/26/2007	10.9	7/30/2009	11.1
3/23/2005	11.4	12/27/2007	10.4	12/19/2005	10	5/14/2008	10.6	9/29/2006	10.4	12/31/2008	10.8	3/27/2007	10.8	8/14/2009	10.8
3/30/2005	11.6	12/28/2007	9.6	12/20/2005	10.5	5/15/2008	10.6	10/3/2006	10.4	1/5/2009	11.0	3/28/2007	11.1	8/24/2009	11.0
3/31/2005	11.5	1/2/2008	10.8	12/21/2005	10.5	5/16/2008	10.6	10/4/2006	10.4	1/6/2009	11.0	3/29/2007	10.9	8/25/2009	10.8
4/1/2005	11.6	1/3/2008	10.8	1/12/2006	10.3	5/22/2008	10.5	10/11/2006	10.6	1/15/2009	10.7	3/30/2007	10.8	10/2/2009	10.8
4/4/2005	11.5	1/7/2008	11.1	1/13/2006	11	5/23/2008	10.5	10/12/2006	10.8	1/16/2009	10.8	4/2/2007	10.4	10/5/2009	10.8
4/5/2005	11.5	1/8/2008	11.2	2/2/2006	10	6/3/2008	10.8	10/13/2006	10.8	1/20/2009	9.0	4/3/2007	10.2	10/6/2009	10.8
4/6/2005	11.9	1/9/2008	10.5	2/3/2006	10	6/4/2008	10.5	10/16/2006	10.5	1/21/2009	11.0	4/4/2007	10.2	10/7/2009	10.7
4/7/2005	11.5	1/10/2008	10.7	2/10/2006	10.2	6/10/2008	10.6	10/17/2006	10.7	2/6/2009	10.8	4/5/2007	10.1	10/8/2009	10.7
4/8/2005	10.8	1/11/2008	10.9	2/23/2006	10.2	6/11/2008	10.4	10/18/2006	10.6	2/12/2009	10.9	4/11/2007	10.2	10/21/2009	10.8
4/11/2005	11	1/17/2008	10.0	3/3/2006	10.2	6/12/2008	10.4	10/19/2006	10.6	2/13/2009	10.6	4/12/2007	10.2	10/22/2009	10.5
4/12/2005	11.2	1/18/2008	10.1	3/8/2006	10.2	6/16/2008	10.8	10/20/2006	10.7	2/19/2009	10.6	4/13/2007	10.1	10/23/2009	10.7
4/15/2005	11	1/22/2008	10.1	3/9/2006	10.1	6/17/2008	10.5	10/23/2006	10.7	2/20/2009	10.3	4/19/2007	10.0	10/26/2009	10.5
4/18/2005	11.4	1/23/2008	10.2	3/10/2006	10	6/18/2008	10.5	10/24/2006	10.5	3/5/2009	10.3	4/20/2007	9.9	10/27/2009	10.5
4/19/2005	11.4	1/25/2008	10.4	3/14/2006	10.7	6/23/2008	10.6	10/25/2006	10.9	3/6/2009	10.5	4/27/2007	10.4	10/28/2009	10.5
4/21/2005	10.7	1/28/2008	10.2	3/15/2006	10.6	6/24/2008	10.5	11/1/2006	10.7	3/9/2009	10.5	5/1/2007	10.5	10/29/2009	10.5
4/22/2005	11.4	1/29/2008	10.0	3/16/2006	10.1	6/25/2008	10.3	11/2/2006	10.7	3/10/2009	11.0	5/2/2007	10.6	10/30/2009	10.5
4/26/2005	10.2	1/30/2008	10.3	3/17/2006	10.1	6/26/2008	10.4	11/3/2006	10.7	3/13/2009	10.3	6/4/2007	10.5	11/2/2009	10.6
4/27/2005	10.3	1/31/2008	10.4	3/22/2006	10.8	6/27/2008	10.5	11/9/2006	10.9	3/16/2009	10.2	6/5/2007	10.6	11/3/2009	10.8
4/28/2005	10.2	2/1/2008	10.4	3/23/2006	10.5	7/3/2008	10.7	11/14/2006	10.9	3/17/2009	10.5	6/12/2007	10.8	11/4/2009	10.6
4/29/2005	10.3	2/6/2008	10.4	3/24/2006	12	7/4/2008	10.4	11/15/2006	10.6	3/18/2009	10.8	6/13/2007	10.5	11/5/2009	11.0
5/12/2005	10.1	2/7/2008	10.4	3/27/2006	10.8	7/9/2008	11.0	11/16/2006	10.7	3/19/2009	10.8	7/16/2007	10.8	11/6/2009	10.7
5/20/2005	9.8	2/8/2008	10.1	3/28/2006	10.6	7/10/2008	11.0	11/17/2006	10.5	3/20/2009	10.8	8/31/2007	11.0	11/10/2009	10.6
5/26/2005	9.8	2/12/2008	10.4	3/29/2006	10.5	7/11/2008	10.9	11/23/2006	10.7	3/24/2009	10.8	9/27/2007	10.8	11/13/2009	11.0
5/27/2005	10.4	2/13/2008	10.4	3/30/2006	11.5	7/21/2008	10.9	11/24/2006	10.5	3/25/2009	10.8	9/28/2007	10.9	11/24/2009	11.0
6/2/2005	9.8	2/20/2008	10.4	3/31/2006	11.2	7/22/2008	10.9	11/27/2006	10.6	3/26/2009	10.8	10/9/2007	11.0	11/25/2009	10.7
6/3/2005	9.7	2/21/2008	10.4	4/3/2006	11.1	7/23/2008	10.9	11/28/2006	10.8	3/27/2009	10.5	10/10/2007	11.0	11/27/2009	10.9
6/9/2005	9.7	2/22/2008	10.3	4/4/2006	11.5	7/24/2008	10.7	11/29/2006	10.7	3/31/2009	10.5	10/19/2007	11.0	12/1/2009	10.9
6/10/2005	10.3	2/26/2008	10.5	4/5/2006	11	7/25/2008	10.9	11/30/2006	10.6	4/1/2009	10.4	10/22/2007	11.0	12/2/2009	10.9
6/15/2005	10.5	2/27/2008	10.4	4/6/2006	10.2	8/6/2008	10.9	12/1/2006	11.2	4/2/2009	10.8	10/23/2007	10.8	12/3/2009	10.9
6/16/2005	10.85	3/6/2008	10.3	4/7/2006	10	8/7/2008	10.7	12/7/2006	10.7	4/3/2009	10.5	10/24/2007	10.6	12/4/2009	10.9
7/5/2005	9.8	3/7/2008	10.6	4/10/2006	10	8/8/2008	10.7	12/11/2006	10.5	4/6/2009	10.5	10/25/2007	11.1	12/8/2009	10.9
7/6/2005	9.8	3/13/2008	10.6	4/11/2006	10.1	8/14/2008	10.0	12/12/2006	10.7	4/7/2009	10.1	10/29/2007	11.1	12/11/2009	10.9
7/15/2005	8.5	3/14/2008	10.1	4/12/2006	10.4	8/15/2008	10.9	12/13/2006	10.8	4/8/2009	10.7	10/30/2007	11.1	12/15/2009	11.0
7/20/2005	8.5	3/26/2008	10.2	4/13/2006	10.4	8/25/2008	9.8	12/14/2006	10.8	4/9/2009	10.8	10/31/2007	11.2	12/16/2009	10.8
7/22/2005	8.3	3/27/2008	10.3	4/17/2006	11.1	8/26/2008	11.0	12/15/2006	10.8	4/13/2009	10.6	11/2/2007	11.0	12/18/2009	11.0
7/26/2005	8.6	3/31/2008	10.8	4/24/2006	10.5	9/4/2008	10.5	12/18/2006	10.9	4/14/2009	10.5	11/6/2007	11.1	12/21/2009	11.0
7/28/2005	9.1	4/1/2008	10.8	4/25/2006	10.2	9/5/2008	11.2	12/19/2006	10.9	4/15/2009	10.3	11/7/2007	11.2	12/22/2009	11.0
7/29/2005	8.7	4/2/2008	10.7	5/11/2006	10.3	9/9/2008	10.0	12/20/2006	11.7	4/16/2009	10.3	11/8/2007	11.2	12/29/2009	11.0
8/9/2005	9.2	4/3/2008	10.7	5/12/2006	10.1	9/10/2008	11.0	1/2/2007	10.8	4/30/2009	10.6	11/9/2007	11.2	12/30/2009	11.3
9/1/2005	10	4/4/2008	10.7	5/15/2006	10.1	9/18/2008	9.8	1/3/2007	10.7	5/1/2009	10.6	11/12/2007	11.4	12/31/2009	11.6
9/2/2005	9.9	4/7/2008	10.5	5/18/2006	9.8	9/19/2008	10.0	1/4/2007	10.6	5/7/2009	10.8	Number			492
9/20/2005	10.5	4/8/2008	10.8	5/19/2006	9.7	10/1/2008	10.8	1/8/2007	10.6	5/8/2009	11.1	Minimum			8.3
9/22/2005	10.6	4/9/2008	10.2	6/6/2006	10	10/2/2008	10.5	1/9/2007	10.5	5/12/2009	11.1	Maximum			12.3
10/13/2005	10.8	4/10/2008	9.0	6/7/2006	9.8	11/10/2008	10.6	1/12/2007	10.7	5/13/2009	11.5	Mean			10.6
10/27/2005	10.8	4/11/2008	10.4	6/13/2006	9.8	11/11/2008	10.5	1/17/2007	10.8	5/14/2009	11.1	Median			10.7
11/9/2005	11.3	4/14/2008	10.8	6/14/2006	9.7	11/13/2008	10.7	1/18/2007	10.7	5/15/2009	10.2	10th Percentile			10.0
11/10/2005	11.1	4/15/2008	10.8	6/22/2006	9.6	11/14/2008	10.7	1/24/2007	10.8	5/19/2009	10.7				
11/11/2005	9.8	4/16/2008	10.6	6/23/2006	9.6	11/27/2008	10.5	1/25/2007	10.9	5/20/2009	10.5				
11/14/2005	10.8	4/17/2008	10.3	6/29/2006	9.5	11/28/2008	10.8	1/30/2007	10.0	5/21/2009	10.5				
11/15/2005	10.8	4/18/2008	10.6	7/6/2006	9.8	12/2/2008	11.1	2/1/2007	10.0	5/22/2009	10.6				
11/16/2005	11	4/21/2008	9.9	7/7/2006	9.5	12/4/2008	11.6	2/2/2007	10.1	5/28/2009	11.0				
11/17/2005	10.5	4/22/2008	10.7	7/10/2006	12.3	12/5/2008	11.6	2/8/2007	10.0	5/29/2009	11.0				
11/21/2005	11	4/23/2008	11.2	7/11/2006	12	12/9/2008	10.8	2/9/2007	10.1	6/2/2009	10.9				
11/22/2005	11.5	4/24/2008	11.0	7/26/2006	9.8	12/11/2008	11.6	2/19/2007	10.2	6/3/2009	10.8				

Appendix Table C.5.5: Water quality at station DS-5, 2005 - 2009.

Date	pH ^a	Conductivity (µmho/cm)
3/15/2005	3.2	629
12/13/2005	3.5	231.3
3/14/2006	4	199.7
12/12/2006	3.5	108.1
6/9/2009	6.5	69.5
9/8/2009	5.5	695
12/8/2009	4.5	6950
Number	74	7
Minimum	3.1	69.5
Maximum	6.5	6950
Mean	3.5	1269
Median	3.4	231.3
10th Percentile	3.2	92.66

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table C.5.6: Water quality at station DS-6, 2005 - 2009.

Date	pH	Date	pH	Date	pH	Date	pH
1/4/2005	8.8	12/21/2005	9.2	11/7/2006	7.6	3/10/2009	8
1/5/2005	8.8	12/22/2005	9	11/8/2006	7.6	3/17/2009	7.3
1/6/2005	8.8	12/23/2005	9.1	11/9/2006	7.5	3/24/2009	7.2
1/7/2005	8.7	12/28/2005	9.2	11/10/2006	7.6	3/31/2009	7.5
1/10/2005	8.8	12/29/2005	9	11/13/2006	7.6	4/7/2009	8.2
1/11/2005	8.9	1/13/2006	9	11/14/2006	7.7	4/14/2009	6.9
1/12/2005	8.8	1/16/2006	8.9	11/15/2006	7.6	4/21/2009	6.9
1/13/2005	8.8	1/17/2006	9.1	11/16/2006	7.6	4/28/2009	9.3
1/14/2005	8.8	1/18/2006	9	11/17/2006	7.6	5/5/2009	9.1
1/17/2005	9	1/19/2006	9	11/20/2006	7.8	5/19/2009	8
1/18/2005	8.9	1/20/2006	9	11/21/2006	7.7	5/26/2009	7.9
1/19/2005	8.7	1/23/2006	9	11/22/2006	7.7	6/2/2009	7.5
1/20/2005	9	1/24/2006	9	11/23/2006	7.7	6/9/2009	7.5
1/21/2005	9.1	1/25/2006	8.8	11/24/2006	7.7	6/16/2009	7.6
1/24/2005	8.8	1/31/2006	9.2	11/27/2006	7.7	7/28/2009	7.6
1/25/2005	8.8	2/1/2006	9.3	11/28/2006	7.4	8/4/2009	8.7
1/26/2005	8.7	2/2/2006	9.3	11/29/2006	7.5	10/27/2009	7.1
1/27/2005	8.6	2/3/2006	9.1	11/30/2006	7.5	11/3/2009	7.1
2/2/2005	8.6	2/6/2006	9.3	12/1/2006	7.8	11/10/2009	7.2
2/3/2005	8.7	2/7/2006	9	12/4/2006	7.8	11/17/2009	7
2/4/2005	8.7	2/8/2006	9.1	12/5/2006	8	12/1/2009	6.9
2/7/2005	8.5	2/9/2006	8.8	12/6/2006	7.7	12/8/2009	6.9
2/8/2005	8.7	2/13/2006	9.2	12/7/2006	7.8	12/15/2009	6.8
2/9/2005	8.6	2/14/2006	9.2	12/8/2006	7.8	12/22/2009	6.9
2/10/2005	8.3	2/15/2006	9.2	12/11/2006	7.8	12/29/2009	6.9
2/11/2005	8	3/9/2006	8.8	12/12/2006	7.6	Number	313
2/14/2005	8.1	3/10/2006	8.8	12/13/2006	7.5	Minimum	4.5
2/15/2005	8.5	3/13/2006	7.8	12/14/2006	7.4	Maximum	10.6
2/16/2005	8.4	3/14/2006	9.1	12/15/2006	7.4	Mean	8.2
2/17/2005	8.5	3/15/2006	8.8	12/18/2006	7	Median	8.1
2/18/2005	8.5	3/16/2006	9.1	12/19/2006	7.1	10th Percentile	7.22
2/21/2005	8.7	3/17/2006	8.9	12/20/2006	6.8		
2/22/2005	8.8	3/20/2006	7.5	12/21/2006	7		
2/23/2005	8.7	3/21/2006	7.4	12/22/2006	7		
3/1/2005	8.6	3/22/2006	7.3	12/28/2006	7.5		
3/2/2005	8.7	3/23/2006	7.8	12/29/2006	7.6		
3/15/2005	8.7	3/24/2006	7.9	1/2/2007	7.3		
3/29/2005	8.9	3/27/2006	7.2	1/9/2007	7.3		
3/30/2005	8.9	3/28/2006	7.6	1/16/2007	8		
3/31/2005	8.8	3/29/2006	7.5	1/23/2007	7		
4/1/2005	8.1	3/30/2006	7.4	1/30/2007	7.6		
4/4/2005	5.7	3/31/2006	7.2	2/6/2007	7.4		
4/5/2005	4.5	4/3/2006	9.6	2/20/2007	7.7		
4/6/2005	4.8	4/4/2006	9.6	3/13/2007	7.6		
4/7/2005	6.5	4/5/2006	10	3/27/2007	7		
4/8/2005	10.6	4/6/2006	10	4/3/2007	9.4		
4/11/2005	7.5	4/7/2006	9.8	4/10/2007	7.7		
4/12/2005	8.9	4/10/2006	8.6	4/17/2007	8		
4/13/2005	7.9	4/11/2006	8.2	4/24/2007	8.8		
4/14/2005	7.4	4/12/2006	7.8	10/23/2007	8.2		
4/15/2005	7.6	4/13/2006	7.2	10/30/2007	8.4		
4/18/2005	8.3	4/17/2006	8.8	11/6/2007	8.1		
4/19/2005	7.7	4/18/2006	8.5	11/13/2007	8.5		
4/20/2005	10.1	4/19/2006	9.3	11/20/2007	8.1		
4/21/2005	10	4/20/2006	9.2	11/27/2007	8.6		
4/22/2005	9.9	4/21/2006	9.4	12/4/2007	8.6		
4/25/2005	9.8	4/24/2006	9.6	12/11/2007	8.6		
4/26/2005	9.7	4/25/2006	9.6	12/28/2007	8		
4/27/2005	9.7	4/26/2006	9.4	1/2/2008	7.8		
4/28/2005	9.6	4/27/2006	9.4	1/8/2008	7.4		

Appendix Table C.5.6: Water quality at station DS-6, 2005 - 2009.

Date	pH	Date	pH	Date	pH	Date	pH
4/29/2005	9.5	4/28/2006	9.4	1/15/2008	9		
5/2/2005	9.2	5/12/2006	8.3	1/22/2008	9		
5/3/2005	9.2	5/15/2006	8.1	1/31/2008	9.3		
5/4/2005	9.1	5/16/2006	7.8	2/5/2008	9.1		
5/5/2005	9	5/17/2006	7.9	2/19/2008	9		
5/27/2005	8	5/18/2006	7.9	2/26/2008	8.1		
5/31/2005	8	5/19/2006	7.9	3/4/2008	8.2		
6/7/2005	7.8	5/23/2006	8.5	3/11/2008	8.5		
6/8/2005	7.8	8/4/2006	8.2	3/18/2008	8.1		
6/16/2005	8.3	8/8/2006	8	4/1/2008	8.4		
6/17/2005	8.2	8/9/2006	7.9	4/8/2008	7.4		
11/16/2005	7.7	9/29/2006	7.9	4/15/2008	7.6		
11/17/2005	7.5	10/2/2006	7.6	4/22/2008	8.3		
11/18/2005	7.4	10/3/2006	7.6	4/29/2008	9.1		
11/21/2005	7.2	10/4/2006	7.9	5/6/2008	8.6		
11/22/2005	7.5	10/5/2006	7.8	5/13/2008	8.3		
11/23/2005	8.9	10/6/2006	7.8	5/20/2008	8.1		
11/24/2005	9	10/11/2006	7.7	5/27/2008	7.9		
11/25/2005	9.1	10/12/2006	7.7	6/3/2008	8		
11/28/2005	9.1	10/13/2006	7.7	6/10/2008	7.8		
11/29/2005	9.3	10/16/2006	7.8	6/17/2008	7.9		
11/30/2005	9.1	10/17/2006	7.8	6/24/2008	8		
12/1/2005	9.2	10/18/2006	7.6	7/1/2008	8.4		
12/2/2005	9.2	10/19/2006	7.6	7/8/2008	8.2		
12/5/2005	9	10/20/2006	7.8	7/22/2008	8.9		
12/6/2005	9.1	10/23/2006	7.7	11/18/2008	7.6		
12/7/2005	9.2	10/24/2006	7.8	11/25/2008	7.1		
12/8/2005	9.1	10/25/2006	7.6	12/2/2008	7.2		
12/9/2005	9.2	10/26/2006	7.6	12/9/2008	7.1		
12/12/2005	9.2	10/27/2006	7.5	12/16/2008	7.3		
12/13/2005	9.2	10/30/2006	7.6	12/23/2008	7		
12/14/2005	9.2	10/31/2006	7.7	12/30/2008	6.6		
12/15/2005	9	11/1/2006	7.7	1/6/2009	8.8		
12/16/2005	9.1	11/2/2006	7.7	1/20/2009	7.8		
12/19/2005	9.1	11/3/2006	7.6	2/11/2009	7.5		
12/20/2005	9.1	11/6/2006	7.6	2/17/2009	8		

Appendix Table C.5.7: Water quality at station BH91 SG1A, 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	Sulphate (mg/L)
8/1/2005	3590	4488	1746	3.70	
7/1/2006	3110	5840	2030	3.90	
9/19/2007	4600		2970	4.10	
8/11/2008	5230		2680	4.10	7000
8/24/2009	4920		2310	4.20	6100
Number	5	2	5	5	2
Minimum	3110	4488	1746	3.70	6100
Maximum	5230	5840	2970	4.20	7000
Mean	4290	5164	2347	4.00	6550
Median	4600	5164	2310	4.10	6550
10th Percentile	3302	4623	1860	3.78	6190

Appendix Table C.5.8: Water quality at wtation BH91-SG-3A and B, 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
BH91-SG3A	8/1/2005	4030.00	4750.00	1877.00	4.1	
	7/1/2006	3230.00	4610.00	1415.00	4.2	
	9/13/2007	961.00		1420.00	4.1	
	8/7/2008	0.50		564.00	3.5	2900.00
	8/25/2009	2650.00		1190.00	4.1	3800.00
BH91-SG3A Summary	Number	5	2	5	5	2
	Minimum	0.50	4610.00	564.00	3.5	2900.00
	Maximum	4030.00	4750.00	1877.00	4.2	3800.00
	Mean	2174.30	4680.00	1293.20	4.0	3350.00
	Median	2650.00	4680.00	1415.00	4.1	3350.00
	10th Percentile	384.70	4624.00	814.40	3.7	2990.00
BH91-SG3B	8/1/2005	3090.00	3705.00	865.50	3.2	
	7/1/2006	2280.00	3945.00	751.00	3.1	
	9/19/2007	1570.00		643.00	3.1	
	8/7/2008	139.00		1080.00	4.2	4400.00
	8/25/2009	0.50		500.00	3.7	2400.00
BH91-SG3B Summary	Number	5	2	5	5	2
	Minimum	0.50	3705.00	500.00	3.1	2400.00
	Maximum	3090.00	3945.00	1080.00	4.2	4400.00
	Mean	1415.90	3825.00	767.90	3.5	3400.00
	Median	1570.00	3825.00	751.00	3.2	3400.00
	10th Percentile	55.90	3729.00	557.20	3.1	2600.00

Concentration below maximum MDL.

Appendix Table C.5.9: Water quality at wtation BH98-15A, 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
8/1/2005	3430	5000	1950	5.8	
7/1/2006	2510	3899	1260	5.8	
9/19/2007	2460		1560.00	5.9	
8/12/2008	2200		1360.00	6.1	3600.0
8/25/2009	2000		1310.00	6.0	3600.0
Number	5	2	5	5	2
Minimum	2000	3899	1260	5.8	3600.0
Maximum	3430	5000	1950	6.1	3600.0
Mean	2520	4450	1488.00	5.9	3600.0
Median	2460	4450	1360.00	5.9	3600.0
10th Percentile	2080	4009	1280.00	5.8	3600.0

Appendix Table C.5.10: Water quality at station BH98-16A, 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH	SO4 (mg/L)
8/1/2005	4020	5020	2165	5.9	
7/1/2006	4220	4940	1770	5.7	
9/19/2007	3030		2140.00	5.7	
8/7/2008	541		2170.00	5.6	5400.0
8/19/2009	3120		2060.00	5.8	4800.0
Number	5	2	5	5	2
Minimum	541	4940	1770	5.6	4800.0
Maximum	4220	5020	2170.00	5.9	5400.0
Mean	2986	4980	2061.00	5.7	5100.0
Median	3120	4980	2140.00	5.7	5100.0
10th Percentile	1537	4948	1886.00	5.6	4860.0

Appendix Table C.5.11: Water quality at station PN-ST3-P3, 5, 6, and 8, 2005 to 2009.

Site	Date	Acidity (mg/L)	Conductivity (µmho/cm)	Iron (mg/L)	pH
PN-ST3-P3	8/1/2005	2120	2845	1000	5.1
	7/1/2006	1420	2737	725	4.1
	9/20/2007	1410	3485	808	5.6
	8/7/2008	1370	2611	787	6.1
	8/26/2009	1340	2027	647	5.4
PN-ST3-P3 Summary	Number	5	5	5	5.0
	Minimum	1340	2027	647	4.1
	Maximum	2120	3485	1000	6.1
	Mean	1532	2741	793	5.3
	Median	1410	2737	787	5.4
	10th Perc.	1352	2261	678	4.5
PN-ST3-P5	8/1/2005	2070	3568	606	2.7
	7/1/2006	1570	3846	585	2.9
	9/21/2007	1520	3950	613	2.9
	8/8/2008	0.50	3083	733	3.1
	8/26/2009	1530	2939	583	3.1
PN-ST3-P5 Summary	Number	5	5	5	5.0
	Minimum	1	2939	583	2.7
	Maximum	2070	3950	733	3.1
	Mean	1338	3477	624	2.9
	Median	1530	3568	606	2.9
	10th Perc.	608	2997	584	2.8
PN-ST3-P6	8/1/2005	2920	3454	1545	6.6
	7/1/2006	1480	2848	765	5.6
	9/20/2007	2410	4525	1570	6.4
	8/7/2008	1060	3024	1370	6.1
	8/26/2009	2760	2073	1300	6.3
PN-ST3-P6 Summary	Number	5	5	5	5.0
	Minimum	1060	2073	765	5.6
	Maximum	2920	4525	1570	6.6
	Mean	2126	3185	1310	6.2
	Median	2410	3024	1370	6.3
	10th Perc.	1228	2383	979	5.8
PN-ST3-P8	8/1/2005	4850	5820	2795	5.7
	7/1/2006	3980	5570	2280	6
	9/20/2007	4270	7330	2710	6.2
	8/8/2008	4240	4730	2410	6.1
	8/26/2009	4880	3873	2450	6.2
PN-ST3-P8 Summary	Number	5	5	5	5.0
	Minimum	3980	3873	2280	5.7
	Maximum	4880	7330	2795	6.2
	Mean	4444	5465	2529	6.0
	Median	4270	5570	2450	6.1
	10th Perc.	4084	4216	2332	5.8

Concentration below maximum MDL.

Appendix Table C.5.12: Water quality at station BH91-SG2A, 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	pH
8/1/2005	3260	4260	1705	6.3
7/1/2006	2260	4180	1441	6.6
9/21/2007	2600	5860	1570	6.5
8/26/2008	3290	4052	1600	6.3
8/24/2009	2670	3574	1620	6.2
Number	5	5	5	5
Minimum	2260	3574	1441	6.2
Maximum	3290	5860	1705	6.6
Mean	2816	4385	1587	6.4
Median	2670	4180	1600	6.3
10th Percentile	2396	3765	1493	6.2

Appendix Table C.5.13: Summary of seasonal trends for station DS-2, 2003 - 2009.

Season	Spearman rho	Acidity	Barium	Cobalt	Iron	Manganese	pH	Ra-226	Sulphate	Uranium
January	Correlation Coefficient						0.314286			
	Sig. (2-tailed)						0.544093			
	N						6			
February	Correlation Coefficient						0.126131			
	Sig. (2-tailed)						0.787572			
	N						7			
March	Correlation Coefficient	0.3714286	0.8285714	0.6	0.6	0.542857143	-0.57143	-0.0579771	-0.25714286	0.0857143
	Sig. (2-tailed)	0.4684781	0.0415627	0.208	0.208	0.265702624	0.180202	0.91313179	0.62278717	0.8717434
	N	6	6	6	6	6	7	6	6	6
April	Correlation Coefficient						0.214286	-0.4642857		
	Sig. (2-tailed)						0.644512	0.29393411		
	N						7	7		
May	Correlation Coefficient						0.714286			
	Sig. (2-tailed)						0.071344			
	N						7			
June	Correlation Coefficient	-0.9	-0.1	-0.5	-0.6	-0.4	-0.45047	-0.3714286	-0.6	-0.5
	Sig. (2-tailed)	0.0373861	0.8728886	0.391002	0.285	0.504631575	0.310429	0.46847813	0.28475698	0.3910022
	N	5	5	5	5	5	7	6	5	5
July	Correlation Coefficient						-0.25226			
	Sig. (2-tailed)						0.585241			
	N						7			
August	Correlation Coefficient						-0.54056			
	Sig. (2-tailed)						0.210289			
	N						7			
September	Correlation Coefficient						-0.25714			
	Sig. (2-tailed)						0.622787			
	N						6			
October	Correlation Coefficient						0.214286			
	Sig. (2-tailed)						0.644512			
	N						7			
November	Correlation Coefficient						-0.46429	-0.8857143		
	Sig. (2-tailed)						0.293934	0.01884548		
	N						7	6		
December	Correlation Coefficient	0.0579771	0.3142857	0.485714	0.257	0.714285714	-0.71429	-0.504525	-0.82857143	-0.3714286
	Sig. (2-tailed)	0.9131318	0.5440933	0.328723	0.623	0.110787172	0.071344	0.24820311	0.04156268	0.4684781
	N	6	6	6	6	6	7	7	6	6

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where p<0.05.

Appendix Table C.5.14: Summary of trends for Stanrock porewater stations.

Station	Spearman rho	Iron	pH
PN-ST3-P3	Correlation Coefficient	-0.102941	0.508129
	Sig. (2-tailed)	0.70441	0.044474
	N	16	16
PN-ST3-P5	Correlation Coefficient	0.8	0.420183
	Sig. (2-tailed)	<0.05	0.260159
	N	9	9
PN-ST3-P6	Correlation Coefficient	0.408824	0.387099
	Sig. (2-tailed)	0.115888	0.154025
	N	16	15
PN-ST3-P8	Correlation Coefficient	0.932353	-0.551992
	Sig. (2-tailed)	0.000001	0.026628
	N	16	16
BH91-SG2-A	Correlation Coefficient	0.273529	0.643071
	Sig. (2-tailed)	0.305323	0.007206
	N	16	16

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.

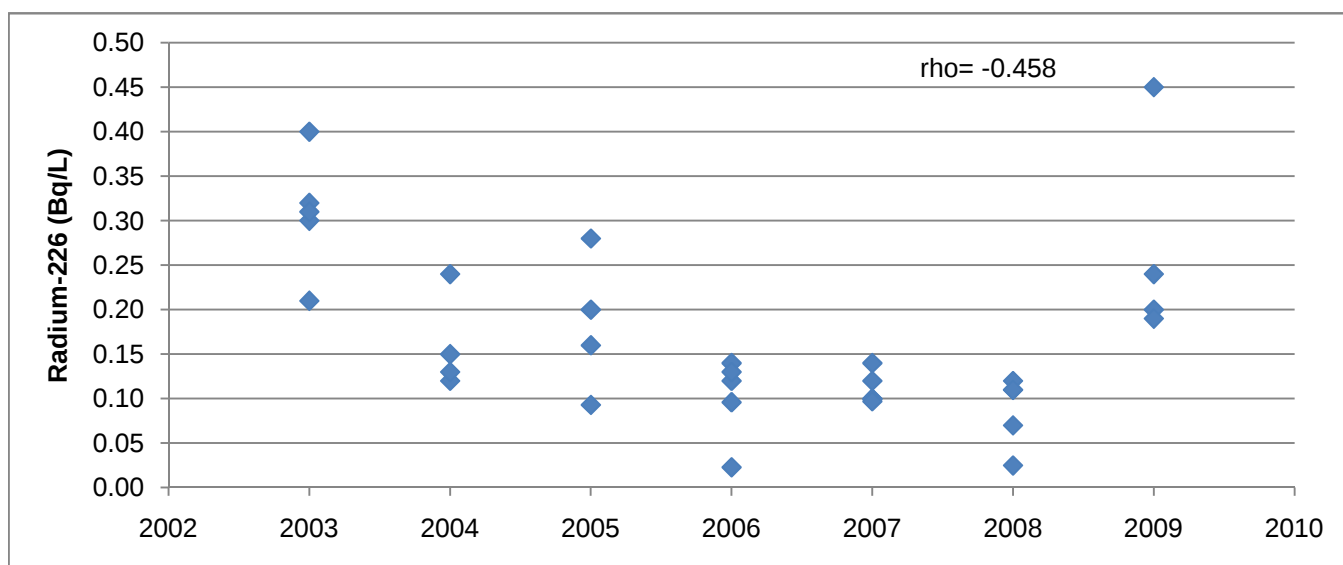
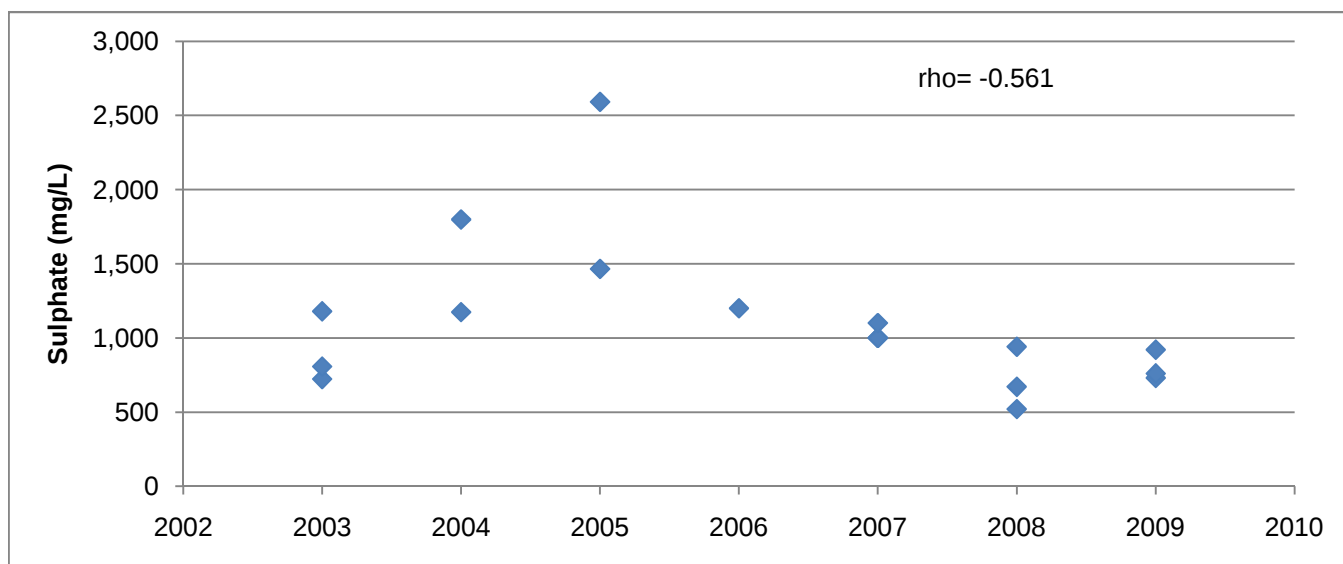
Appendix Table C.5.15: Summary of trends for Stanrock groundwater stations.

Station	Spearman rho	pH	Iron
BH91-SG1A	Correlation Coefficient	0.76431903	0.630769231
	Sig. (2-tailed)	0.00145676	0.015578224
	N	14	14
BH91-SG3A	Correlation Coefficient	-0.1652668	-0.939393939
	Sig. (2-tailed)	ns	<0.001
	N	10	10
BH91-SG3B	Correlation Coefficient	-0.280493	-0.066666667
	Sig. (2-tailed)	ns	ns
	N	10	10
BH98-15A	Correlation Coefficient	0.58343338	-0.3
	Sig. (2-tailed)	0.05953902	0.370083122
	N	11	11
BH98-16A	Correlation Coefficient	0.01852169	-0.763636364
	Sig. (2-tailed)	ns	0.00623306
	N	10	11

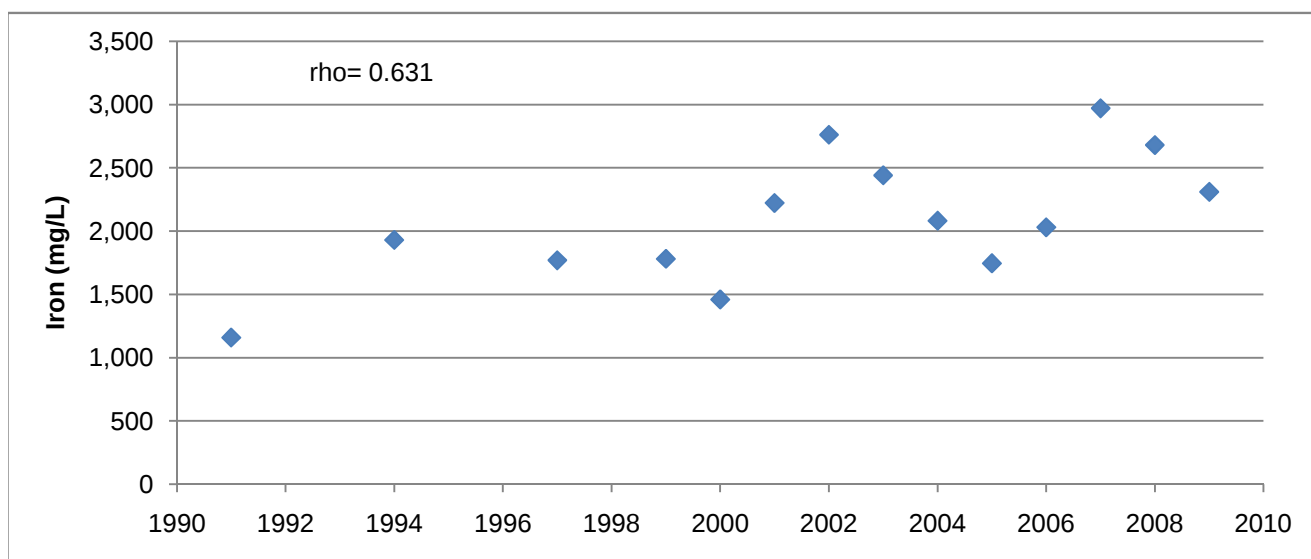
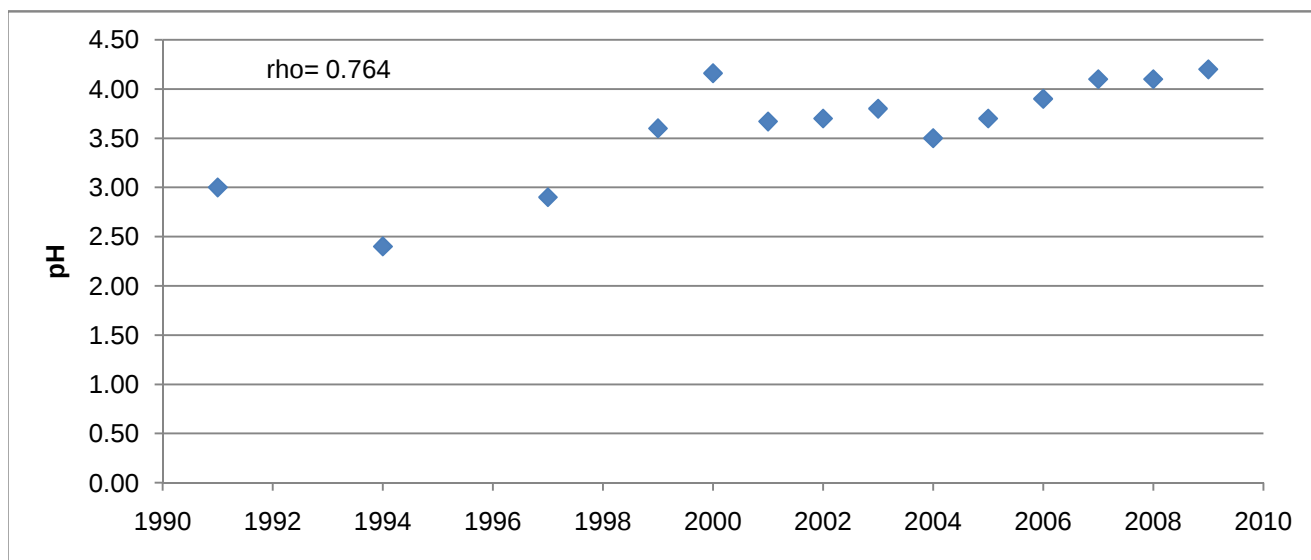
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

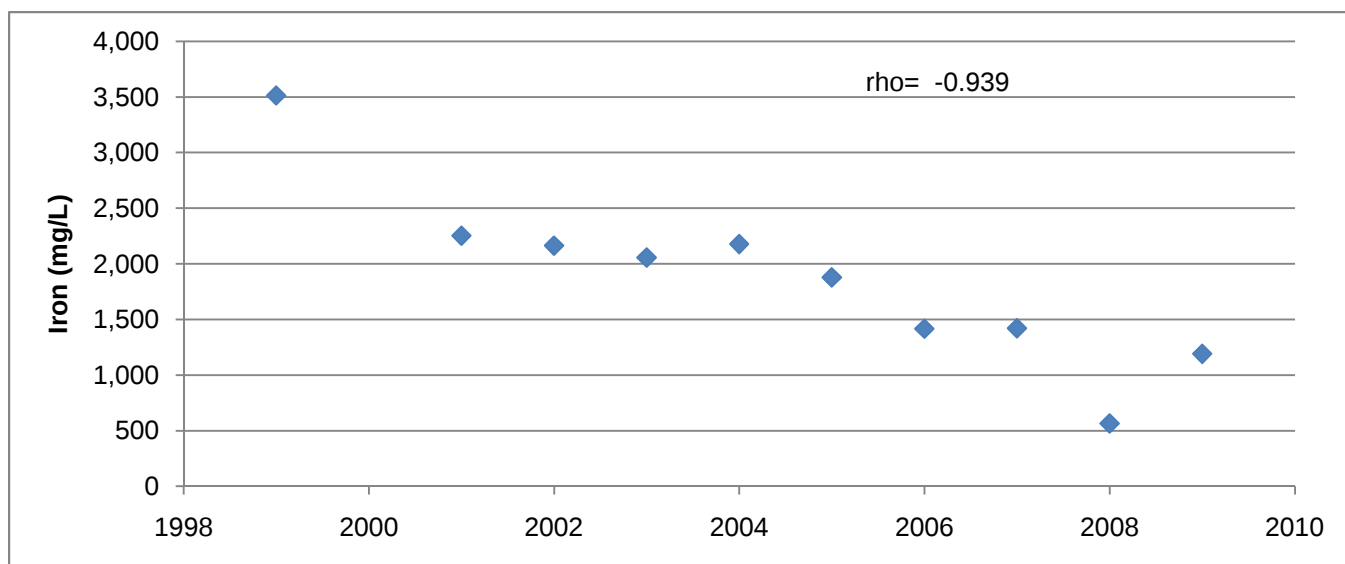
Significant trend where p<0.05.



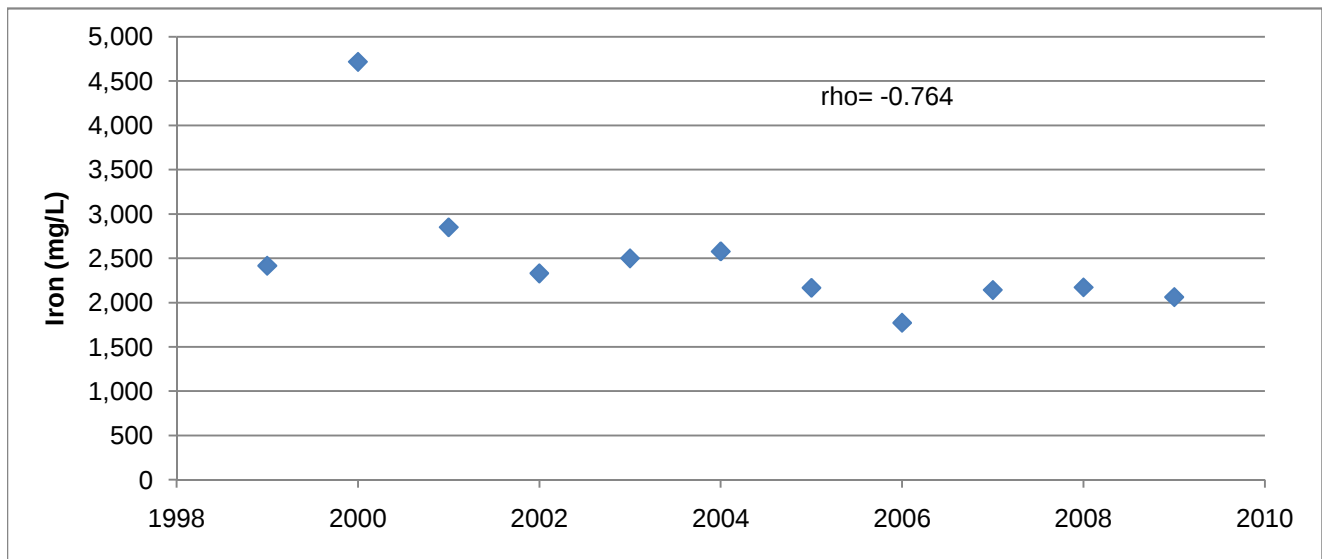
Appendix Figure C.5.1: Significant common (average) trends observed for sulphate and radium-226 over all seasons at station DS-2, 2003 to 2009.



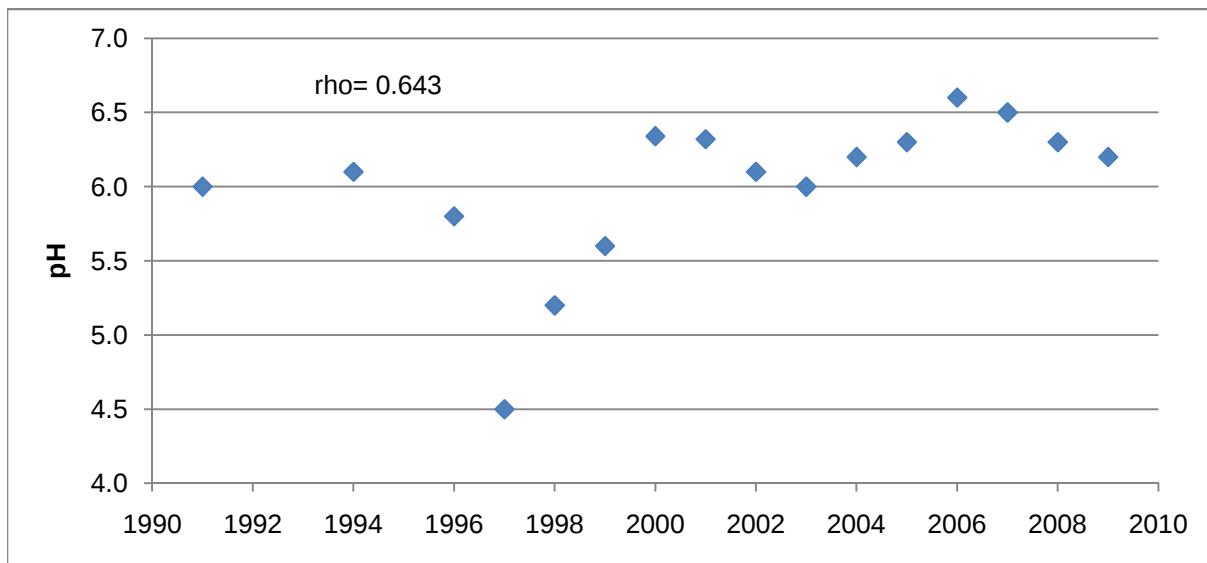
Appendix Figure C.5.2: Significant trends observed for pH and iron at station BH91 SG1A, 1991 to 2009.



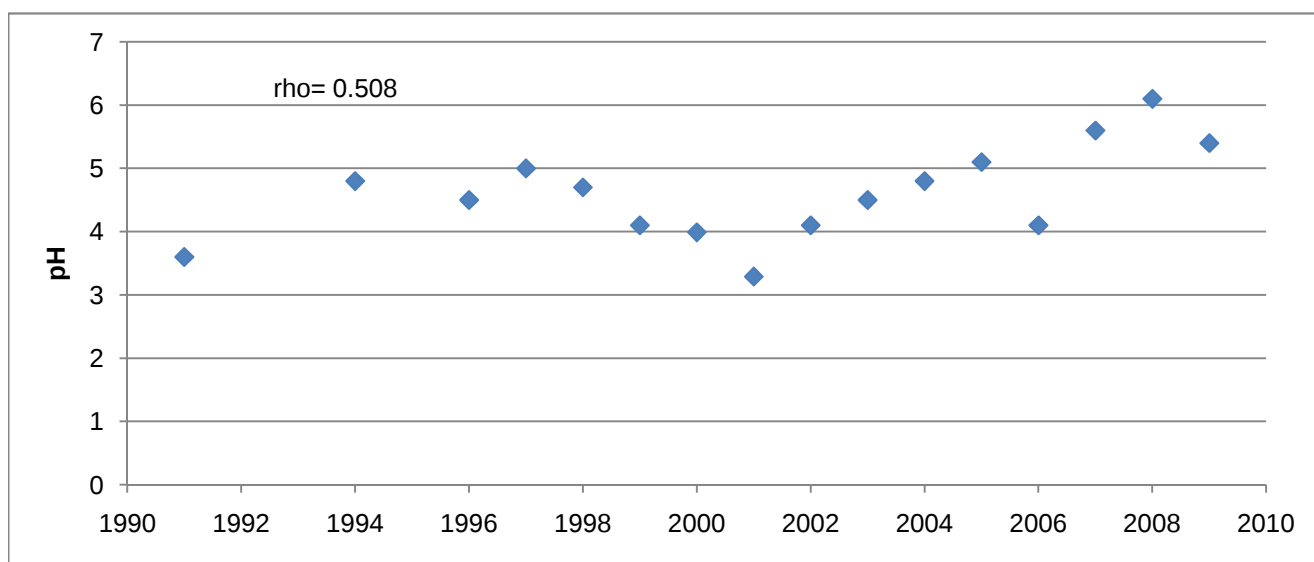
Appendix Figure C.5.3: Significant trends observed for iron at station BH91-SG3A, 1999 to 2009.



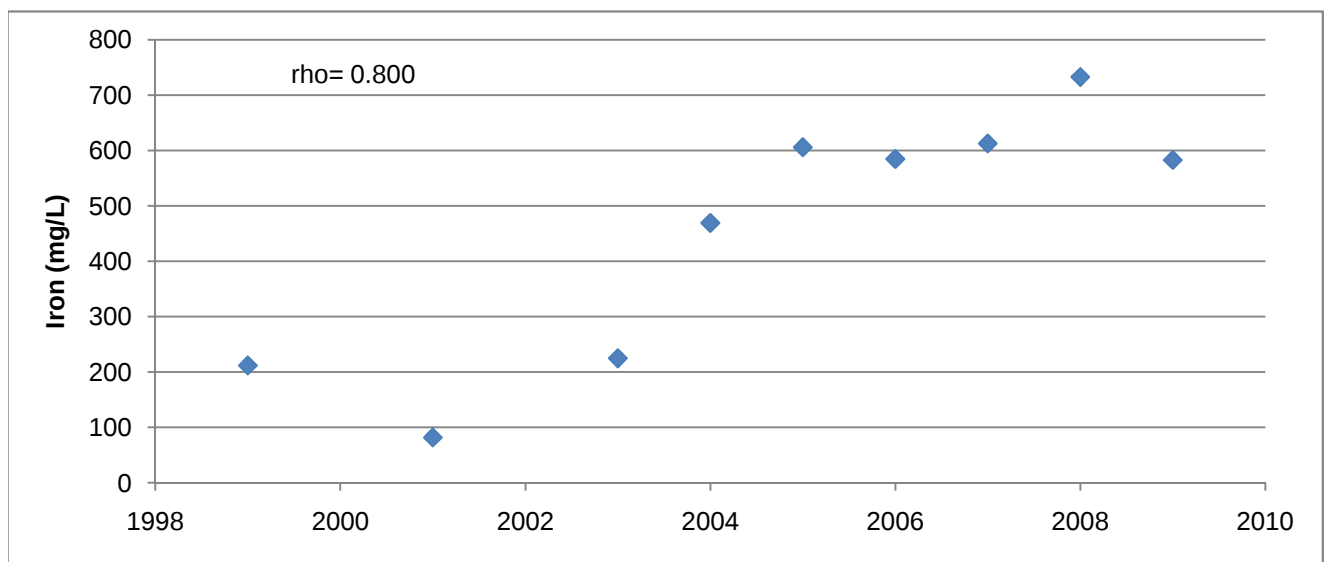
Appendix Figure C.5.4: Significant trends observed for iron at station BH98-16A, 1999 to 2009.



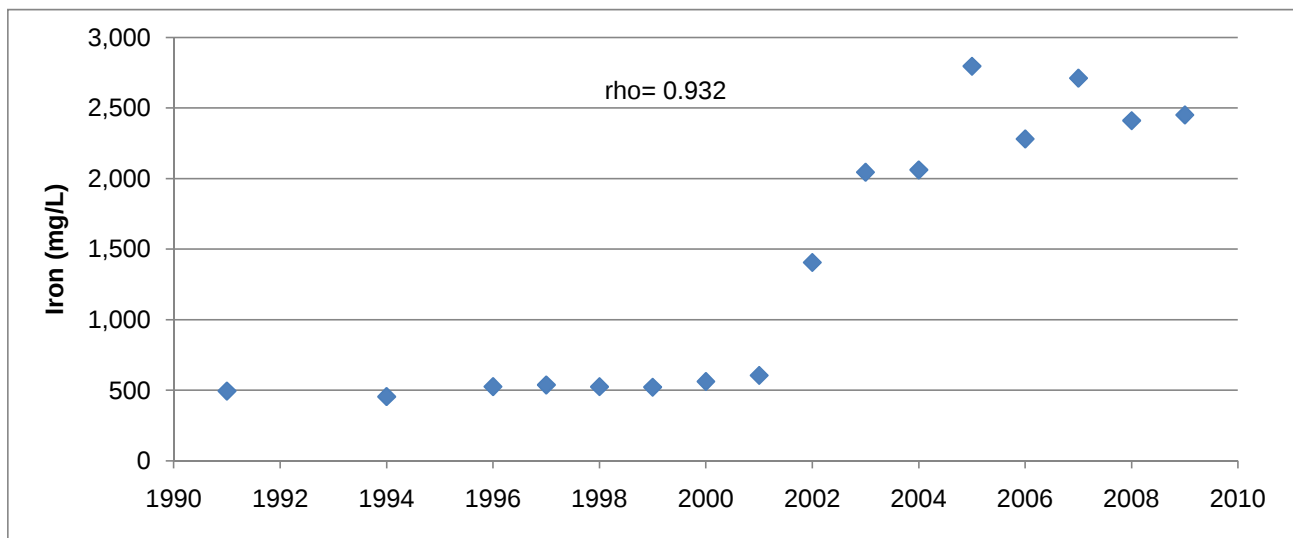
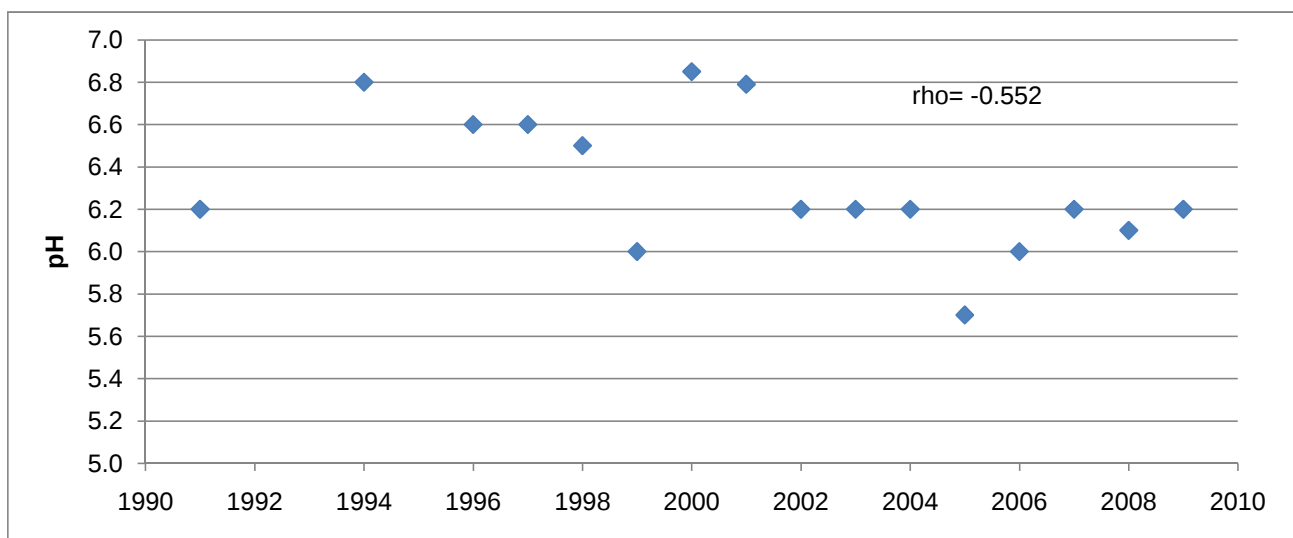
Appendix Figure C.5.5: Significant trends observed for pH at station BH91-SG2A, 1991 to 2009.



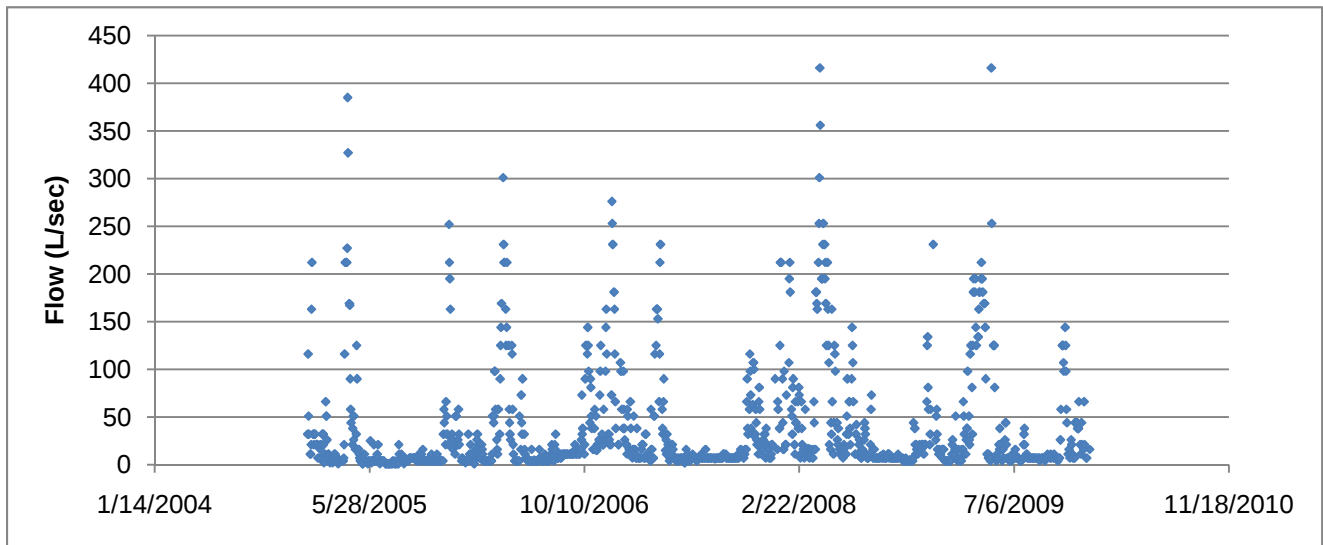
Appendix Figure C.5.6: Significant trends observed for pH at station PN-ST3-P3, 1991 to 2009.



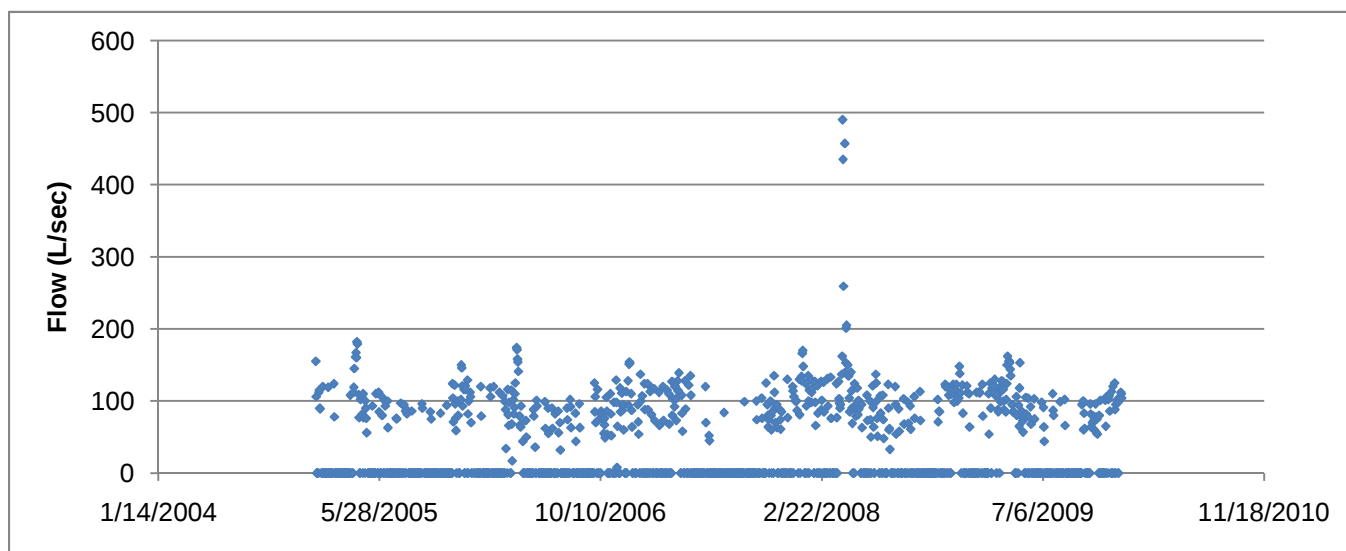
Appendix Figure C.5.7: Significant trends observed for iron at station PN-ST3-P5, 1999 to 2009.



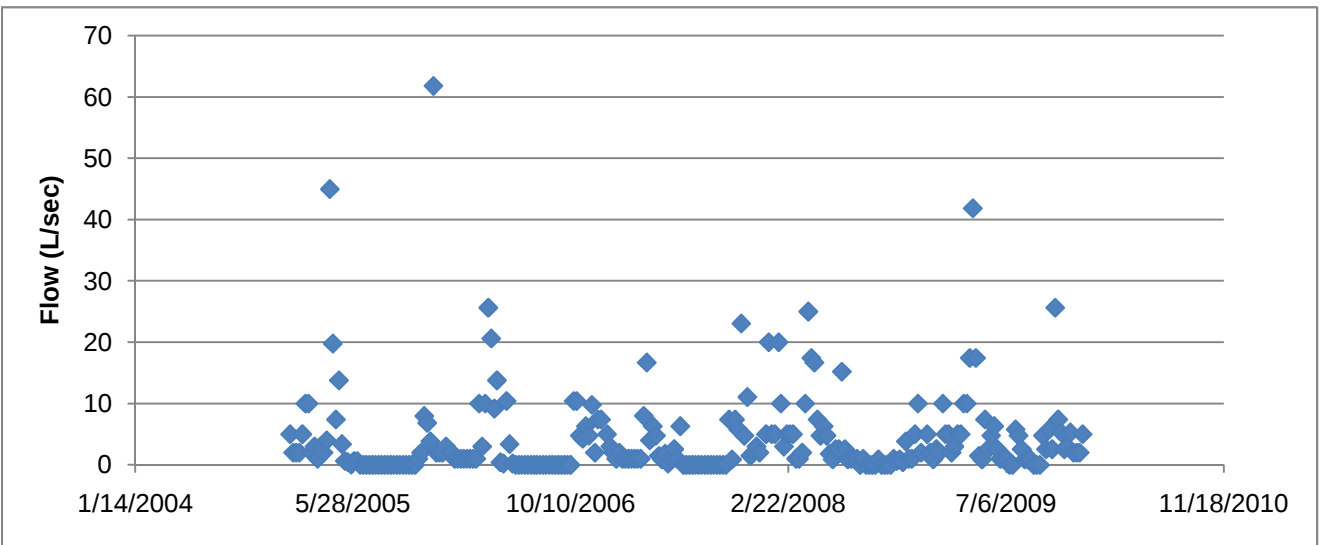
Appendix Figure C.5.8: Significant trends observed for pH and iron at station PN-ST3-P8, 1991 to 2009.



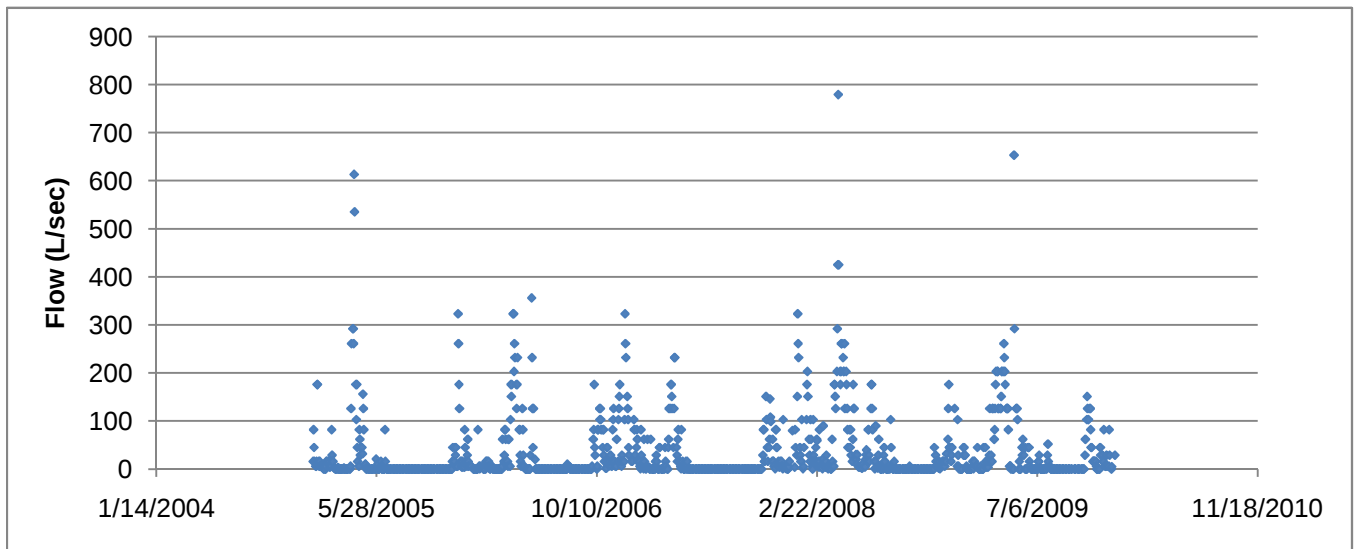
Appendix Figure C.5.9: Flows at station DS-1 from 2005 to 2009.



Appendix Figure C.5.10: Flows at station DS-2 from 2005 to 2009.



Appendix Figure C.5.11: Flows at station DS-5 from 2005 to 2009.



Appendix Figure C.5.12: Flows at station DS-6 from 2005 to 2009.

APPENDIX C.6

Stanleigh TMA

Appendix Table C.6.1: Stanleigh final point of control (CL-06) discharge criteria.

Parameter ^c	Units	Discharge Criteria		Action Level	Internal Investigation
		Grab Sample ^a	Monthly Mean ^b		
pH	pH units	5.5-9.5	6.5-9.5	<6.5 or >8.5	<7.0 or >8.0
Total Radium-226	Bq/L	1.11	0.37	0.37	0.20
Total Suspended Solids	mg/L	50	25	30	7.5

^aSamples to be collected during periods of discharge.

^bArithmetic mean of twelve consecutive samples.

^c Copper, lead, nickel and zinc monitoring discontinued in January 2010 as per regulatory approval of Cycle 3 design

Appendix Table C.6.2: Water quality at station CL-04, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	U (mg/L)
5/4/2005	3	0.0427	0.0016	0.108	0.296	7	0.51	237	0.0025
6/1/2005							0.51		
7/6/2005	2	0.0221	0.00025	0.042	0.223	7.1	0.5	241	0.0025
9/7/2005							0.46		
9/21/2005	3	0.03	0.0007	0.052	0.242		0.71	264	0.0025
9/22/2005	3	0.0286	0.00025	0.047	0.171		0.49	262	0.005
9/23/2005	3	0.0298	0.00025	0.049	0.187		0.53	262	0.0025
11/1/2005							0.64		
11/2/2005	4	0.0396	0.0007	0.138	0.254	7	0.59	244	0.0025
11/3/2005							0.66		
11/4/2005							0.68		
5/5/2006	0.5	0.0288	0.00135	0.090	0.266	7	0.58	210	0.00381
6/14/2006							0.57		
7/6/2006							0.56		
8/2/2006	0.5	0.0312	0.00025	0.040	0.143	7	0.58	200	0.0023
11/1/2006	0.5	0.035	0.001	0.140	0.198	6.7	0.82	200	0.0035
12/6/2006							0.82		
3/21/2007	0.5	0.041	0.0013	0.080	0.183	7.0	0.670	190.0	0.0029
4/4/2007							0.720		
5/2/2007	0.5	0.032	0.0015	0.110	0.200	7.0	0.740	180.0	0.0038
6/6/2007							0.700		
12/19/2007	0.5	0.034	0.0009	0.090	0.131	7.0	0.770	180.0	0.003
4/17/2008						6.8	0.740		
5/7/2008						6.9	0.720		
6/4/2008	0.5	0.028	0.0013	0.100	0.156	6.9	0.780	160.0	0.0031
7/2/2008						7.0	0.740		
7/7/2008				0.070					
8/6/2008	0.5	0.031	0.00025	0.140	0.119	7.0	0.670	150.0	0.002
9/3/2008						6.9	0.790		
10/1/2008						6.8	0.800		
11/5/2008	0.5	0.032	0.0029	0.100	0.137	6.7	0.950	160.0	0.0027
12/3/2008						6.7	0.840		
2/11/2009	0.5	0.038	0.0008	0.060	0.138	6.7	0.790	170.0	0.002
3/4/2009						6.8	0.740		
4/1/2009						6.9	0.770		
5/6/2009	0.5	0.03	0.0014	0.150	0.177	6.4	0.710	140.0	0.0027
6/3/2009						6.8	0.720		
7/2/2009						6.8	0.710		
8/6/2009	0.5	0.04	0.00025	0.050	0.121	7.1	0.710	130.0	0.0016
11/4/2009	0.5	0.032	0.0009	0.110	0.159	6.8	0.740	140.0	0.002
12/2/2009						7.2	0.820		
Number	19	19	19	20	19	27	40	19	19
Minimum	0.5	0.022	0.00025	0.040	0.119	6.4	0.460	130.0	0.0016
Maximum	4	0.043	0.0029	0.150	0.296	7.2	0.950	264.0	0.005
Mean	1.3	0.033	0.0009	0.088	0.184	6.9	0.689	195.8	0.0028
Median	0.5	0.032	0.0009	0.090	0.177	6.9	0.710	190.0	0.0025
10th Perc.	0.5	0.028	0.00025	0.047	0.129	6.7	0.510	140.0	0.002

Concentration below maximum MDL.

Appendix Table C.6.3: Water quality at station CL-05, 2007 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH
12/5/2007	8.5	6/5/2009	8.8	3/31/2009	8.6	8/12/2009	9.3
12/6/2007	8.5	6/8/2009	8.7	4/1/2009	8.6	8/13/2009	9.2
12/7/2007	8.5	6/9/2009	8.8	4/2/2009	8.7	8/14/2009	9.2
12/10/2007	8.6	6/10/2009	9.0	4/3/2009	8.4	8/17/2009	9.3
12/11/2007	8.5	6/11/2009	9.1	4/6/2009	8.5	11/3/2009	9.3
12/13/2007	8.5	6/12/2009	8.9	4/7/2009	8.4	11/4/2009	9.3
12/14/2007	8.5	6/15/2009	8.8	4/8/2009	8.4	11/5/2009	9.3
12/17/2007	8.6	6/16/2009	8.8	4/9/2009	8.6	11/6/2009	9.1
12/18/2007	8.5	6/17/2009	8.8	4/13/2009	8.3	11/9/2009	9.2
12/19/2007	8.6	6/18/2009	8.8	4/14/2009	8.5	11/10/2009	9.2
12/20/2007	8.5	6/19/2009	8.8	4/15/2009	8.5	11/11/2009	9.2
2/9/2009	8.5	6/22/2009	8.8	4/16/2009	8.4	11/12/2009	9.0
2/10/2009	8.5	6/23/2009	8.9	4/17/2009	8.6	11/13/2009	8.9
2/11/2009	8.5	6/24/2009	8.9	4/20/2009	8.5	11/16/2009	9.3
2/12/2009	8.4	6/25/2009	9.0	4/21/2009	8.4	11/17/2009	9.0
2/13/2009	8.4	6/26/2009	9.2	4/22/2009	8.3	11/18/2009	9.2
2/17/2009	8.7	6/29/2009	9.1	4/23/2009	8.3	11/19/2009	8.8
2/18/2009	8.6	6/30/2009	9.1	4/24/2009	8.7	11/20/2009	9.0
2/19/2009	8.5	7/2/2009	9.1	4/27/2009	8.3	11/23/2009	8.9
2/20/2009	8.5	7/3/2009	9.1	4/28/2009	8.3	11/24/2009	9.1
2/23/2009	8.6	7/6/2009	9.0	4/29/2009	8.4	11/25/2009	9.0
2/24/2009	8.6	7/7/2009	9.1	4/30/2009	8.3	11/26/2009	9.0
2/25/2009	8.6	7/8/2009	9.0	5/1/2009	8.3	11/27/2009	8.9
2/26/2009	8.6	7/9/2009	9.0	5/4/2009	8.5	11/30/2009	8.9
2/27/2009	8.6	7/10/2009	9.2	5/5/2009	8.8	12/1/2009	9.0
3/2/2009	8.5	7/13/2009	8.9	5/6/2009	8.8	12/2/2009	9.0
3/3/2009	8.4	7/14/2009	9.2	5/7/2009	8.9	12/3/2009	9.0
3/4/2009	8.4	7/15/2009	9.1	5/8/2009	9.1	12/4/2009	9.0
3/5/2009	8.5	7/16/2009	9.1	5/11/2009	8.9	12/7/2009	9.0
3/6/2009	8.4	7/17/2009	9.1	5/12/2009	8.9	12/8/2009	8.7
3/9/2009	8.5	7/20/2009	9.3	5/13/2009	8.9	12/9/2009	8.7
3/10/2009	8.6	7/21/2009	9.3	5/14/2009	9.2	12/10/2009	8.6
3/11/2009	8.6	7/22/2009	9.3	5/15/2009	9.4	12/11/2009	8.6
3/12/2009	8.5	7/23/2009	9.3	5/19/2009	9.1	12/14/2009	8.5
3/13/2009	8.6	7/24/2009	9.3	5/20/2009	9.0	12/15/2009	8.5
3/16/2009	8.5	7/27/2009	9.3	5/21/2009	9.1	12/16/2009	8.5
3/17/2009	8.5	7/28/2009	9.3	5/22/2009	9.1	12/17/2009	8.4
3/18/2009	8.5	7/29/2009	9.2	5/25/2009	9.1	12/18/2009	8.4
3/19/2009	8.6	7/30/2009	9.1	5/26/2009	9.3	12/21/2009	8.4
3/20/2009	8.8	7/31/2009	9.2	5/27/2009	9.2	12/22/2009	8.4
3/23/2009	8.4	8/4/2009	9.3	5/28/2009	8.9	Number	178
3/24/2009	8.4	8/5/2009	9.1	5/29/2009	9.2	Minimum	8.3
3/25/2009	8.5	8/6/2009	9.2	6/1/2009	9.0	Maximum	9.4
3/26/2009	8.5	8/7/2009	9.3	6/2/2009	9.2	Mean	8.8
3/27/2009	8.4	8/10/2009	9.2	6/3/2009	9.0	Median	8.8
3/30/2009	9.0	8/11/2009	9.1	6/4/2009	9.0	10th Perc.	8.4

Appendix Table C.6.4: Water quality at station SGW3, 2005 to 2009.

Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
6/1/2005	3640.00	1154.00	4.6	8029.00
6/1/2006	930.00	1030.00	4.9	3100.00
7/25/2007	1630.00	831.00	4.8	2800.00
7/11/2008	1470.00	847.00	4.9	2600.00
8/10/2009	1220.00	560.00	4.9	2300.00
Number	5	5	5.0	5
Minimum	930.00	560.00	4.6	2300.00
Maximum	3640.00	1154.00	4.9	8029.00
Mean	1778.00	884.40	4.8	3765.80
Median	1470.00	847.00	4.9	2800.00
10th Perc.	1046.00	668.40	4.68	2420.00

Appendix Table C.6.5: Water quality at station SGW4 , 2005 and 2006.

Date	pH	Acidity (mg/L)	SO4 (mg/L)	Fe (mg/L)
Jun-05	7.4	8	266	0.056
Jun-06	7.1	0.5	230	0.24
Oct-06	7.5	0.5	520	0.12
Number	3	3	3	3
Minimum	7.1	0.5	230	0.056
Maximum	7.5	8	520	0.24
Mean	7.3	3.0	339	0.1
Median	7.4	0.5	266	0.12
10th Perc.	7.2	0.5	237	0.1

 Concentration below maximum MDL.

Appendix Table C.6.6: Summary of trends for station CL-04, 2003 - 2009.

Season	Spearman rho	Acidity	Barium	Cobalt	Iron	Manganese	pH	Ra-226	Sulphate	Uranium
April	Correlation Coefficient							0		
	Sig. (2-tailed)							1		
	N							5		
May (April/May for some)	Correlation Coefficient	-0.92582	-0.657143	-0.828571	0.828	-1	-0.894427	0.607143	-1	-0.6377481
	Sig. (2-tailed)	0.00805	0.156175	0.041563	0.042	0.000001	0.040519	0.148231	0.000001	0.1730711
	N	6	6	6	6	6	5	7	6	6
June	Correlation Coefficient							0.392857		
	Sig. (2-tailed)							0.383317		
	N							7		
July	Correlation Coefficient							0.6		
	Sig. (2-tailed)							0.208		
	N							6		
August (July/August for some)	Correlation Coefficient	-0.894427	0.9	-0.707107	0.621	-0.9	0.527046	0	-0.9	-0.9746794
	Sig. (2-tailed)	0.040519	0.037386	0.18169	0.188	0.037386073	0.361455	1	0.03738607	0.0048182
	N	5	5	5	6	5	5	5	5	5
October/November	Correlation Coefficient	-0.782624	-0.811679	0.142857	0.828	-0.942857143	-0.091077	0.828571	-1	-0.5217939
	Sig. (2-tailed)	0.117614	0.049858	0.787172	0.042	0.004804665	0.863763	0.041563	0.000001	0.2883432
	N	5	6	6	6	6	6	6	5	6
December	Correlation Coefficient							0.666886		
	Sig. (2-tailed)							0.218894		
	N							5		

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.

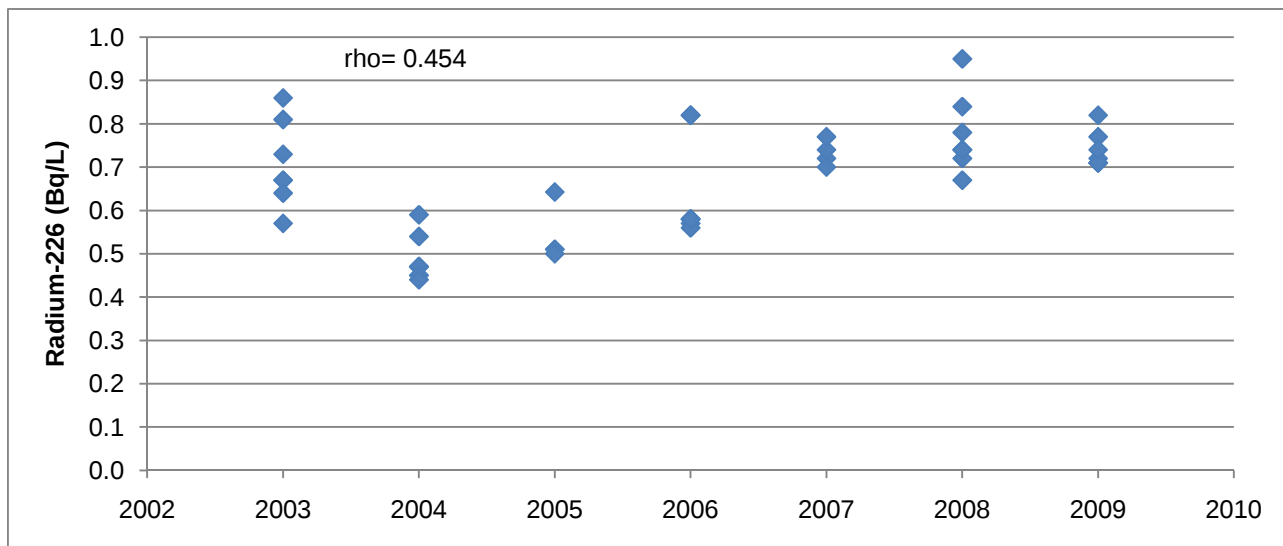
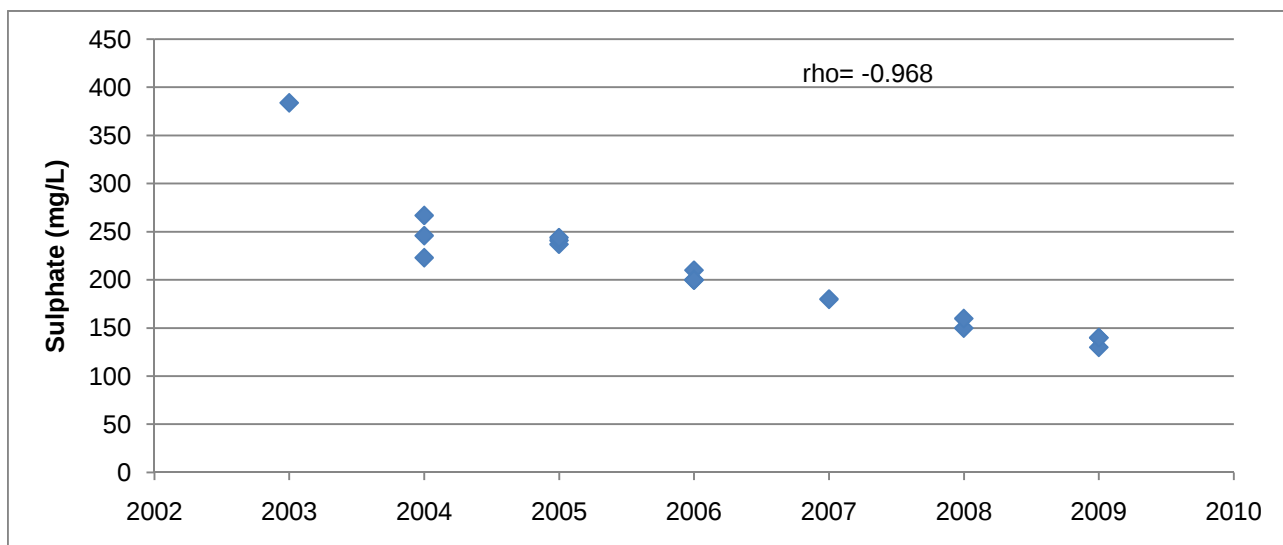
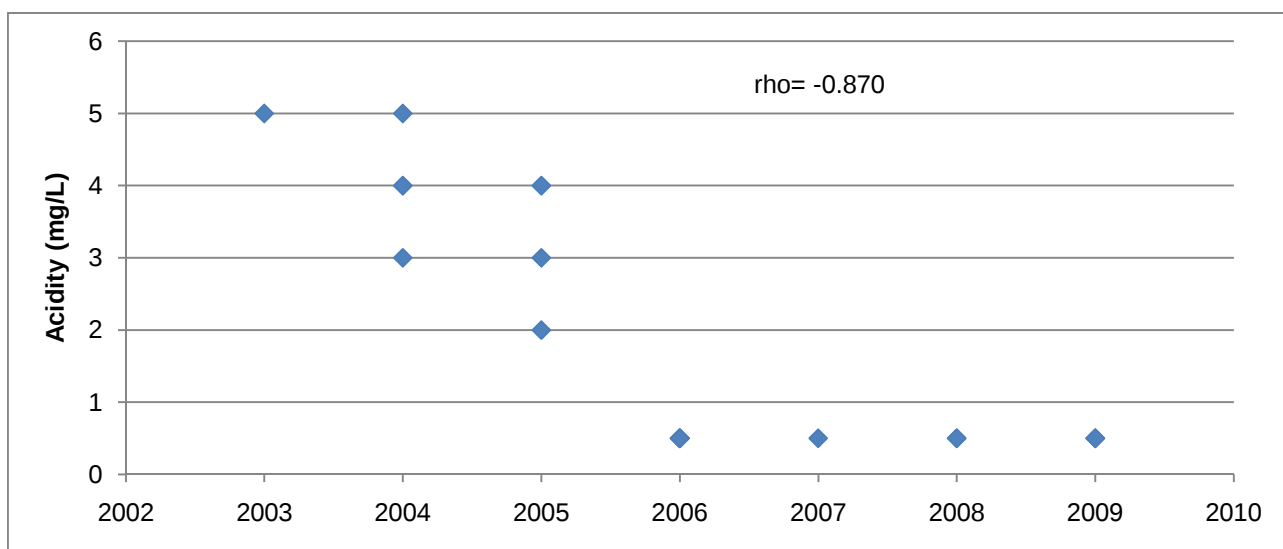
Appendix Table C.6.7: Summary of trends for Stanleigh groundwater stations, 2003 - 2009.

Station	Spearman rho	Iron	pH	Sulphate
SGW-3	Correlation Coefficient	-0.954545455	0.954008224	-0.81666667
	Sig. (2-tailed)	5.0E-06	5.3E-06	<0.05
	N	11	11	9
SGW-4	Correlation Coefficient	0.095238095	-0.452380952	-0.71428571
	Sig. (2-tailed)	ns	ns	ns
	N	8	8	6

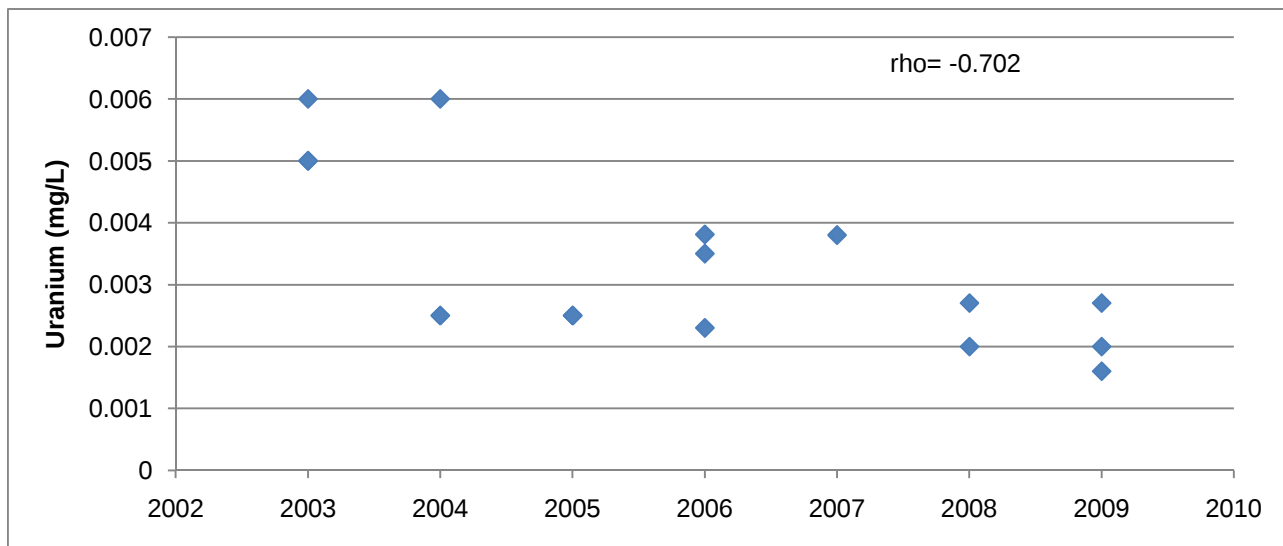
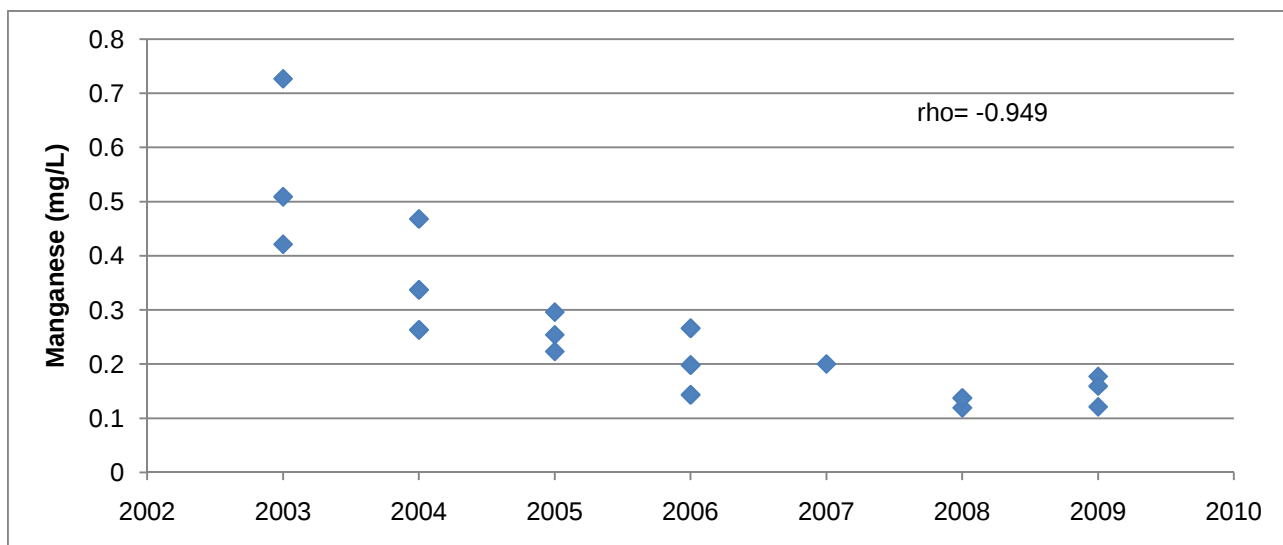
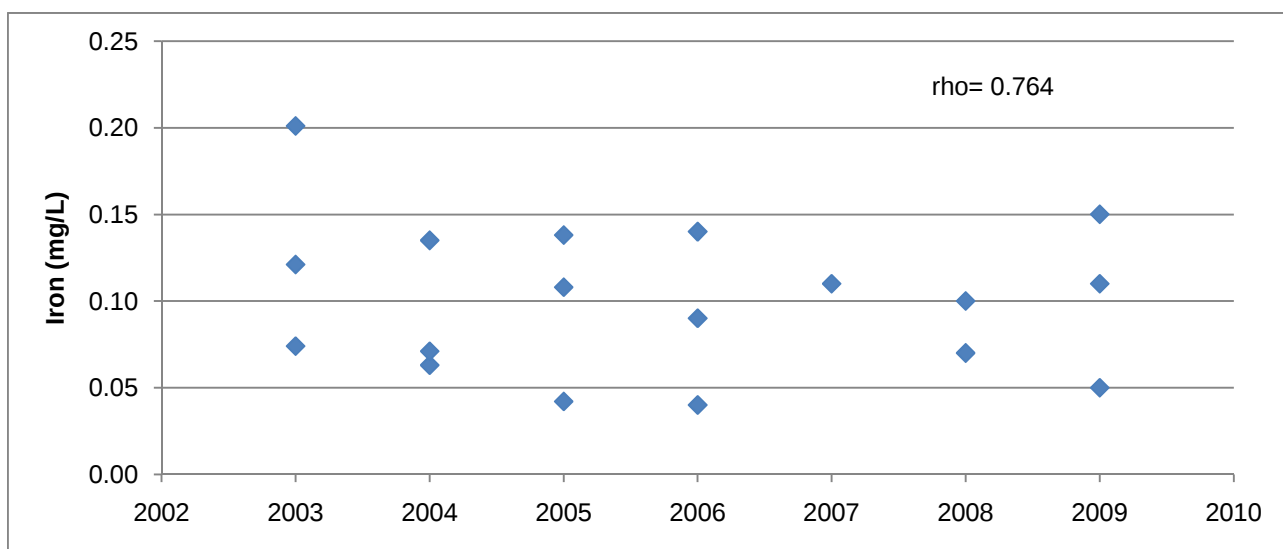
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

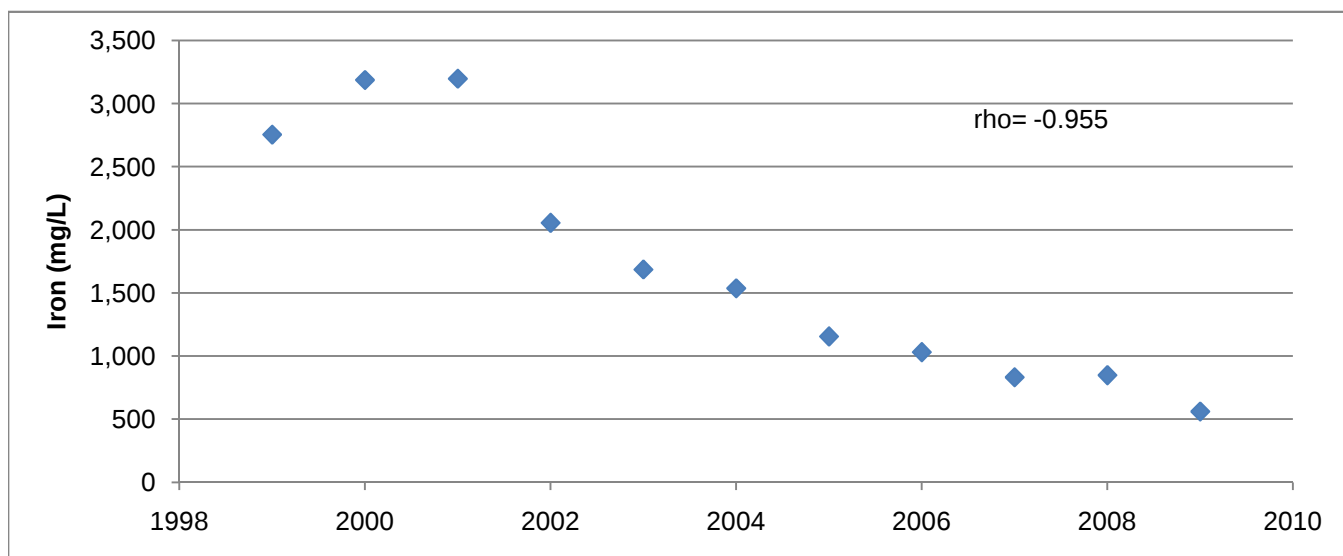
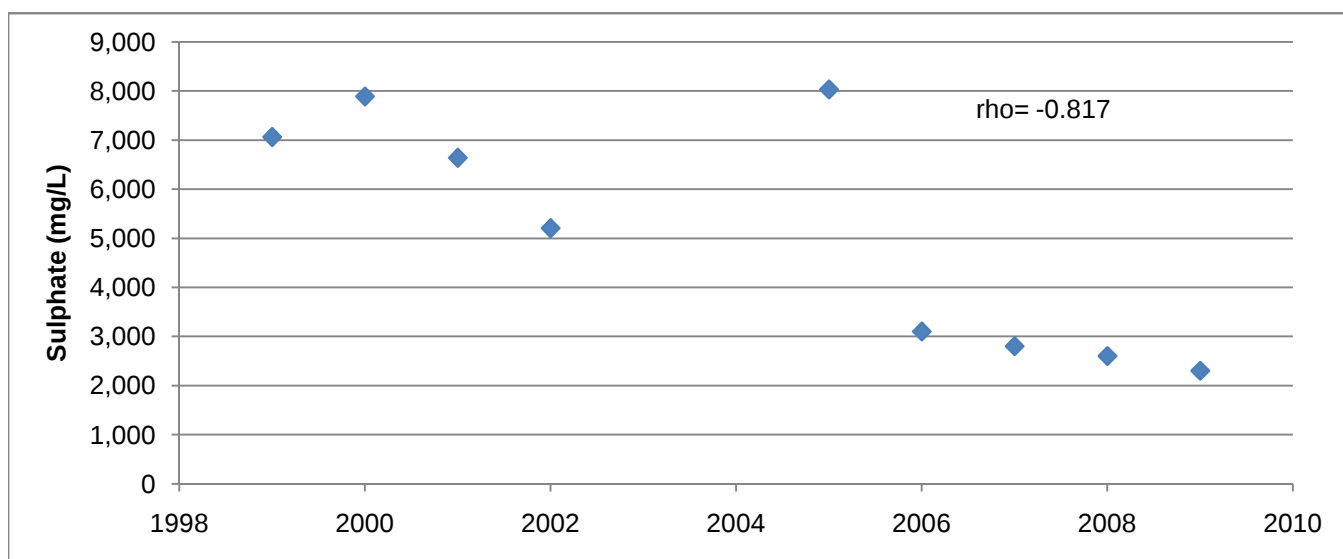
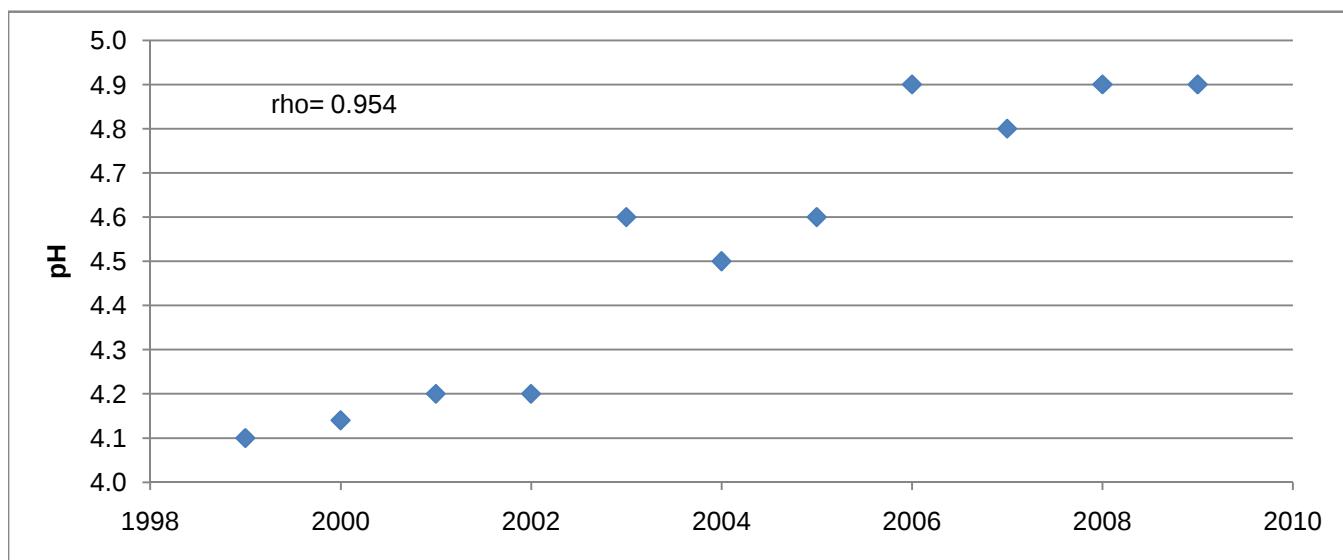
Significant trend where p<0.05.



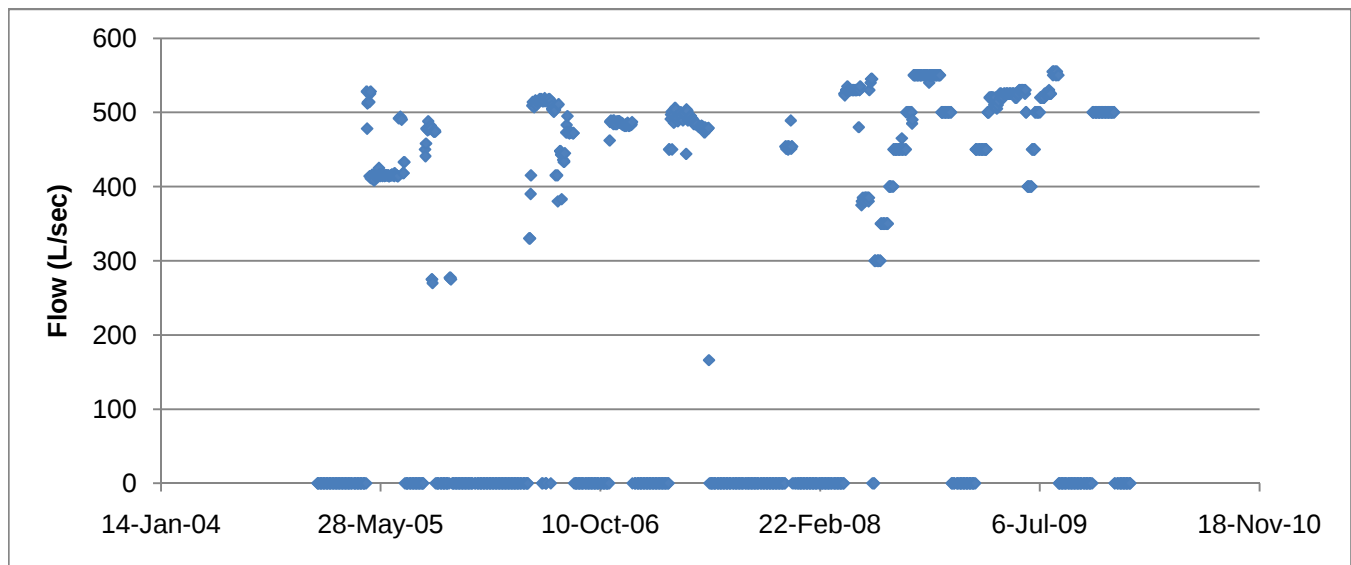
Appendix Figure C.6.1: Significant common (average) trends observed for acidity, sulphate, radium-226, manganese and uranium over all seasons at station CL-04, 2003 to 2009.



Appendix Figure C.6.1: Significant common (average) trends observed for acidity, sulphate, radium-226, manganese and uranium over all seasons at station CL-04, 2003 to 2009.



Appendix Figure C.6.2: Significant trends observed for pH, sulphate and iron at station SGW-3, 1999-2009.



Appendix Figure C.6.3: Flows at station CL-04 from 2005 to 2009.

APPENDIX C.7

Lacnor/Nordic TMA

Appendix Table C.7.1: Nordic final point of control (N-19) discharge criteria.

Parameter	Units	Discharge Criteria ^d		Action Level	Internal Investigation
		Grab Sample ^a	Mean ^b		
pH	pH units	5.5-9.5	6.0-9.0	<6.5 or >9.0	<7.0 or >8.5
Total Suspended Solids	mg/L	20	10	10	7.5
Total Radium-226	Bq/L	1.10	0.37	0.37	0.20
Iron	mg/L	10	1.0 ^c	5.0	2.0

^aSamples to be collected during periods of discharge.

^bArithmetic mean of twelve consecutive samples.

^cArithmetic mean of all grab samples collected during calendar month.

^dDischarge criteria revised as per December 2009 CofA amendment as these are generally more restrictive than CNSC license.

Appendix Table C.7.2: Water quality at station ECA-131 from 2005 to 2009.

Date	Acidity (mg/L)	Conductivity (µmho/cm)	Ba (mg/L)	Fe (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)
1/5/2005	12	40.9			6.5	0.019		
3/21/2005	12	36.8	0.012	1.83	6.5	0.012	13.8	
4/4/2005	8	33.1	0.010	0.96	6.0	0.009	9.6	
5/2/2005	10	43.4	0.018	2.66	6.0	0.030	21.2	
6/6/2005	11	133.5	0.030	2.92	5.9	0.140	49.1	
7/4/2005	13	195.2	0.065	1.72	6.4	0.170	80.7	
11/21/2005	9	31.7	0.013	1.63	6.1	0.006	14.3	
1/3/2006	4	38.9	0.012	3.02	6.4	0.011	19.0	
2/6/2006	1	40.0	0.012	2.79	6.5	0.007	18.0	
3/8/2006	0.5	31.4	0.009	1.92	6.3	0.0025	13.0	
4/5/2006	2	20.1	0.012	0.82	6.2	0.007	8.4	
5/6/2006	11	118.5	0.015	9.25	6.2	0.013	56.0	
6/5/2006	0.5	252.2	0.032	20.8	6.1	0.087	120.0	
7/4/2006	41	1498.0	0.051	42	6.3	0.110	260.0	
8/10/2006	199	1131.0	0.046	116	6.1	0.110	880.0	
9/5/2006	154	1742.0	0.046	116	5.7	0.065	870.0	
10/5/2006	26	306.9	0.030	30.4	6.3	0.048	170.0	
11/6/2006	0.5	23.5	0.008	0.87	6.4	0.0025	7.1	
12/4/2006	0.5	22.9	0.010	1.15	6.7	0.0025	9.0	
1/8/2007	0.5	20.7	0.010	0.57	6.5	0.007	6.7	0.5
4/4/2007	0.5	19.8	0.009	0.78	6.7	0.097	7.1	1
1/15/2008	0.5	19.8	0.009	0.33	6.2	0.0025	6.1	0.5
4/16/2008	0.5	17.8	0.011	0.46	6.0	0.0025	6.8	1
5/5/2008	0.5	27.2	0.010	0.63	7.0	0.0025	7.4	2
6/2/2008	0.5	35.9	0.013	1.14	6.7	0.009	7.8	3
7/2/2008	0.5	56.1	0.028	6.03	6.3	0.036	26.0	11
11/26/2008	0.5	27.2	0.009	1.35	6.8	0.007	8.5	1
12/17/2008	0.5	21.8	0.009	0.53	6.9	0.006	0.1	0.5
1/7/2009	0.5	20.3	0.009	0.32	7.1	0.0025	4.4	0.5
2/2/2009	0.5	26.7	0.011	0.72	6.6	0.006	5.2	0.5
3/4/2009	0.5	26.2	0.010	0.66	6.5	0.0025	4.9	0.5
4/6/2009	3	19.2	0.011	0.33	6.4	0.0025	4.9	1
5/4/2009	0.5	22.7	0.010	0.65	6.9	0.015	6.3	2
6/3/2009	0.5	33.1	0.016	0.76	6.5	0.013	7.0	3
7/6/2009	0.5	111.9	0.026	5.56	6.6	0.022	26.0	12
8/5/2009	0.5	52.3	0.016	2.6	6.5	0.0025	9.1	7
10/7/2009	21	411.5	0.035	26.8	6.1	0.069	230.0	13
11/2/2009	0.5	18.3	0.008	0.47	6.9	0.0025	4.0	1
12/7/2009	0.5	31.8	0.008	0.77	6.9	0.0025	6.1	1
Number	41	41	40	40	41	41	40	22
Minimum	0.5	17.8	0.008	0.32	5.7	0.0025	0.1	0.5
Maximum	199	1742	0.065	116	7.1	0.17	880	13
Mean	13	166	0.018	10.2	6.4	0.0284	75	2.9
Median	0.5	31.8	0.012	1.1	6.4	0.0070	8.75	1
10th Perc.	0.5	19.8	0.009	0.457	6.0	0.0025	4.9	0.5

Concentration below maximum MDL.

Appendix Table C.7.3: Water quality at station ECA-132, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	SO4 (mg/L)	U (mg/L)
4/6/2005	10					6.5	0.22		
10/5/2005	3					7.7	0.48		
5/3/2006	1					7	0.87		
11/1/2006	1					7.3	0.51		
5/2/2007	0.5					6.9	0.750		
11/7/2007	0.5					6.6	0.350		
5/7/2008	0.5	0.024	0.0053	1.07	0.167	7.0	0.850	81	0.004
11/5/2008	0.5	0.023	0.00025	0.14	0.004	7.1	0.400	100	0.004
5/31/2009	0.5	0.025	0.0057	0.86	0.212	6.9	0.890	86	0.0017
11/30/2009	0.5	0.026	0.0011	0.60	0.041	7.5	0.470	110	0.0048
Number	10	4	4	4	4	10	10	4	4
Minimum	0.5	0.023	0.0003	0.14	0.004	6.5	0.22	81	0.002
Maximum	10	0.026	0.0057	1.07	0.212	7.7	0.890	110	0.005
Mean	1.8	0.025	0.0031	0.67	0.106	7.1	0.579	94	0.004
Median	0.5	0.025	0.0032	0.73	0.104	7.0	0.495	93	0.004
10th Perc.	0.5	0.023	0.0005	0.28	0.015	6.59	0.337	83	0.002

Concentration below maximum MDL.

Appendix Table C.7.4: Water quality at station L-03, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	U (mg/L)
1/6/2005				30.06		3.2	0.61	1254	0.043
4/19/2005				12.24		3.5	0.26	216	0.012
11/28/2005				38.3		2.5	0.89	1348	0.058
1/19/2006				32.1		2.7	0.93	690	0.0596
4/18/2006				20.3		3.4	0.31	200	0.0437
10/19/2006				34.8		3	0.8	490	0.0669
1/3/2007	129	0.014	0.0323	36.6	0.431	3.4	0.370	750.0	0.0487
4/5/2007	61	0.008	0.0160	18.2	0.238	3.3	0.200	150.0	0.0245
11/22/2007	203	0.018	0.0395	39.5	1.350	2.8	0.860	620.0	0.0591
2/4/2008	128	0.014	0.0351	33.9	0.359	3.1	0.400	310.0	0.0789
4/30/2008	97	0.014	0.0297	21.6	0.388	3.1	0.340	260.0	0.0469
7/3/2008	176	0.018	0.0480	27.0	0.813	2.8	0.490	480.0	0.0713
1/8/2009	101	0.016	0.0276	26.5	0.387	3.2	0.340	300.0	0.0794
5/7/2009	130	0.013	0.0335	26.9	0.576	3.0	0.420	340.0	0.0408
7/2/2009	161	0.015	0.0358	20.8	0.730	2.9	0.490	410.0	0.041
10/8/2009	193	0.017	0.0376	36.2	1.150	2.9	0.790	540.0	0.0452
Number	10	10	10	16	10	16	16	16	16
Minimum	61	0.008	0.0160	12.2	0.238	2.5	0.200	150	0.012
Maximum	203	0.018	0.0480	39.5	1.350	3.5	0.93	1348	0.0794
Mean	138	0.015	0.0335	28.4	0.642	3.1	0.531	522	0.0512
Median	129.5	0.015	0.0343	28.5	0.504	3.1	0.455	445	0.0478
10th Perc.	93.4	0.013	0.0264	19.3	0.347	2.8	0.285	208	0.0327

Appendix Table C.7.5: Water quality at station N-17, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Sulphate (mg/L)	Ra-226 (Bq/L)	U (mg/L)
1/19/2005	1030	0.0164	0.0855	262.4	1.35	4.3	1611	0.19	0.087
2/23/2005								0.2	
3/23/2005								0.16	
4/20/2005	541	0.0166	0.082	203.1	1.13	3.7	1265	0.3	0.078
5/18/2005								0.11	
6/22/2005								0.12	
7/20/2005	808	0.0213	0.125	420	2.1	4.7	1904	0.085	0.071
8/17/2005								0.16	
9/21/2005								0.1	
10/19/2005	800	0.014	0.109	299	1.44	3.6	2633	0.18	0.117
11/23/2005								0.25	
12/14/2005								0.13	
1/11/2006								0.077	
2/1/2006	588	0.006	0.153	331	1.84	4.8	1400	0.1	0.0588
3/1/2006								0.059	
4/5/2006								0.28	
5/3/2006	473	0.0144	0.119	244	1.58	4.2	1000	0.15	0.11
6/7/2006								0.07	
7/5/2006								0.078	
8/2/2006	543	0.007	0.112	287	1.72	3.5	1200	0.074	0.0627
9/6/2006								0.15	
10/4/2006								0.11	
11/1/2006	547	0.009	0.117	209	1.52	3.8	1100	0.16	0.0483
12/6/2006								0.21	
1/3/2007								0.240	
2/7/2007	790	0.017	0.1210	376	1.720	5.2	1400.0	0.086	0.0554
3/7/2007								0.110	
4/4/2007								0.270	
5/2/2007	516	0.017	0.1240	292	1.480	4.1	1200.0	0.140	0.0721
6/6/2007								0.100	
7/4/2007								0.051	
8/1/2007	676	0.019	0.1360	376	1.810	5.0	1500.0	0.083	0.0539
9/5/2007								0.094	
10/3/2007								0.130	
11/7/2007	623	0.017	0.1140	297	1.590	3.5	1200.0	0.190	0.0654
12/5/2007								0.082	
1/2/2008								0.180	
2/6/2008	333	0.014	0.0708	158	0.970	3.4	810.0	0.250	0.0596
3/5/2008				246				0.110	
4/2/2008				193				0.380	
5/7/2008	321	0.017	0.0826	182	1.110	3.3	770.0	0.180	0.0543
6/4/2008				279				0.086	
7/2/2008				286				0.069	
8/6/2008	601	0.017	0.1250	331	1.780	4.8	1200.0	0.094	0.0527
9/3/2008				257				0.072	
10/1/2008				368				0.071	
11/5/2008	682	0.018	0.1150	383	1.780	4.4	1500.0	0.077	0.0454
12/3/2008				277				0.069	
1/7/2009								0.170	
2/4/2009	533	0.015	0.0996	320	1.600	3.8	1100.0	0.074	0.0421
3/4/2009								0.072	
4/1/2009								0.370	
5/6/2009	378	0.015	0.0761	173	0.988	5.8	770.0	0.170	0.043
6/3/2009								0.140	
7/2/2009								0.230	
8/6/2009	425	0.018	0.0864	236	1.250	4.2	990.0	0.082	0.0397
9/2/2009								0.080	
10/7/2009								0.220	
11/4/2009	316	0.017	0.0576	114	1.010	3.4	680.0	0.240	0.0421
12/2/2009								0.180	
Number	20	20	20	27	20	20	20	60	20
Minimum	316	0.006	0.0576	114	0.970	3.3	680	0.051	0.0397
Maximum	1030	0.021	0.1530	420	2.100	5.8	2633	0.380	0.1170
Mean	576	0.015	0.1055	274	1.488	4.2	1261.7	0.146	0.0629
Median	545	0.017	0.1130	279	1.550	4.2	1200.0	0.125	0.0571
10th Perc.	332	0.009	0.0756	178	1.008	3.4	770.0	0.072	0.0421

Appendix Table C.7.6: Water quality at station N-18, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
1/4/2005	10.9	5/19/2005	11.2	10/6/2005	10.5	2/23/2006	10.7	7/12/2006	10.6
1/5/2005	10.9	5/20/2005	11.1	10/7/2005	11	2/24/2006	10.4	7/13/2006	10.6
1/6/2005	10.9	5/24/2005	11.4	10/11/2005	10.8	2/27/2006	10.6	7/14/2006	10.5
1/7/2005	10.4	5/25/2005	11.1	10/12/2005	10.5	2/28/2006	10.5	7/17/2006	10.7
1/10/2005	10.8	5/26/2005	11.1	10/13/2005	10.5	3/1/2006	10.5	7/18/2006	10.7
1/11/2005	10.8	5/27/2005	11.2	10/14/2005	10.6	3/2/2006	10.7	7/19/2006	10.7
1/12/2005	10.8	5/30/2005	11.1	10/17/2005	10.8	3/3/2006	10.5	7/20/2006	10.8
1/13/2005	10.4	5/31/2005	11.1	10/18/2005	10.8	3/6/2006	10.7	7/21/2006	10.6
1/14/2005	10.9	6/1/2005	11.1	10/19/2005	10.7	3/7/2006	10.5	7/24/2006	10.4
1/17/2005	10.8	6/2/2005	11	10/20/2005	10.7	3/8/2006	10.4	7/25/2006	10.6
1/18/2005	10.8	6/3/2005	11	10/21/2005	10.7	3/9/2006	10.4	7/26/2006	10.1
1/19/2005	10.4	6/6/2005	10.7	10/24/2005	11.1	3/10/2006	10.4	7/27/2006	10.4
1/20/2005	10.4	6/7/2005	11.2	10/25/2005	10.7	3/13/2006	10.3	7/28/2006	10.2
1/21/2005	10.4	6/8/2005	11.2	10/26/2005	10.6	3/14/2006	10.6	7/31/2006	10.4
1/24/2005	10.6	6/9/2005	11.2	10/27/2005	10.6	3/15/2006	10.3	8/1/2006	10.8
1/25/2005	10.5	6/10/2005	11.2	10/28/2005	10.9	3/16/2006	10.6	8/2/2006	10.3
1/26/2005	10.9	6/13/2005	11.2	10/31/2005	10.7	3/17/2006	10.6	8/3/2006	10.3
1/27/2005	10.8	6/14/2005	11.2	11/1/2005	10.7	3/20/2006	10.5	8/4/2006	10.5
1/28/2005	10.8	6/15/2005	10.9	11/2/2005	11	3/21/2006	10.5	8/8/2006	10.6
1/31/2005	11.2	6/16/2005	11.2	11/3/2005	11	3/22/2006	9.3	8/9/2006	10.4
2/1/2005	10.9	6/17/2005	11.2	11/4/2005	11	3/23/2006	9.4	8/10/2006	10.7
2/2/2005	10.9	6/20/2005	11	11/7/2005	11	3/24/2006	9.4	8/11/2006	10.7
2/3/2005	11.1	6/21/2005	10.8	11/8/2005	10.9	3/27/2006	9.4	8/14/2006	10.7
2/4/2005	10.9	6/22/2005	11	11/9/2005	10.9	3/28/2006	9.3	8/15/2006	10.5
2/7/2005	10.8	6/23/2005	11	11/10/2005	10.9	3/29/2006	9.3	8/16/2006	10.6
2/8/2005	10.9	6/24/2005	11	11/11/2005	10.7	3/30/2006	9.3	8/17/2006	10.8
2/9/2005	10.9	6/27/2005	10.8	11/14/2005	10.1	3/31/2006	8.9	8/18/2006	10.5
2/10/2005	10.9	6/28/2005	10.9	11/15/2005	10.8	4/3/2006	8.6	8/21/2006	10.3
2/11/2005	10.7	6/29/2005	10.7	11/16/2005	10.8	4/4/2006	9.3	8/22/2006	10.5
2/14/2005	10.8	6/30/2005	10.4	11/17/2005	10.7	4/5/2006	9.3	8/23/2006	10.5
2/15/2005	10.8	7/4/2005	11	11/18/2005	10.9	4/6/2006	9.7	8/24/2006	10.3
2/16/2005	10.8	7/5/2005	10.9	11/21/2005	10.7	4/7/2006	9.3	8/25/2006	10.3
2/17/2005	11.1	7/6/2005	11	11/22/2005	10.8	4/10/2006	9.3	8/28/2006	10.5
2/18/2005	11.1	7/7/2005	11	11/23/2005	10.8	4/11/2006	9.8	8/29/2006	10.5
2/21/2005	11.2	7/8/2005	11.1	11/24/2005	10.8	4/12/2006	9.1	8/30/2006	10.7
2/22/2005	11	7/11/2005	11.2	11/25/2005	10.8	4/13/2006	8.8	8/31/2006	10.7
2/23/2005	10.8	7/12/2005	10.9	11/28/2005	10.7	4/17/2006	9.2	9/1/2006	10.7
2/24/2005	10.8	7/13/2005	11.1	11/29/2005	9.3	4/18/2006	10.1	9/5/2006	10.6
2/25/2005	10.9	7/14/2005	11.1	11/30/2005	9.4	4/19/2006	10.1	9/6/2006	10.8
2/28/2005	11.1	7/15/2005	10.6	12/1/2005	9.9	4/20/2006	10.1	9/7/2006	10.8
3/1/2005	11.1	7/18/2005	10.7	12/2/2005	10.9	4/21/2006	10.5	9/8/2006	10.8
3/2/2005	11	7/19/2005	11	12/5/2005	11.2	4/24/2006	9.7	9/11/2006	10.8
3/3/2005	11.2	7/20/2005	11	12/6/2005	11	4/25/2006	10.3	9/12/2006	10.7
3/4/2005	11.2	7/21/2005	11.2	12/7/2005	10.8	4/26/2006	10.4	9/13/2006	10.8
3/7/2005	11	7/22/2005	11.3	12/8/2005	9.7	4/27/2006	10.3	9/14/2006	10.9
3/8/2005	11.4	7/25/2005	11	12/9/2005	9.4	4/28/2006	10.6	9/15/2006	11
3/9/2005	11.4	7/26/2005	11.1	12/12/2005	9.5	5/1/2006	10.5	9/18/2006	10.9

Appendix Table C.7.6: Water quality at station N-18, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
3/10/2005	11.5	7/27/2005	11	12/13/2005	9.7	5/2/2006	10.6	9/19/2006	10.7
3/11/2005	11.3	7/28/2005	11	12/14/2005	9.7	5/3/2006	10.6	9/20/2006	10.6
3/14/2005	11.1	7/29/2005	10.6	12/15/2005	9.9	5/4/2006	10.4	9/21/2006	10.9
3/15/2005	11.2	8/2/2005	11	12/16/2005	9.6	5/5/2006	10.7	9/22/2006	10.9
3/16/2005	11.1	8/3/2005	10.9	12/19/2005	9.9	5/8/2006	10.6	9/25/2006	10.9
3/17/2005	11	8/4/2005	11	12/20/2005	9.9	5/9/2006	10.6	9/26/2006	10.9
3/18/2005	11.1	8/5/2005	11.3	12/21/2005	9.9	5/10/2006	10.6	9/27/2006	10.6
3/21/2005	11.3	8/8/2005	10.8	12/22/2005	10.4	5/11/2006	10.2	9/28/2006	10.9
3/22/2005	11.3	8/9/2005	10.9	12/23/2005	10.6	5/12/2006	10	9/29/2006	10.8
3/23/2005	11.3	8/10/2005	10.9	12/28/2005	10.7	5/15/2006	9.7	10/2/2006	10.9
3/24/2005	11.2	8/11/2005	10.9	12/29/2005	11	5/16/2006	9.7	10/3/2006	10.8
3/28/2005	10.8	8/12/2005	11	12/30/2005	10.7	5/17/2006	10.6	10/4/2006	10.8
3/29/2005	11.3	8/15/2005	10.7	1/3/2006	10.5	5/18/2006	10.6	10/5/2006	10.9
3/30/2005	10.9	8/16/2005	11.2	1/4/2006	10.4	5/19/2006	10.6	10/6/2006	10.7
3/31/2005	10.5	8/17/2005	10.7	1/5/2006	10.5	5/23/2006	10.6	10/10/2006	10.7
4/1/2005	10.2	8/18/2005	11.2	1/6/2006	10.6	5/24/2006	10.3	10/11/2006	10.7
4/4/2005	8.9	8/19/2005	10.8	1/9/2006	10.6	5/25/2006	10.6	10/12/2006	10.7
4/5/2005	9.2	8/22/2005	10.9	1/10/2006	10.6	5/26/2006	10.3	10/13/2006	10.9
4/6/2005	9.4	8/23/2005	11.1	1/11/2006	10.6	5/29/2006	10.2	10/16/2006	10.6
4/7/2005	8.9	8/24/2005	11.2	1/12/2006	10.5	5/30/2006	10.6	10/17/2006	10.7
4/8/2005	9.2	8/25/2005	11.1	1/13/2006	10.5	5/31/2006	11	10/18/2006	10.6
4/11/2005	10.7	8/26/2005	10.9	1/16/2006	10.4	6/1/2006	10.6	10/19/2006	10.6
4/12/2005	10.4	8/29/2005	11.1	1/17/2006	10.4	6/2/2006	10.6	10/20/2006	9.5
4/13/2005	10.7	8/30/2005	11.2	1/18/2006	10.4	6/5/2006	10.6	10/23/2006	10.9
4/14/2005	10.6	8/31/2005	11	1/19/2006	10.3	6/6/2006	10.6	10/24/2006	10.7
4/15/2005	10.6	9/1/2005	10.8	1/20/2006	10.5	6/7/2006	10.3	10/25/2006	10.9
4/18/2005	10.7	9/2/2005	10.8	1/23/2006	10.6	6/8/2006	10.6	10/26/2006	10.9
4/19/2005	10.9	9/6/2005	10.9	1/24/2006	10.4	6/9/2006	10.5	10/27/2006	11
4/20/2005	10.9	9/7/2005	10.9	1/25/2006	10.5	6/12/2006	10.6	10/30/2006	10.9
4/21/2005	11	9/8/2005	11.2	1/26/2006	10.6	6/13/2006	10.6	10/31/2006	10.9
4/22/2005	10.9	9/9/2005	11.1	1/27/2006	10.3	6/14/2006	10.4	11/1/2006	10.9
4/25/2005	11.2	9/12/2005	11.4	1/30/2006	10.3	6/15/2006	10.5	11/2/2006	10.9
4/26/2005	11	9/13/2005	11.1	1/31/2006	10.5	6/16/2006	10.5	11/3/2006	11
4/27/2005	11.2	9/14/2005	11	2/1/2006	10.5	6/19/2006	10.4	11/6/2006	10.8
4/28/2005	11	9/15/2005	11.1	2/2/2006	10.8	6/20/2006	10.5	11/7/2006	10.6
4/29/2005	11	9/16/2005	11.2	2/3/2006	10.6	6/21/2006	10.6	11/8/2006	10.6
5/2/2005	11.2	9/19/2005	11	2/6/2006	10.5	6/22/2006	10.5	11/9/2006	10.6
5/3/2005	11.2	9/20/2005	10.9	2/7/2006	10.5	6/23/2006	10.5	11/10/2006	10.6
5/4/2005	11.2	9/21/2005	10.7	2/8/2006	10.5	6/26/2006	10.6	11/13/2006	10.6
5/5/2005	11	9/22/2005	10.6	2/9/2006	10.7	6/27/2006	10.4	11/14/2006	10.6
5/6/2005	11	9/23/2005	10.7	2/10/2006	10.7	6/28/2006	10.4	11/15/2006	10.6
5/9/2005	10.9	9/26/2005	10.6	2/13/2006	10.4	6/29/2006	10.4	11/16/2006	10.6
5/10/2005	10.9	9/27/2005	10.6	2/14/2006	10.5	6/30/2006	10.6	11/17/2006	10.6
5/11/2005	11.1	9/28/2005	10.9	2/15/2006	10.6	7/4/2006	10.7	11/20/2006	10.9
5/12/2005	11	9/29/2005	10.5	2/16/2006	10.6	7/5/2006	10.5	11/21/2006	10.9
5/13/2005	11.1	9/30/2005	10.9	2/17/2006	10.3	7/6/2006	10.6	11/22/2006	11
5/16/2005	10.9	10/3/2005	10.8	2/20/2006	10.6	7/7/2006	10.7	11/23/2006	10.7
5/17/2005	10.9	10/4/2005	10.6	2/21/2006	10.5	7/10/2006	10.5	11/24/2006	10.8
5/18/2005	10.9	10/5/2005	10.5	2/22/2006	10.7	7/11/2006	10.4	11/27/2006	10.8

Appendix Table C.7.6: Water quality at station N-18, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
11/28/2006	10.6	4/17/2007	10.5	9/4/2007	10.7	1/22/2008	9.7	6/9/2008	10.4
11/29/2006	10.6	4/18/2007	10.5	9/5/2007	10.5	1/23/2008	8.9	6/10/2008	10.1
11/30/2006	10.7	4/19/2007	10.5	9/6/2007	10.4	1/24/2008	9.2	6/11/2008	10.3
12/1/2006	10.8	4/20/2007	10.3	9/7/2007	10.4	1/25/2008	9	6/12/2008	10.3
12/4/2006	10.7	4/23/2007	10.4	9/10/2007	10.6	1/28/2008	8.9	6/13/2008	9.8
12/5/2006	11	4/24/2007	10.6	9/11/2007	10.7	1/29/2008	9.1	6/16/2008	10.2
12/6/2006	10.8	4/25/2007	10.6	9/12/2007	10.7	1/30/2008	8.1	6/17/2008	10.5
12/7/2006	10.9	4/26/2007	10.7	9/13/2007	10.5	1/31/2008	7.8	6/18/2008	10.5
12/8/2006	10.9	4/27/2007	10.7	9/14/2007	10.3	2/1/2008	7.8	6/19/2008	10.4
12/11/2006	10.9	4/30/2007	10.6	9/17/2007	10.5	2/4/2008	8.4	6/20/2008	10.4
12/12/2006	10.7	5/1/2007	10.4	9/18/2007	10.7	2/5/2008	8.5	6/23/2008	10
12/13/2006	8.8	5/2/2007	10.6	9/19/2007	10.5	2/6/2008	8.7	6/24/2008	10.4
12/14/2006	8.9	5/3/2007	10.5	9/20/2007	10.1	2/7/2008	8.5	6/25/2008	10.5
12/15/2006	9.6	5/4/2007	10.5	9/21/2007	10.3	2/8/2008	8.7	6/26/2008	10.2
12/18/2006	10.3	5/7/2007	10.6	9/24/2007	10.1	2/11/2008	8.7	6/27/2008	10.4
12/19/2006	10.5	5/8/2007	10.6	9/25/2007	10.5	2/12/2008	8.5	7/1/2008	10.4
12/20/2006	10.6	5/9/2007	10.7	9/26/2007	10.7	2/13/2008	8.8	7/2/2008	10.4
12/21/2006	10.5	5/10/2007	10.6	9/27/2007	10.7	2/14/2008	9.1	7/3/2008	10
12/22/2006	11	5/11/2007	10.6	9/28/2007	10.6	2/15/2008	9.3	7/4/2008	10.1
12/27/2006	9.9	5/14/2007	10.6	10/1/2007	10.5	2/19/2008	8.3	7/7/2008	10.6
12/28/2006	10.2	5/15/2007	10.7	10/2/2007	10.5	2/20/2008	8.5	7/8/2008	10
12/29/2006	10.2	5/16/2007	10.6	10/3/2007	10.5	2/21/2008	8.5	7/9/2008	10.1
1/2/2007	9.6	5/17/2007	10.6	10/4/2007	10.3	2/22/2008	8.3	7/10/2008	10.1
1/3/2007	9.6	5/18/2007	10.6	10/5/2007	10.7	2/25/2008	8.3	7/11/2008	10.4
1/4/2007	10.1	5/22/2007	10.7	10/9/2007	10.6	2/26/2008	8.3	7/14/2008	10.6
1/5/2007	10.1	5/23/2007	10.9	10/10/2007	11.7	2/27/2008	9.1	7/15/2008	10.1
1/8/2007	10.2	5/24/2007	10.5	10/11/2007	12.2	2/28/2008	9.2	7/16/2008	10.1
1/9/2007	10.2	5/25/2007	10.6	10/12/2007	10.5	2/29/2008	9.2	7/17/2008	10.2
1/10/2007	10.2	5/28/2007	10.6	10/15/2007	10.5	3/3/2008	8.6	7/18/2008	10.1
1/11/2007	10.1	5/29/2007	10.6	10/16/2007	10.5	3/4/2008	9.4	7/21/2008	10.4
1/12/2007	10.2	5/30/2007	10.7	10/17/2007	10.1	3/5/2008	9.5	7/22/2008	10.2
1/15/2007	10.2	5/31/2007	10.7	10/18/2007	10.9	3/6/2008	9.5	7/23/2008	10.5
1/16/2007	10.2	6/1/2007	10.6	10/19/2007	10.5	3/7/2008	9.4	7/24/2008	10.6
1/17/2007	10.2	6/4/2007	10.5	10/22/2007	10.5	3/10/2008	9.4	7/25/2008	10.6
1/18/2007	10.6	6/5/2007	10.5	10/23/2007	10.4	3/11/2008	9.4	7/28/2008	10.4
1/19/2007	10.5	6/6/2007	10.6	10/24/2007	10.5	3/12/2008	9.6	7/29/2008	10.5
1/22/2007	10.6	6/7/2007	10.6	10/25/2007	10.6	3/13/2008	9.6	7/30/2008	10.5
1/23/2007	10.6	6/8/2007	10.6	10/26/2007	10.6	3/14/2008	10	7/31/2008	10.4
1/24/2007	10.6	6/11/2007	10.4	10/29/2007	10.5	3/17/2008	10.1	8/1/2008	10.5
1/25/2007	10.5	6/12/2007	10.6	10/30/2007	10.4	3/18/2008	9.8	8/5/2008	10.2
1/26/2007	10.5	6/13/2007	10.6	10/31/2007	10.5	3/19/2008	9.8	8/6/2008	10.4
1/29/2007	10.4	6/14/2007	10.6	11/1/2007	10.5	3/20/2008	10.2	8/7/2008	10.4
1/30/2007	10.5	6/15/2007	10.5	11/2/2007	10.5	3/24/2008	10.1	8/8/2008	10.2
1/31/2007	10.5	6/18/2007	10.8	11/5/2007	10.5	3/25/2008	9.9	8/11/2008	10.5
2/1/2007	10.6	6/19/2007	10	11/6/2007	10.6	3/26/2008	10.1	8/12/2008	10.6
2/2/2007	10.5	6/20/2007	11	11/7/2007	10.5	3/27/2008	9.9	8/13/2008	10.5
2/5/2007	10.6	6/21/2007	10.1	11/8/2007	10.7	3/28/2008	9.8	8/14/2008	10.5

Appendix Table C.7.6: Water quality at station N-18, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH	Date	pH
2/6/2007	10.5	6/22/2007	10.6	11/9/2007	10.5	3/31/2008	9.9	8/15/2008	10.6
2/7/2007	10.5	6/25/2007	10.4	11/12/2007	10.3	4/1/2008	7.9	8/18/2008	10.5
2/8/2007	10.5	6/26/2007	10.5	11/13/2007	10.7	4/2/2008	8.3	8/19/2008	10.5
2/9/2007	10.5	6/27/2007	10.7	11/14/2007	10.7	4/3/2008	8.3	8/20/2008	10.5
2/12/2007	10.5	6/28/2007	10.5	11/15/2007	10.7	4/4/2008	8.3	8/21/2008	10.7
2/13/2007	10.6	6/29/2007	10.5	11/16/2007	10.6	4/7/2008	8.7	8/22/2008	10.5
2/14/2007	10.5	7/3/2007	10.7	11/19/2007	10.5	4/8/2008	8.7	8/25/2008	10.5
2/15/2007	10.5	7/4/2007	10.7	11/20/2007	10.5	4/9/2008	8.1	8/26/2008	10.6
2/16/2007	10.7	7/5/2007	10.7	11/21/2007	10.6	4/10/2008	7.8	8/27/2008	10.6
2/19/2007	10.8	7/6/2007	10.6	11/22/2007	10.3	4/11/2008	8.2	8/28/2008	10.5
2/20/2007	10.7	7/9/2007	10.5	11/23/2007	10.2	4/14/2008	8.7	8/29/2008	10.3
2/21/2007	10.6	7/10/2007	10.5	11/26/2007	10.7	4/15/2008	8.7	9/2/2008	10.6
2/22/2007	10.7	7/11/2007	10.5	11/27/2007	10.7	4/16/2008	8.7	9/3/2008	10.5
2/23/2007	10.7	7/12/2007	10.5	11/28/2007	10.6	4/17/2008	8.4	9/4/2008	10.5
2/26/2007	10.7	7/13/2007	10.5	11/29/2007	10.2	4/18/2008	8.5	9/5/2008	10.5
2/27/2007	10.7	7/16/2007	10.6	11/30/2007	10.5	4/21/2008	8.8	9/8/2008	10.4
2/28/2007	10.5	7/17/2007	10.6	12/3/2007	10.3	4/22/2008	9.1	9/9/2008	10.4
3/1/2007	10.5	7/18/2007	10.7	12/4/2007	10.3	4/23/2008	9.4	9/10/2008	10.7
3/2/2007	10.5	7/19/2007	10.7	12/5/2007	10.1	4/24/2008	9.8	9/11/2008	10.3
3/5/2007	10.7	7/20/2007	10.3	12/6/2007	10.1	4/25/2008	9.7	9/12/2008	10.2
3/6/2007	10.6	7/23/2007	10.5	12/7/2007	10.1	4/28/2008	8.7	9/15/2008	9.3
3/7/2007	10.7	7/24/2007	10.5	12/10/2007	10.1	4/29/2008	9.3	9/16/2008	10.5
3/8/2007	10.6	7/25/2007	10.5	12/11/2007	10.2	4/30/2008	9.5	9/17/2008	10.5
3/9/2007	10.7	7/26/2007	10.5	12/12/2007	9.6	5/1/2008	9.8	9/18/2008	10.6
3/12/2007	10.7	7/27/2007	10.5	12/13/2007	9.4	5/2/2008	9.6	9/19/2008	10.5
3/13/2007	10.5	7/30/2007	10.5	12/14/2007	9.3	5/5/2008	9.8	9/22/2008	10.7
3/14/2007	10.5	7/31/2007	10.5	12/17/2007	9.4	5/6/2008	10.2	9/23/2008	10.6
3/15/2007	10.6	8/1/2007	10.5	12/18/2007	9.4	5/7/2008	9.5	9/24/2008	10.6
3/16/2007	10.6	8/2/2007	10.5	12/19/2007	9.7	5/8/2008	9.7	9/25/2008	10.6
3/19/2007	10.6	8/3/2007	10.6	12/20/2007	9.6	5/9/2008	9.3	9/26/2008	10.8
3/20/2007	10.7	8/7/2007	10.6	12/21/2007	9.5	5/12/2008	9.6	9/29/2008	10.5
3/21/2007	10.7	8/8/2007	10.5	12/24/2007	8.6	5/13/2008	10.4	9/30/2008	10.6
3/22/2007	10.4	8/9/2007	10.4	12/27/2007	9.1	5/14/2008	10.4	10/1/2008	10.6
3/23/2007	10.5	8/10/2007	10.7	12/28/2007	9.1	5/15/2008	9.5	10/2/2008	10.7
3/26/2007	9.4	8/13/2007	10.8	12/31/2007	9.1	5/16/2008	10	10/3/2008	10.6
3/27/2007	9.5	8/14/2007	10.8	1/2/2008	9.2	5/20/2008	10.1	10/6/2008	10.5
3/28/2007	8.6	8/15/2007	10.8	1/3/2008	9.2	5/21/2008	10.6	10/7/2008	10.3
3/29/2007	9.8	8/16/2007	10.8	1/4/2008	8.9	5/22/2008	10	10/8/2008	10.4
3/30/2007	10.5	8/17/2007	10.8	1/7/2008	8.9	5/23/2008	9.3	10/9/2008	10.5
4/2/2007	10.5	8/20/2007	10.8	1/8/2008	8.6	5/26/2008	9.9	10/10/2008	10.7
4/3/2007	10.4	8/21/2007	10.8	1/9/2008	8.4	5/27/2008	10.7	10/14/2008	10.5
4/4/2007	8.7	8/22/2007	10.7	1/10/2008	8.4	5/28/2008	10.7	10/15/2008	10.5
4/5/2007	9.3	8/23/2007	10.4	1/11/2008	9.2	5/29/2008	10.4	10/16/2008	10.4
4/9/2007	9.7	8/24/2007	10.3	1/14/2008	9.7	5/30/2008	10.5	10/17/2008	10.6
4/10/2007	9.7	8/27/2007	10.8	1/15/2008	9.6	6/2/2008	10.3	10/20/2008	10.3
4/11/2007	9.7	8/28/2007	10.4	1/16/2008	9.7	6/3/2008	10.5	10/21/2008	10.4
4/12/2007	9.7	8/29/2007	10.4	1/17/2008	9.3	6/4/2008	10.5	10/22/2008	10.6
4/13/2007	9.7	8/30/2007	10.4	1/18/2008	9.4	6/5/2008	10.5	10/23/2008	10.6
4/16/2007	10	8/31/2007	10.5	1/21/2008	9.7	6/6/2008	10.5	10/24/2008	10.3

Appendix Table C.7.6: Water quality at station N-18, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH
10/27/2008	10.6	3/16/2009	9.3	7/31/2009	10.2	12/17/2009	10.2
10/28/2008	10.7	3/17/2009	9	8/4/2009	10.3	12/18/2009	10
10/29/2008	10.7	3/18/2009	9	8/5/2009	10.3	12/21/2009	10.2
10/30/2008	10.5	3/19/2009	8.9	8/6/2009	10.5	12/22/2009	10.3
10/31/2008	10.4	3/20/2009	8.9	8/7/2009	10.2	12/23/2009	10.3
11/3/2008	10.6	3/23/2009	9	8/10/2009	10.5	12/24/2009	10
11/4/2008	10.6	3/24/2009	9	8/11/2009	10.5	12/29/2009	10.1
11/5/2008	10.5	3/25/2009	8.9	8/12/2009	10.2	12/30/2009	10.1
11/6/2008	10.2	3/26/2009	8.9	8/13/2009	10.2	12/31/2009	10.5
11/7/2008	10.5	3/27/2009	8.9	8/14/2009	10.2		
11/10/2008	10.7	3/30/2009	8.7	8/17/2009	10.1		
11/11/2008	10.7	3/31/2009	8.4	8/18/2009	10.4		
11/12/2008	10.7	4/1/2009	8.4	8/19/2009	10.5		
11/13/2008	10.3	4/2/2009	8.4	8/20/2009	10.5		
11/14/2008	10.4	4/3/2009	8.6	8/21/2009	10.3		
11/17/2008	10.5	4/6/2009	8.4	8/24/2009	10.2		
11/18/2008	10.5	4/7/2009	8.7	8/25/2009	10.3		
11/19/2008	10.5	4/8/2009	8.4	8/26/2009	10.1		
11/20/2008	10.5	4/9/2009	8.5	8/27/2009	9.8		
11/21/2008	10.5	4/13/2009	8.7	8/28/2009	10.3		
11/24/2008	10.2	4/14/2009	8.4	8/31/2009	10.3		
11/25/2008	10.5	4/15/2009	8.6	9/1/2009	10.3		
11/26/2008	10.4	4/16/2009	8.5	9/2/2009	10.3		
11/27/2008	10.4	4/17/2009	8.6	9/3/2009	10.3		
11/28/2008	10.2	4/20/2009	8.5	9/4/2009	10.3		
12/1/2008	10.3	4/21/2009	8.5	9/8/2009	10.1		
12/2/2008	10.3	4/22/2009	8.7	9/9/2009	10.3		
12/3/2008	10.6	4/23/2009	8.4	9/10/2009	10.3		
12/4/2008	10.5	4/24/2009	8.6	9/11/2009	10.1		
12/5/2008	10.4	4/27/2009	9.6	9/14/2009	10.1		
12/8/2008	10.3	4/28/2009	9.5	9/15/2009	10.3		
12/9/2008	10.6	4/29/2009	9.5	9/16/2009	10.3		
12/10/2008	10.7	4/30/2009	9.6	9/17/2009	10.3		
12/11/2008	10.6	5/1/2009	9.5	9/18/2009	10.5		
12/12/2008	10.6	5/4/2009	9.4	9/21/2009	10.1		
12/15/2008	10.3	5/5/2009	10.2	9/22/2009	10.3		
12/16/2008	10.4	5/6/2009	9.8	9/23/2009	10.3		
12/17/2008	10.2	5/7/2009	9.9	9/24/2009	10.3		
12/18/2008	10	5/8/2009	9.9	9/25/2009	10.4		
12/19/2008	10.1	5/11/2009	10.2	9/28/2009	10.3		
12/22/2008	9.9	5/12/2009	10.2	9/29/2009	10.5		
12/23/2008	10.1	5/13/2009	10.4	9/30/2009	10.5		
12/24/2008	10	5/14/2009	8.4	10/1/2009	10.4		
12/29/2008	8.8	5/15/2009	8.8	10/2/2009	10.3		
12/30/2008	9	5/19/2009	10	10/5/2009	10.1		
12/31/2008	9.3	5/20/2009	10.1	10/6/2009	10.2		
1/2/2009	10.1	5/21/2009	10.4	10/7/2009	10.3		

Appendix Table C.7.6: Water quality at station N-18, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH
1/5/2009	9.8	5/22/2009	10.2	10/8/2009	10.6	Number	1257
1/6/2009	10	5/25/2009	10.2	10/9/2009	10.3	Minimum	7.8
1/7/2009	9	5/26/2009	10	10/13/2009	10.3	Maximum	12.2
1/8/2009	9.1	5/27/2009	10.1	10/14/2009	10.4	Mean	10.3
1/9/2009	9.1	5/28/2009	10.2	10/15/2009	10.4	Median	10.5
1/12/2009	9	5/29/2009	10.2	10/16/2009	10.4	10th Perc.	9.2
1/13/2009	9.1	6/1/2009	10.3	10/19/2009	10.6		
1/14/2009	9	6/2/2009	10	10/20/2009	10.5		
1/15/2009	9.2	6/3/2009	10.3	10/21/2009	10.3		
1/16/2009	9.2	6/4/2009	10.1	10/22/2009	10.2		
1/19/2009	9	6/5/2009	10.2	10/23/2009	10.2		
1/20/2009	9	6/8/2009	10.1	10/26/2009	10.5		
1/21/2009	9.5	6/9/2009	9.8	10/27/2009	10.3		
1/22/2009	9.6	6/10/2009	10	10/28/2009	10.2		
1/23/2009	9.7	6/11/2009	10	10/29/2009	10.4		
1/26/2009	9.7	6/12/2009	10	10/30/2009	10.1		
1/27/2009	9.5	6/15/2009	10.1	11/2/2009	9.8		
1/28/2009	9	6/16/2009	10.1	11/3/2009	10.2		
1/29/2009	9	6/17/2009	10.2	11/4/2009	10.1		
1/30/2009	9	6/18/2009	10.2	11/5/2009	9.9		
2/2/2009	9	6/19/2009	10.2	11/6/2009	10.2		
2/3/2009	9	6/22/2009	10	11/9/2009	10		
2/4/2009	9.1	6/23/2009	10.1	11/10/2009	10.2		
2/5/2009	9.2	6/24/2009	10.1	11/11/2009	10		
2/6/2009	9.2	6/25/2009	9.8	11/12/2009	10		
2/9/2009	9	6/26/2009	10	11/13/2009	10		
2/10/2009	9	6/29/2009	10.1	11/16/2009	10.2		
2/11/2009	9	6/30/2009	10.1	11/17/2009	10.2		
2/12/2009	9	7/2/2009	9.9	11/18/2009	10.2		
2/13/2009	9.1	7/3/2009	10	11/19/2009	10.2		
2/17/2009	9.2	7/6/2009	10	11/20/2009	10.1		
2/18/2009	8.9	7/7/2009	10	11/23/2009	10.2		
2/19/2009	8.9	7/8/2009	10	11/24/2009	10.1		
2/20/2009	9.1	7/9/2009	9.9	11/25/2009	10.1		
2/23/2009	9	7/10/2009	10.1	11/26/2009	10.1		
2/24/2009	9.2	7/13/2009	10	11/27/2009	10.2		
2/25/2009	8.9	7/14/2009	10	11/30/2009	9.8		
2/26/2009	8.9	7/15/2009	10.1	12/1/2009	9.9		
2/27/2009	9.1	7/16/2009	10	12/2/2009	9.9		
3/2/2009	9.2	7/17/2009	10	12/3/2009	10.2		
3/3/2009	9.3	7/20/2009	10.1	12/4/2009	10.2		
3/4/2009	9.3	7/21/2009	10.1	12/7/2009	10.4		
3/5/2009	9.1	7/22/2009	10.1	12/8/2009	10		
3/6/2009	9.1	7/23/2009	10.1	12/9/2009	10		
3/9/2009	9.1	7/24/2009	9.8	12/10/2009	10		
3/10/2009	9.2	7/27/2009	10	12/11/2009	10		
3/11/2009	9.1	7/28/2009	10.2	12/14/2009	9.9		
3/12/2009	9.1	7/29/2009	10.6	12/15/2009	9.9		
3/13/2009	9.2	7/30/2009	10.4	12/16/2009	10		

Appendix Table C.7.7: Water quality at station N-19, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
1/5/2005	0.0124	0.0061	0.931	0.312	6.8	0.094		0.5	0.008
1/12/2005					6.8	0.084		1	
1/19/2005					6.8	0.098		3	
1/26/2005					6.8	0.085		1	
2/2/2005					6.8	0.097		1	
2/9/2005	0.0133	0.0085	0.859	0.365	6.8	0.11		0.5	0.007
2/16/2005					6.8	0.085		0.5	
2/23/2005					6.8	0.099		0.5	
3/2/2005					6.8	0.091		1	
3/9/2005	0.0142	0.0064	0.839	0.333	6.8	0.11		1	0.01
3/16/2005					6.8	0.075		0.5	
3/23/2005					6.8	0.063		0.5	
3/30/2005					6.8	0.11		0.5	
4/6/2005	0.009	0.0071	1.090	0.252	7.5	0.14		2	0.005
4/13/2005					8	0.059		0.5	
4/20/2005					7.2	0.079		2	
4/27/2005					7.5	0.092		0.5	
5/4/2005	0.0136	0.0034	0.230	0.299	7.7	0.071		0.5	0.0025
5/11/2005					7.4	0.082		1	
5/18/2005					7.5	0.059		5	
5/25/2005					7.5	0.089		0.5	
6/1/2005					7.6	0.074		0.5	
6/8/2005	0.0129	0.0024	0.055	0.284	7.4	0.089		0.5	0.0025
6/15/2005					7.5	0.07		0.5	
6/22/2005					7.6	0.063		0.5	
6/29/2005					7.8	0.068		0.5	
7/6/2005	0.0125	0.0006	0.074	0.172	7.8	0.058		0.5	0.006
7/13/2005					7.9	0.059		1	
7/20/2005					7.7	0.058		0.5	
7/27/2005					7.6	0.053		0.5	
8/3/2005	0.0064	0.0008	0.075	0.135	7.7	0.053		0.5	0.012
8/10/2005					7.7	0.059		0.5	
8/17/2005					7.8	0.036		0.5	
8/24/2005					7.8	0.05		0.5	
8/31/2005					7.8	0.06		0.5	
9/7/2005	0.0081	0.0011	0.162	0.137	7.7	0.036		0.5	0.006
9/14/2005					7.7	0.042		0.5	
9/21/2005					8	0.036		1	
9/28/2005					8	0.045		0.5	
10/5/2005	0.0077	0.0009	0.101	0.122	7.3	0.041		0.5	0.008
10/12/2005					7.1	0.046		1	
10/19/2005					7.5	0.042		1	
10/26/2005					7.4	0.049		0.5	
11/2/2005					7.5	0.046		0.5	
11/9/2005	0.008	0.0011	0.146	0.132	7.5	0.056		1	0.0025
11/16/2005					7.5	0.047		2	
11/23/2005					7.5	0.065		0.5	
11/30/2005					7.3	0.12		1	
12/7/2005	0.01	0.0009	0.198	0.117	8.8	0.095		1	0.009
12/14/2005					8.2	0.086		0.5	
12/21/2005					7.7	0.062		0.5	
12/28/2005					7.4	0.071		0.5	
1/3/2006	0.012	0.0027	0.110	0.239	7.5	0.074	1100	0.5	0.0038
1/11/2006					7.7	0.064		2	
1/18/2006					7.6	0.059		4	
1/25/2006					7.6	0.056		3	
2/1/2006	0.011	0.0022	0.220	0.229	7.6	0.071	1200	0.5	0.004
2/8/2006					7.6	0.054		0.5	
2/15/2006					7.6	0.058		3	
2/22/2006					7.6	0.046		0.5	
3/1/2006	0.012	0.0022	0.200	0.224	7.6	0.05	1000	2	0.0036
3/8/2006					7.6	0.058		0.5	
3/15/2006					7.4	0.057		0.5	

Appendix Table C.7.7: Water quality at station N-19, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
3/22/2006					8	0.083		0.5	
3/29/2006					8	0.14		5	
4/5/2006	0.0111	0.00373	0.910	0.146	7.8	0.098	390	1	0.00951
4/12/2006					8.4	0.036		1	
4/19/2006					7.5	0.069		2	
4/26/2006					7.6	0.068		1	
5/3/2006	0.0113	0.00213	0.170	0.172	7.5	0.068	900	1	0.00438
5/10/2006					7.6	0.071		2	
5/17/2006					7.5	0.08		1	
5/24/2006					7.5	0.071		1	
5/31/2006					7.6	0.072		0.5	
6/7/2006	0.0127	0.00177	0.160	0.154	7.6	0.067	950	1	0.00411
6/14/2006					7.5	0.086		0.5	
6/21/2006					7.5	0.071		1	
6/28/2006					7.6	0.074		0.5	
7/5/2006	0.0132	0.00138	0.280	0.126	7.4	0.069	990	0.5	0.00339
7/12/2006					7.5	0.055		1	
7/19/2006					7.5	0.054		1	
7/26/2006									
8/2/2006	0.0129	0.0023	0.320	0.198	7.3	0.099	910	0.5	0.004
8/10/2006	0.011	0.0013	0.220	0.117	7.4	0.059	1000	1	0.003
8/16/2006					7.6	0.046		2	
8/23/2006					7.2	0.046		2	
8/30/2006					7.2	0.056		1	
9/6/2006	0.011	0.0013	0.360	0.127	7.5	0.053	950	3	0.0031
9/13/2006					7.4	0.043		1	
9/20/2006					7.2	0.041		1	
9/27/2006					7.6	0.047		1	
10/4/2006	0.008	0.0014	0.430	0.109	7.1	0.043		1	0.0031
10/11/2006					7.3	0.032		2	
10/18/2006					7.7	0.051		1	
10/25/2006					7.3	0.057		1	
11/1/2006	0.011	0.0017		0.149	7.3	0.055		1	0.0037
11/8/2006	0.011	0.0017	0.450	0.141	7.4	0.05		1	0.0038
11/15/2006					7.4	0.035		1	
11/22/2006					7.4	0.063		1	
11/29/2006					7.2	0.057		1	
12/6/2006	0.012	0.0023	0.310	0.135	7.7	0.11		1	0.0039
12/13/2006					8	0.056		1	
12/20/2006					7.6	0.099		2	
12/27/2006					8.5	0.09		1	
1/3/2007	0.008	0.0017	0.66	0.054	8.8	0.058	600.0	1	0.0042
1/10/2007					7.2	0.097		6	
1/17/2007					7.7	0.093		3	
1/24/2007					7.2	0.078		2	
1/31/2007					7.3	0.073		2	
2/7/2007	0.012	0.0026	0.50	0.139	7.2	0.068	960.0	1	0.0044
2/14/2007					7.3	0.072		2	
2/21/2007					7.3	0.066		0.5	
2/28/2007					7.3	0.062		1	
3/7/2007	0.012	0.0023	0.23	0.134	7.3	0.065	960.0	1	0.0035
3/14/2007					7.2	0.066		1	
3/21/2007					7.2	0.066		2	
3/28/2007					8.9	0.030		0.5	
4/4/2007	0.008	0.0014	0.30	0.047	8.6	0.050	400.0	1	0.0052
4/11/2007					8.6	0.072		0.5	
4/18/2007					7.7	0.062		1	
4/25/2007					7.5	0.065		1	
5/2/2007	0.013	0.0025	0.27	0.124	7.4	0.064	900.0	1	0.0037
5/9/2007					7.5	0.069		1	
5/16/2007					7.5	0.074		1	
5/23/2007					7.2	0.062		0.5	
5/30/2007					7.5	0.079		0.5	

Appendix Table C.7.7: Water quality at station N-19, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
6/6/2007	0.013	0.0022	0.26	0.103	7.6	0.073	980.0	2	0.003
6/13/2007					7.8	0.071		1	
6/20/2007					7.7	0.057		0.5	
6/27/2007					7.5	0.062		0.5	
7/4/2007	0.012	0.0015	0.09	0.091	7.5	0.081	1000.0	1	0.0028
7/11/2007					7.7	0.064		1	
7/18/2007					7.6	0.049		1	
7/25/2007					7.5	0.048		1	
8/1/2007	0.011	0.0012	0.23	0.091	7.6	0.049	1100.0	1	0.0031
8/8/2007					7.5	0.049		1	
8/15/2007					7.6	0.049		2	
8/22/2007					7.7	0.043		1	
8/29/2007					7.5	0.039		1	
9/5/2007	0.009	0.0008	0.12	0.086	7.1	0.037	1100.0	0.5	0.0027
9/12/2007					7.7	0.038		0.5	
9/19/2007					7.5	0.044		1	
9/26/2007					7.7	0.043		1	
10/3/2007	0.011	0.0013	0.17	0.084	7.5	0.053	1100.0	1	0.0027
10/10/2007					7.2	0.044		1	
10/17/2007					7.4	0.038		1	
10/24/2007					7.5	0.046		1	
10/31/2007					7.3	0.045		0.5	
11/7/2007	0.010	0.0018	0.28	0.116	7.0	0.046	1100.0	1	0.0026
11/14/2007					7.4	0.046		0.5	
11/21/2007					7.4	0.055		1	
11/28/2007					7.6	0.050		1	
12/5/2007	0.011	0.0016	0.16	0.122	7.7	0.051	1000.0	0.5	0.0027
12/12/2007					8.2	0.048		1	
12/19/2007					8.5	0.060		1	
12/27/2007					8.7	0.130		1	
1/2/2008	0.012	0.0016	0.53	0.124	8.5	0.110	890.0	2	0.0097
1/9/2008					7.4	0.140		3	
1/16/2008					7.6	0.082		0.5	
1/23/2008					8.2	0.086		1	
1/31/2008					8.0	0.084		2	
2/6/2008	0.013	0.0084	4.31	0.245	7.9	0.170	690.0	7	0.0102
2/13/2008					7.4	0.120		3	
2/20/2008					8.0	0.100		3	
2/27/2008					7.5	0.110		4	
3/5/2008	0.012	0.0050	1.55	0.269	7.2	0.080	930.0	2	0.0093
3/12/2008					7.6	0.069		2	
3/19/2008					7.5	0.071		5	
3/26/2008					7.7	0.072		2	
4/2/2008	0.015	0.0048	1.92	0.266	7.4	0.075	970.0	3	0.0066
4/9/2008					7.3	0.095		1	
4/16/2008					7.5	0.068		2	
4/23/2008					7.2	0.068		2	
4/30/2008					7.5	0.068		1	
5/7/2008	0.012	0.0027	0.28	0.153	7.2	0.061	730.0	2	0.0049
5/14/2008					7.5	0.086		1	
5/21/2008					7.5	0.083		0.5	
5/28/2008					7.5	0.089		1	
6/4/2008	0.013	0.0023	0.17	0.152	7.6	0.074	780.0	1	0.0044
6/11/2008					7.6	0.072		0.5	
6/18/2008					7.5	0.070		1	
6/25/2008					7.6	0.066		1	
7/2/2008	0.012	0.0017	0.22	0.133	7.4	0.062	800.0	1	0.0031
7/9/2008					7.4	0.066		0.5	
7/16/2008					7.6	0.068		1	
7/23/2008					7.5	0.054		1	
7/30/2008					7.6	0.065		1	
8/6/2008	0.014	0.0024	0.23	0.203	7.5	0.055	820.0	2	0.0033
8/13/2008					7.7	0.039		0.5	

Appendix Table C.7.7: Water quality at station N-19, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
8/20/2008					7.5	0.051		1	
8/27/2008					7.4	0.048		1	
9/3/2008	0.012	0.0014	0.25	0.150	7.4	0.052	850.0	2	0.0028
9/10/2008					7.5	0.045		1	
9/17/2008					7.0	0.038		2	
9/24/2008					7.4	0.047		1	
10/1/2008	0.013	0.0017	0.24	0.119	7.5	0.051	970.0	1	0.0029
10/8/2008					7.4	0.053		1	
10/15/2008					7.1	0.052		1	
10/22/2008					7.5	0.053		1	
10/29/2008					7.1	0.050		1	
11/5/2008	0.013	0.0027	0.34	0.146	7.4	0.049	1000.0	1	0.0028
11/12/2008					7.4	0.049		1	
11/19/2008					7.5	0.050		2	
11/26/2008					7.2	0.047		1	
12/3/2008	0.025	0.0028	0.38	0.140	7.7	0.044	970.0	1	0.0028
12/10/2008					7.6	0.058		1	
12/17/2008					7.4	0.110		3	
12/24/2008					7.6	0.100		1	
12/29/2008					8.5	0.092		1	
1/7/2009	0.012	0.0008	0.43	0.041	8.4	0.100	870.0	3	0.0061
1/14/2009					8.5	0.074		2	
1/21/2009					8.2	0.070		2	
1/28/2009					8.2	0.062		0.5	
2/4/2009	0.013	0.0034	0.45	0.196	7.8	0.066	1000.0	2	0.0054
2/11/2009					7.7	0.069		2	
2/18/2009					7.5	0.073		1	
2/25/2009					7.5	0.066		0.5	
3/4/2009	0.016	0.0023	0.28	0.168	7.5	0.059	950.0	1	0.0039
3/11/2009					7.4	0.074		1	
3/18/2009					7.3	0.054		0.5	
3/25/2009					7.5	0.094		1	
4/1/2009	0.015	0.0020	0.49	0.111	7.7	0.087	750.0	1	0.0102
4/8/2009					7.6	0.077		1	
4/15/2009					7.7	0.088		1	
4/22/2009					7.4	0.054		3	
4/29/2009					7.3	0.060		1	
5/6/2009	0.013	0.0025	0.23	0.118	7.5	0.054	830.0	1	0.0049
5/13/2009					7.5	0.069		1	
5/20/2009					7.5	0.080		0.5	
5/27/2009					7.6	0.091		0.5	
6/3/2009	0.013	0.0017	0.17	0.132	7.6	0.080	750.0	1	0.0041
6/11/2009					7.4	0.091		1	
6/18/2009					7.4	0.069		1	
6/24/2009					7.5	0.076		1	
7/2/2009	0.016	0.0014	0.21	0.122	7.5	0.060	770.0	1	0.0033
7/8/2009					7.5	0.064		1	
7/15/2009					7.4	0.064		1	
7/22/2009					7.4	0.056		1	
7/29/2009					7.5	0.059		1	
8/6/2009	0.014	0.0017	0.23	0.124	7.5	0.057	820.0	1	0.003
8/12/2009					7.5	0.048		1	
8/19/2009					7.5	0.058		1	
8/26/2009					7.5	0.056		1	
9/2/2009	0.012	0.0017	0.34	0.147	7.5	0.057	940.0	1	0.0027
9/9/2009					7.5	0.053		1	
9/16/2009					7.5	0.057		1	
9/21/2009					7.0	0.057		2	
9/30/2009					7.6	0.062		0.5	
10/7/2009	0.013	0.0015	0.19	0.172	7.5	0.047	930.0	1	0.0025
10/14/2009					7.2	0.058		0.5	
10/20/2009					7.1	0.049		2	
10/28/2009					7.3	0.057		1	

Appendix Table C.7.7: Water quality at station N-19, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
11/4/2009	0.012	0.0025	0.25	0.180	7.5	0.057	850.0	1	0.0043
11/11/2009					7.5	0.067		1	
11/18/2009					7.5	0.063		0.5	
11/25/2009					7.5	0.055		1	
12/2/2009	0.012	0.0021	0.29	0.159	7.4	0.077	850.0	1	0.0036
12/9/2009					7.3	0.057		0.5	
12/16/2009					7.3	0.057		0.5	
12/23/2009					7.2	0.055		1	
12/30/2009					7.0	0.058		0.5	
Number	62	62	61	62	260	260	46	260	62
Minimum	0.0064	0.0006	0.055	0.041	6.8	0.030	390.0	0.5	0.0025
Maximum	0.025	0.0085	4.31	0.365	8.9	0.170	1200.0	7	0.0120
Mean	0.012	0.0024	0.43	0.159	7.5	0.067	897.8	1.2	0.0047
Median	0.012	0.0019	0.25	0.140	7.5	0.062	935.0	1.0	0.0039
10th Perc.	0.008	0.0011	0.12	0.092	7.2	0.045	740.0	0.5	0.0027

Concentration below maximum MDL.

Appendix Table C.7.8: Water quality at station N-20, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Fe (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)
1/5/2005	9			6.2	0.013		
4/14/2005	6			6.6	0.006		
7/6/2005	7			6.7	0.008		
10/4/2005	16			5.9	0.007		
1/3/2006	0.5	0.01	0.51	6.6	0.0025	6.1	
2/6/2006	0.5	0.009	0.38	6.6	0.0025	5.3	
3/8/2006	0.5	0.008	0.29	6.5	0.006	4.5	
4/5/2006	0.5	0.0101	0.13	6.3	0.0025	5.4	
5/1/2006	0.5	0.0103	0.28	6.3	0.005	5.4	
6/5/2006	0.5	0.0106	0.65	6.5	0.007	4.1	
7/4/2006	0.5	0.0088	0.95	6.6	0.006	3.5	
8/10/2006	0.5	0.008	0.92	6.5	0.007	3.7	2
9/5/2006	0.5	0.012	0.9	6.2	0.0025	4.1	
10/5/2006	0.5	0.012	0.52	6.3	0.007	5.1	
11/6/2006	0.5	0.008	0.45	6.3	0.0025	4.3	
12/4/2006	0.5	0.008	0.42	6.3	0.006	4.8	
1/8/2007	0.5	0.011	0.27	6.3	0.007	4.9	0.5
4/4/2007	0.5	0.01	0.1	6.7	0.009	4.4	1
11/5/2007	0.5	0.009	0.52	6.0	0.008	4.9	2
1/15/2008	0.5	0.009	0.22	6.2	0.0025	5.7	0.5
4/16/2008	0.5	0.01	0.19	6.0	0.0025	5.1	0.5
7/2/2008	0.5	0.01	0.67	6.5	0.0025	4	2
10/1/2008	0.5	0.01	1.29	6.5	0.007	3.2	1
1/7/2009	0.5	0.01	0.41	6.6	0.0025	4.4	0.5
5/4/2009	0.5	0.012	0.35	6.3	0.009	4.5	1
7/6/2009	0.5	0.008	0.75	6.6	0.0025	3.8	1
10/7/2009	0.5	0.008	0.63	6.5	0.003	3.5	1
Number	27	23	23	27	27	23	12
Minimum	0.5	0.008	0.1	5.9	0.0025	3.2	0.5
Maximum	16	0.012	1.29	6.7	0.013	6.1	2
Mean	2	0.010	0.5	6.4	0.005	4.6	1
Median	0.5	0.01	0.45	6.5	0.006	4.5	1
10th Perc.	0.5	0.008	0.20	6.1	0.0025	3.5	0.5

 Concentration below maximum MDL.

Appendix Table C.7.9: Water quality at station N-22, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	SO4 (mg/L)	U (mg/L)
4/6/2005	377					3	0.39		
10/5/2005	602					2.9	0.67		
5/3/2006	378					3	0.22		
11/1/2006	525					2.9	0.37		
5/2/2007	414					2.8	0.320		
11/7/2007	647					2.7	0.500		
5/7/2008	332	0.012	0.148	81.80	0.431	2.7	0.130	780	0.0574
11/5/2008	669	0.019	0.208	274.00	0.609	2.9	0.500	1500	0.0359
5/6/2009	322	0.013	0.165	73.90	0.346	2.8	0.130	740	0.0562
11/4/2009	49	0.01	0.0304	13.20	0.147	4.0	0.044	740	0.0078
Number	10	4	4	4	4	10	10	4	4
Minimum	49	0.010	0.030	13.2	0.147	2.7	0.044	740	0.008
Maximum	669	0.019	0.208	274.0	0.609	4	0.670	1500	0.057
Mean	432	0.014	0.138	110.7	0.383	3.0	0.327	940	0.039
Median	396	0.013	0.157	77.9	0.389	2.9	0.345	760	0.046
10th Perc.	295	0.011	0.066	31.4	0.207	2.7	0.1214	740	0.016

Appendix Table C.7.10: Water quality at station NWPH, 2007 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH (pH units)	Ra (mg/L)	SO4 (mg/L)	U (mg/L)
1/5/2005		0.02	0.0032	9.34	0.331	6.5	0.29	327	0.0025
2/9/2005		0.022	0.0032	8.42	0.315	6.5	0.22	289	0.006
3/9/2005		0.02	0.0027	9.79	0.298	6.6	0.24	327	0.0025
4/6/2005		0.015	0.0019	2.17	0.12	6.8	0.17	164	0.0025
5/4/2005		0.055	0.0016	4.3	0.133	6.6	0.12	201	0.0025
6/8/2005		0.018	0.0015	4.5	0.177	6.4	0.18	263	0.0025
7/6/2005		0.021	0.0005	1.7	0.098	6.6	0.23	231	0.0025
8/3/2005		0.025	0.0021	9.11	0.25	6.4	0.44	312	0.0025
9/7/2005		0.025	0.0024	13.35	0.294	6.6	0.5	316	0.0025
10/5/2005		0.017	0.0015	8.12	0.198	6.2	0.6	303	0.0025
11/9/2005		0.025	0.0028	12.8	0.317	6.8	0.48	300	0.0025
12/7/2005		0.019	0.0027	10.47	0.306	6.6	0.33	328	0.0025
1/3/2006		0.026	0.0037	13	0.376	6.5	0.33	340	0.0007
2/6/2006		0.025	0.0032	11.8	0.369	6.9	0.34	360	0.0008
3/6/2006		0.023	0.0031	11.6	0.367	6.6	0.28	320	0.0008
4/3/2006		0.021	0.0024	3.59	0.155	6.5	0.18	170	0.0007
5/1/2006		0.023	0.001	1.05	0.058	6.6	0.17	130	0.0007
6/5/2006		0.028	0.0016	5.78	0.169	6.5	0.24	210	0.0009
7/4/2006		0.027	0.002	6.84	0.213	6.7	0.34	220	0.0006
8/8/2006		0.029	0.0024	10.3	0.255	6.4	0.46	230	0.0009
9/5/2006		0.028	0.0022	12.1	0.271	6.4	0.56	250	0.0009
10/2/2006		0.026	0.0024	13.5	0.271	6.4	0.44	260	0.0008
11/6/2006		0.024	0.0028	9.86	0.323	6.4	0.3	280	0.0006
12/4/2006		0.025	0.0028	11.5	0.308	6.4	0.36	290	0.0008
1/2/2007		0.021	0.0011	3.21	0.112	6.6	0.27	190	0.0008
2/5/2007		0.02	0.0027	11.5	0.316	6.5	0.27	280	0.001
3/5/2007		0.02	0.0018	7	0.188	6.4	0.19	230	0.001
4/2/2007		0.02	0.0018	5.15	0.155	6.2	0.23	170	0.0009
5/7/2007		0.028	0.0007	0.49	0.026	6.5	0.12	100	0.0006
6/4/2007		0.031	0.0015	3.89	0.139	6.2	0.25	170	0.0008
7/3/2007		0.029	0.0013	4.43	0.139	6.2	0.5	200	0.0122
8/7/2007		0.02	0.0012	6.04	0.182	6.2	0.36	220	0.0008
9/4/2007		0.011	0.00025	0.2	0.028	6.5	0.016	32	0.00025
10/1/2007		0.026	0.0017	9.57	0.225	6.2	0.6	240	0.0008
11/5/2007		0.027	0.0026	10.7	0.311	7.1	0.52	270	0.0008
12/3/2007		0.025	0.0028	11.5	0.355	6.9	0.37	290	0.0009
1/7/2008		0.026	0.0033	9.5	0.351	6.5	0.35	300	0.0007
2/4/2008		0.019	0.0017	7.01	0.208	6.5	0.21	230	0.001
3/3/2008	0.5	0.021	0.0017	7.53	0.195	6.5	0.22	200	0.001
4/7/2008	0.5	0.017	0.0016	5.49	0.162	6.4	0.14	170	0.0009
5/5/2008	0.5	0.023	0.001	2.3	0.067	6.7	0.15	120	0.001
6/2/2008	0.5	0.032	0.0008	1.68	0.062	6.3	0.25	120	0.0007

Appendix Table C.7.10: Water quality at station NWPH, 2007 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH (pH units)	Ra (mg/L)	SO4 (mg/L)	U (mg/L)
7/7/2008	0.5	0.035	0.0007	1.68	0.063	6.5	0.31	130	0.0006
8/5/2008	0.5	0.045	0.002	9.04	0.222	6.2	0.54	190	0.0009
9/2/2008	19	0.028	0.0026	8.8	0.294	6.3	0.23	210	0.0009
10/6/2008	0.5	0.031	0.0026	11	0.282	6.4	0.48	260	0.001
11/3/2008	0.5	0.031	0.0026	10.6	0.306	6.8	0.5	270	0.0009
12/1/2008	0.5	0.029	0.0025	10.1	0.289	6.4	0.45	280	0.001
2/28/2009	0.5	0.028	0.0028	9.35	0.319	6.2	0.31	320	0.001
5/31/2009	0.5	0.027	0.0022	1.07	0.044	6.9	0.11	110	0.0012
8/31/2009	0.5	0.03	0.0012	3.72	0.157	6.6	0.36	170	0.0006
11/4/2009	0.5	0.03	0.0024	8.48	0.278	6.6	0.35	230	0.0009
Number	14	52	52	52	52	52	52	52	52
Minimum	0.5	0.011	0.00025	0.20	0.026	6.2	0.016	32	0.00025
Maximum	19	0.055	0.0037	13.50	0.376	7.1	0.600	360	0.01220
Mean	1.8	0.025	0.0021	7.42	0.220	6.5	0.316	233	0.00150
Median	0.5	0.025	0.0022	8.45	0.224	6.5	0.305	231	0.00090
10th Perc.	0.5	0.019	0.0010	1.68	0.063	6.2	0.152	130	0.00061

 Concentration below maximum MDL.

Appendix Table C.7.11: Water quality at Station UW7-2, -4, -6, 2005 to 2009.

Site	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
UW7-2	6/1/2005	430	204	7.0	
	5/1/2006	0.50	190	6.8	
	7/24/2007	0.50	223	6.9	3700
	7/10/2008	0.50	213	7.0	4200
	8/4/2009	0.50	192	6.6	3500
UW7-2 Summary	Number	5	5	5.0	3
	Minimum	0.50	190	6.6	3500
	Maximum	430	223	7.0	4200
	Mean	86	204	6.9	3800
	Median	0.50	204	6.9	3700
	10th Perc.	0.50	191	6.7	3540
UW7-4	6/1/2005	3060	1213	5.1	
	5/1/2006	1690	950	4.9	
	7/24/2007	1120	684	5.3	2800
	7/10/2008	1100	587	5.5	3200
	7/28/2009	1800	513	5.3	2300
UW7-4 Summary	Number	5	5	5.0	3
	Minimum	1100	513	4.9	2300
	Maximum	3060	1213	5.5	3200
	Mean	1754	789	5.2	2767
	Median	1690	684	5.3	2800
	10th Perc.	1108	543	5.0	2400
UW7-6	6/1/2005	690	77	6.8	
	5/1/2006	0.50	80	6.7	
	4/30/2007		101	6.4	2000
	7/24/2007	0.50	100	6.8	2100
	7/28/2009	0.50	78	6.8	2000
UW7-6 Summary	Number	4	5	5.0	3
	Minimum	0.50	77	6.4	2000
	Maximum	690	101	6.8	2100
	Mean	173	87	6.7	2033
	Median	0.50	80	6.8	2000
	10th Perc.	0.50	77	6.5	2000

 Concentration below maximum MDL.

Appendix Table C.7.12: Water quality at station UW9-1, -2, -3, 2005 to 2009.

Site	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
UW9-1	6/1/2005	4080.00	1260.00	4.2	
	6/1/2006	3090.00	1220.00	4.2	
	7/24/2007	3790.00	1390.00	4.1	4800.00
	7/10/2008	3520.00	1320.00	4.1	5000.00
	8/4/2009	576.00	1288.00	4.2	4100.00
UW9-1 Summary	Number	5	5	5.0	3
	Minimum	576.0	1220	4.1	4100.00
	Maximum	4080.00	1390.00	4.2	5000.00
	Mean	3011.20	1295.60	4.2	4633.33
	Median	3520.00	1288.00	4.2	4800.00
	10th Perc.	1581.60	1236.00	4.1	4240.00
UW9-2	6/1/2005	4540.00	1159.00	3.9	
	6/1/2006	3310.00	1130.00	4.0	
	7/24/2007	3750.00	1260.00	4.1	5000.00
	7/10/2008	3130.00	1120.00	4.0	4600.00
	8/4/2009	1150.00	774.00	4.0	3100.00
UW9-2 Summary	Number	5	5	5.0	3
	Minimum	1150.00	774.00	3.9	3100.00
	Maximum	4540.00	1260.00	4.1	5000.00
	Mean	3176.00	1088.60	4.0	4233.33
	Median	3310.00	1130.00	4.0	4600.00
	10th Perc.	1942.00	912.40	3.9	3400.00
UW9-3	6/1/2005	3280.00	709.10	2.0	
	6/1/2006	2180.00	690.00	2.3	
	7/24/2007	1390.00	422.00	2.7	2600.00
	7/10/2008	1440.00	471.00	2.6	2800.00
	8/4/2009	870.00	486.00	2.8	2500.00
UW9-3 Summary	Number	5	5	5.0	3
	Minimum	870.00	422.00	2.0	2500.00
	Maximum	3280.00	709.10	2.8	2800.00
	Mean	1832.00	555.62	2.5	2633.33
	Median	1440.00	486.00	2.6	2600.00
	10th Perc.	1078.00	441.60	2.1	2520.00

 Concentration below maximum MDL.

Appendix Table C.7.13: Water quality at station M12-1,-3,-6,-9, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
M12-1	6/1/2005	5430	2652	6.1	
	5/1/2006	3800	2120	6.2	
	7/10/2007	4060	1900	5.9	6500
	6/24/2008	3760	2380	6.2	6800
	8/5/2009	4140	2350	6.1	6700
M12-1 Summary	Number	5	5	5.0	3
	Minimum	3760	1900	5.9	6500
	Maximum	5430	2652	6.2	6800
	Mean	4238	2280	6.1	6667
	Median	4060	2350	6.1	6700
	10th Perc.	3776	1988	6.0	6540
M12-3	6/1/2005	1880	603	5.9	
	5/1/2006	164	89	6	
	7/10/2007	3310	1690	5.8	4700
	6/24/2008	142	87	6.1	390
	8/5/2009	681	191	5.8	1200
M12-3 Summary	Number	5	5	5.0	3
	Minimum	142	87	5.8	390
	Maximum	3310	1690	6.1	4700
	Mean	1235	532	5.9	2097
	Median	681	191	5.9	1200
	10th Perc.	151	88	5.8	552
M12-6	6/1/2005	74	36	5.9	
	5/1/2006	69	47	6	
	7/12/2007	27	42	6.2	260
	6/24/2008	95	56	5.9	360
	8/5/2009	64	48	6.2	330
M12-6 Summary	Number	5	5	5.0	3
	Minimum	27	36	5.9	260
	Maximum	95	56	6.2	360
	Mean	66	46	6.0	317
	Median	69	47	6.0	330
	10th Perc.	42	38	5.9	274
M12-9	6/1/2005	124	4	4.5	
	5/1/2006	4	1	5.1	
	7/12/2007	5	2	5.2	130
	6/24/2008	10	2	5.2	200
	8/5/2009	21	9	5.0	200
M12-9 Summary	Number	5	5	5.0	3
	Minimum	4	1	4.5	130
	Maximum	124	9	5.2	200
	Mean	33	3	5.0	177
	Median	10	2	5.1	200
	10th Perc.	4	1	4.7	144

Appendix Table C.7.14: Water quality at station M13-1,-3,-6,-9, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
M13-1	6/1/2005	4280	1847	6.1	9147
	5/1/2006	3020	1730	6	5000
	7/5/2007	3330	1970	5.7	5400
	6/16/2008	3040	1760	5.8	5000
	7/29/2009	2960	1580	5.9	4600
M13-1 Summary	Number	5	5	5	5
	Minimum	2960	1580	5.7	4600
	Maximum	4280	1970	6.1	9147
	Mean	3326	1777	5.9	5829
	Median	3040	1760	5.9	5000
	10th Perc.	2984	1640	5.7	4760
M13-2	6/1/2005	3140	1332	6.3	7434
	5/1/2006	2030	1220	6.4	4500
	7/5/2007	2160	1660	6.2	4000
	6/17/2008	24	53	6.6	120
	7/29/2009	14	38	6.5	66
M13-3 Summary	Number	5	5	5	5
	Minimum	14	38	6.2	66
	Maximum	3140	1660	6.6	7434
	Mean	1474	861	6.4	3224
	Median	2030	1220	6.4	4000
	10th Perc.	18	44	6.2	88
M13-3	6/1/2005	270	141	6.3	742
	5/1/2006	50	38	6.5	110
	7/5/2007	6	18	6.3	41
	6/17/2008	4	17	6.2	19
	7/29/2009	13	17	6.2	26
M13-6 Summary	Number	5	5	5	5
	Minimum	4	17	6.2	19
	Maximum	270	141	6.5	742
	Mean	69	46	6.3	188
	Median	13	18	6.3	41
	10th Perc.	5	17	6.2	22
M13-4	6/1/2005	26	2.23	5.2	20
	5/1/2006	5	2.01	5.5	23
	7/6/2007	29	4.49	5.4	26
	6/17/2008	4	3.68	5.5	23
	8/4/2009	6	3.76	5.4	17
M13-9 Summary	Number	5	5	5	5
	Minimum	4	2.01	5.2	17
	Maximum	29	4.49	5.5	26
	Mean	14	3.23	5.4	22
	Median	6	3.68	5.4	23
	10th Perc.	4	2.10	5.3	18

Appendix Table C.7.15: Water quality at station M14-1,-3,-6,-9, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
M14-1	Jun-05	3780	1335	6.5	9065
	May-06	775	449	6.5	2000
	7/6/2007	2840	394	6.0	5500
	6/18/2008	2680	1890	6.4	5300
	8/6/2009	2930	1820	6.1	5300
M14-1 Summary	Number	5	5	5.0	5
	Minimum	775	394	6.0	2000
	Maximum	3780	1890	6.5	9065
	Mean	2601	1178	6.3	5433
	Median	2840	1335	6.4	5300
	10th Perc.	1537	416	6.0	3320
M14-3	Jun-05	905	534	6.6	3387
	May-06	520	355	6.5	2600
	7/9/2007	600	371	6.2	2900
	6/18/2008	468	426	6.5	2500
	8/6/2009	494	440	6.3	2300
M14-3 Summary	Number	5	5	5.0	5
	Minimum	468	355	6.2	2300
	Maximum	905	534	6.6	3387
	Mean	597	425	6.4	2737
	Median	520	426	6.5	2600
	10th Perc.	478	361	6.2	2380
M14-6	Jun-05	1480	339	6.6	2193
	May-06	636	387	6.5	2200
	7/9/2007	1440	1410	5.9	2500
	6/18/2008	265	199	6.3	590
	8/6/2009	10	27	6.3	60
M14-6 Summary	Number	5	5	5.0	5
	Minimum	10	27	5.9	60
	Maximum	1480	1410	6.6	2500
	Mean	766	472	6.3	1509
	Median	636	339	6.3	2193
	10th Perc.	112	96	6.1	272
M14-9	Jun-05	45	6.4	5.7	9.6
	May-06	0.5	3.1	6	8.2
	4/30/2007		4.98	6.4	6.6
	7/9/2007	0.5	2.95	6.0	4.8
	6/19/2008	0.5	4.95	6.0	3.6
M14-9 Summary	Number	4.0	5	5.0	5.0
	Minimum	0.5	3.0	5.7	3.6
	Maximum	45	6.4	6.4	9.6
	Mean	11.6	4.5	6.0	6.6
	Median	0.5	5.0	6.0	6.6
	10th Perc.	0.5	3.0	5.8	4.1

 Concentration below maximum MDL.

Appendix Table C.7.16: Water quality at station 95N4 A,B, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N4-A	6/1/2005	3540	1582	5.7	7767
	6/1/2006	2390	1408	6	
	7/18/2007	2450	1410	6.2	4200
	7/9/2008	2550	1570	6.0	4400
	9/11/2009	2530	1400	6.2	4600
95N4-A Summary	Number	5	5	5	4
	Minimum	2390	1400	5.7	4200
	Maximum	3540	1582	6.2	7767
	Mean	2692	1474	6.0	5242
	Median	2530	1410	6.0	4500
	10th Perc.	2414	1403	5.8	4260
95N4-B	6/1/2005	3280	1418	5.3	9721
	6/1/2006	2280	1271	5.4	
	7/18/2007	2290	1290	5.4	3600
	7/9/2008	2420	1360	5.2	3700
	9/11/2009	2490	1130	4.8	3600
95N4-B Summary	Number	5	5	5	4
	Minimum	2280	1130	4.8	3600
	Maximum	3280	1418	5.4	9721
	Mean	2552	1294	5.2	5155
	Median	2420	1290	5.3	3650
	10th Perc.	2284	1186	5.0	3600

Appendix Table C.7.17: Water quality at station 95N-7A, B, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N-7A	6/1/2005	27	0.501	3.4	
	5/1/2006	19	0.23	4.6	
	7/17/2007	9	0.09	4.6	35.0
	7/3/2008	10	0.06	4.8	36.0
	7/22/2009	11	0.32	4.8	29.0
95N-7A Summary	Number	5	5	5	3
	Minimum	9	0.060	3.4	29.0
	Maximum	27	0.501	4.8	36.0
	Mean	15	0.240	4.4	33.3
	Median	11	0.230	4.6	35.0
	10th Perc.	9	0.072	3.9	30.2
95N-7B	6/1/2005	100	22.16	4.4	
	5/1/2006	133	21.6	4.5	
	7/17/2007	55	10.30	4.7	150.0
	7/3/2008	67	18.40	4.9	200.0
	7/22/2009	58	15.00	4.6	160.0
95N-7B Summary	Number	5	5	5	3
	Minimum	55	10.30	4.4	150.0
	Maximum	133	22.16	4.9	200.0
	Mean	83	17.49	4.6	170.0
	Median	67	18.40	4.6	160.0
	10th Perc.	56	12.18	4.4	152.0

Appendix Table C.7.18: Water quality at station 95N-11, 2005 to 2009.

Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
6/1/2005	24	2.94	5	
5/1/2006	13	1.66	5.1	
7/13/2007	37	4.94	5.0	440.0
7/8/2008	38	0.33	4.8	370.0
7/28/2009	21	0.11	5.1	210.0
Number	5	5	5	3
Minimum	13	0.11	4.8	210.0
Maximum	38	4.94	5.1	440.0
Mean	27	2.00	5.0	340.0
Median	24	1.66	5.0	370.0
10th Perc.	16	0.20	4.9	242.0

Appendix Table C.7.19: Water quality at station 95N12-A,-B, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N12-A	6/1/2005	12	3.6	7	
	5/1/2006	0.5	2.9	6.9	
	7/23/2007	0.5	6.49	7.1	17.0
	7/8/2008	0.5	6.82	6.6	24.0
	7/28/2009	0.5	6.74	6.7	19.0
95N12-A Summary	Number	5	5	5	3
	Minimum	0.5	2.9	6.6	17.0
	Maximum	12.0	6.82	7.1	24.0
	Mean	2.8	5.32	6.9	20.0
	Median	0.5	6.49	6.9	19.0
	10th Perc.	0.5	3.21	6.6	17.4
95N12-B	6/1/2005	13	3.17	6.8	
	5/1/2006	0.5	1.18	6.8	
	7/23/2007	0.5	5.64	7.0	17.0
	7/8/2008	0.5	6.27	6.8	21.0
	7/28/2009	0.5	5.46	6.6	18.0
95N12-B Summary	Number	5	5	5	3
	Minimum	0.5	1.18	6.6	17.0
	Maximum	13.0	6.27	7.0	21.0
	Mean	3.0	4.34	6.8	18.7
	Median	0.5	5.46	6.8	18.0
	10th Perc.	0.5	1.98	6.7	17.2

 Concentration below maximum MDL.

Appendix Table C.7.20: Water quality at station 95N13-A,-C,-E, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N13-A	6/1/2005	2680	1167	6.3	7313
	5/1/2006	1520	1120	6.3	3900
	7/16/2007	1490	879	6.5	3300
	6/25/2008	1400	1010	6.1	3400
	7/28/2009	1580	903	6.0	3200
95N13-A Summary	Number	5	5	5	5
	Minimum	1400	879	6.0	3200
	Maximum	2680	1167	6.5	7313
	Mean	1734	1016	6.2	4223
	Median	1520	1010	6.3	3400
	10th Perc.	1436	889	6.0	3240
95N13-C	6/1/2005	2750	1277	6.4	7025
	5/1/2006	1220	860	6.3	3700
	7/16/2007	1400	848	6.4	4500
	6/25/2008	1320	980	6.4	3300
	7/28/2009	1620	981	6.2	3400
95N13-C Summary	Number	5	5	5	5
	Minimum	1220	848	6.2	3300
	Maximum	2750	1277	6.4	7025
	Mean	1662	989	6.3	4385
	Median	1400	980	6.4	3700
	10th Perc.	1260	853	6.2	3340
95N13-E	6/1/2005	3120	1357	5	7930
	5/1/2006	1320	680	4.6	2000
	7/16/2007	2260	1194	5.4	3900
	6/25/2008	1450	877	6.0	3100
	7/28/2009	991	977	5.9	3400
95N-13E Summary	Number	5	5	5	5
	Minimum	991	680	4.6	2000
	Maximum	3120	1357	6.0	7930
	Mean	1828	1017	5.4	4066
	Median	1450	977	5.4	3400
	10th Perc.	1123	759	4.8	2440

Appendix Table C.7.21: Water quality at station 95N14-A,-B,-C, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N14-A	6/1/2005	27	11.0	7	6.9
	6/1/2006	0.5	6.4	6.8	5.7
	7/13/2007	0.5	8.28	7.3	3.9
	6/26/2008	0.5	9.01	6.8	6.9
	7/22/2009	0.5	7.93	6.7	5.2
95N14-A Summary	Number	5	5	5.0	5
	Minimum	1	6	6.7	4
	Maximum	27	11	7.3	7
	Mean	6	9	6.9	6
	Median	1	8	6.8	6
	10th Perc.	1	7	6.7	4
95N14-B	6/1/2005	6	1.96	7.6	5.14
	6/1/2006	0.5	0.89	7.1	2.1
	7/13/2007	0.5	2.64	7.8	2.3
	6/26/2008	0.5	3.74	6.9	3.2
	7/22/2009	0.5	4.93	6.9	2.0
95N14-B Summary	Number	5	5	5.0	5
	Minimum	1	1	6.9	2
	Maximum	6	5	7.8	5
	Mean	2	3	7.3	3
	Median	1	3	7.1	2
	10th Perc.	1	1	6.9	2
95N14-C	6/1/2005	9	4.67	7.4	0.25
	6/1/2006	0.5	0.78	7	0.25
	7/13/2007	0.5	6.09	7.6	0.25
	6/26/2008	0.5	4.91	7.1	0.6
	7/22/2009	0.5	5.20	7.0	0.25
95N14-C Summary	Number	5	5	5.0	5
	Minimum	1	1	7.0	0
	Maximum	9	6	7.6	1
	Mean	2	4	7.2	0
	Median	1	5	7.1	0
	10th Perc.	1	2	7.0	0

 Concentration below maximum MDL.

Appendix Table C.7.22: Lacnor Nordic groundwater station 95N16A, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N16-A	6/1/2005	1260	412	6.40	4063
	5/1/2006	432	299	6.40	2400
	7/17/2007	453	307	6.60	2400
	7/3/2008	463	341	6.60	2400
	7/23/2009	420	307	6.40	2400
95N16-A Summary	Number	5	5	5	5
	Minimum	420	299	6.40	2400
	Maximum	1260	412	6.60	4063
	Mean	606	333	6.48	2733
	Median	453	307	6.40	2400
	10th Perc.	425	302	6.40	2400
95N16-C	6/1/2005	1460	497	6.5	3774
	5/1/2006	566	353	6.5	2500
	7/17/2007	398	279	6.7	2400
	7/3/2008	326	281	6.6	2500
	7/23/2009	269	231	6.4	2400
95N16-C Summary	Number	5	5	5	5
	Minimum	269	231	6.4	2400
	Maximum	1460	497	6.7	3774
	Mean	604	328	6.5	2715
	Median	398	281	6.5	2500
	10th Perc.	292	250	6.4	2400
95N16-E	6/1/2005	2480	964	6.3	5469
	5/1/2006	1520	900	6.3	3100
	7/17/2007	1380	762	6.3	2900
	7/3/2008	1560	946	6.3	3300
	7/23/2009	419	957	6.0	3200
95N16-E Summary	Number	5	5	5	5
	Minimum	419	762	6.0	2900
	Maximum	2480	964	6.3	5469
	Mean	1472	906	6.2	3594
	Median	1520	946	6.3	3200
	10th Perc.	803	817	6.1	2980

Appendix Table C.7.23: Water quality at station 95N17-A,-B,-C, 2005 to 2009.

Station	Date	Acidity (mg/L)	Fe (mg/L)	pH	Sulphate (mg/L)
95N17-A	6/1/2005	12	3.91	7.2	9.38
	5/1/2006	0.5	2.65	6.8	8.9
	7/13/2007	0.5	3.56	7.4	8.6
	7/2/2008	0.5	3.12	7.0	9.1
	7/21/2009	0.5	3.26	6.8	9.8
95N17-A Summary	Number	5	5	5.0	5
	Minimum	1	3	6.8	9
	Maximum	12	4	7.4	10
	Mean	3	3	7.0	9
	Median	1	3	7.0	9
	10th Perc.	1	3	6.8	9
95N17-B	6/1/2005	21	6.74	6.8	4.03
	5/1/2006	0.5	2.94	6.7	5.5
	7/13/2007	0.5	6.17	7.2	8.7
	7/2/2008	0.5	5.50	6.8	6.0
	7/21/2009	0.5	8.45	6.6	1.3
95N17-B Summary	Number	5	5	5.0	5
	Minimum	1	3	6.6	1
	Maximum	21	8	7.2	9
	Mean	5	6	6.8	5
	Median	1	6	6.8	6
	10th Perc.	1	4	6.6	2
95N17-C	6/1/2005	19	6.53	6.6	8.4
	5/1/2006	0.5	3.64	6.5	6.3
	7/13/2007	0.5	6.92	6.9	5.4
	7/2/2008	0.5	6.24	6.6	6.2
	7/21/2009	0.5	8.69	6.4	2.5
95N17-C Summary	Number	5	5	5.0	5
	Minimum	1	4	6.4	3
	Maximum	19	9	6.9	8
	Mean	4	6	6.6	6
	Median	1	7	6.6	6
	10th Perc.	1	5	6.4	4

 Concentration below maximum MDL.

Appendix Table C.7.24: Summary of trends for station ECA-131, 2003 to 2009.

Season	Spearman rho	Acidity	pH	Ra-226
January	Correlation Coefficient	-0.852437	-0.180187	-0.9549937
	Sig. (2-tailed)	0.0148141	0.699046	0.00080554
	N	7	7	7
April	Correlation Coefficient	-0.763763	0.145479	-0.5946187
	Sig. (2-tailed)	0.0456591	0.755633	0.15908999
	N	7	7	7
July	Correlation Coefficient	-0.463817	0.507093	-0.6571429
	Sig. (2-tailed)	0.3541643	0.304559	0.15617493
	N	6	6	6
October/November	Correlation Coefficient	-0.028989	-0.173931	0.02857143
	Sig. (2-tailed)	0.9565294	0.741734	0.95715452
	N	6	6	6

 Significant correlation at $p < 0.05$.

Appendix Table C.7.25: Summary of trends for station ECA-132, 2003 to 2009.

Season	Spearman rho	Acidity	pH	Ra-226
April/May	Correlation Coefficient	-0.842041	0.727393	0.882919
	Sig. (2-tailed)	0.01746	0.063935	0.00845
	N	7	7	7
October/November	Correlation Coefficient	-0.898177	-0.52736	-0.392857
	Sig. (2-tailed)	0.006011	0.223837	0.383317
	N	7	7	7

	Significant correlation at $p < 0.05$.
--	---

Appendix Table C.7.26: Summary of trends for station L-03, 2003 to 2009.

Season	Spearman rho	Iron	pH	Ra-226	Sulphate	Uranium
January/February	Correlation Coefficient	-0.321	0.090924	-0.7142857	-0.92857143	0.21428571
	Sig. (2-tailed)	0.482	0.84628	0.07134356	0.002519472	0.64451158
	N	7	7	7	7	7
April/May	Correlation Coefficient	0.071	-0.90924	0.44474959	-0.39285714	0.53571429
	Sig. (2-tailed)	0.879	0.004537	0.31737194	0.38331687	0.21521746
	N	7	7	7	7	7
October/November	Correlation Coefficient	-0.257	-0.46382	0.14285714	-0.82857143	0.25714286
	Sig. (2-tailed)	0.623	0.354164	0.78717201	0.041562682	0.62278717
	N	6	6	6	6	6

 Significant correlation at $p < 0.05$.

Appendix Table C.7.27: Summary of trends for station N-17, 2003 to 2009.

Season	Spearman rho	Acidity	Barium	Cobalt	Iron	Manganese	pH	Ra-226	Sulphate	Uranium
January	Correlation Coefficient							0.306319		
	Sig. (2-tailed)							0.504027		
	N							7		
February	Correlation Coefficient							-0.21429		
	Sig. (2-tailed)							0.644512		
	N							7		
January/February	Correlation Coefficient	-0.64286	-0.42857	-0.03571	-0.286	-0.428571429	-0.71429		-0.84688	-0.85714
	Sig. (2-tailed)	0.119392	0.337368	0.939408	0.535	0.337368311	0.071344		0.016197	0.013697
	N	7	7	7	7	7	7		7	7
March	Correlation Coefficient							-0.32733		
	Sig. (2-tailed)							0.473597		
	N							7		
April	Correlation Coefficient							-0.03571		
	Sig. (2-tailed)							0.939408		
	N							7		
May	Correlation Coefficient							-0.35714		
	Sig. (2-tailed)							0.431611		
	N							7		
April/May	Correlation Coefficient	-0.14286	0.126131	0.5	0.393	0.357142857	0.321429		-0.37839	-0.28571
	Sig. (2-tailed)	0.759945	0.787572	0.25317	0.383	0.431611352	0.482072		0.402602	0.534509
	N	7	7	7	7	7	7		7	7
June	Correlation Coefficient							-0.39641		
	Sig. (2-tailed)							0.378635		
	N							7		
July	Correlation Coefficient							-0.17857		
	Sig. (2-tailed)							0.701658		
	N							7		
August	Correlation Coefficient							-0.42857		
	Sig. (2-tailed)							0.337368		
	N							7		
July/August	Correlation Coefficient	-0.60714	0.321429	0.342356	0.071	-0.035714286	0		-0.82886	-0.96429
	Sig. (2-tailed)	0.148231	0.482072	0.452251	0.879	0.939408205	1		0.021174	0.000454
	N	7	7	7	7	7	7		7	7
September	Correlation Coefficient							-0.71429		
	Sig. (2-tailed)							0.071344		
	N							7		
October	Correlation Coefficient							-0.42857		
	Sig. (2-tailed)							0.337368		
	N							7		
November	Correlation Coefficient							-0.48651		
	Sig. (2-tailed)							0.268249		
	N							7		
October/November	Correlation Coefficient	-0.75	0.5766	0.142857	0.071	0.035714286	-0.48651		-0.71429	-0.67857
	Sig. (2-tailed)	0.052181	0.175382	0.759945	0.879	0.939408205	0.268249		0.071344	0.09375
	N	7	7	7	7	7	7		7	7
December	Correlation Coefficient							-0.64286		
	Sig. (2-tailed)							0.119392		
	N							7		

Significant correlation at $p < 0.05$.

Appendix Table C.7.28: Summary of trends for station N-19, 2003 to 2009

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Ra-226	TSS	Uranium
January	Correlation Coefficient	-0.81537	-0.85714	0.286	-0.92857143	0.892857	-0.35714	0.642857	-0.28571
	Sig. (2-tailed)	0.025399	0.013697	0.535	0.002519472	0.006807	0.431611	0.119392	0.534509
	N	7	7	7	7	7	7	7	7
February	Correlation Coefficient	-0.55858	0	0.464	-0.71428571	0.774806	-0.14286	0.756787	-0.18019
	Sig. (2-tailed)	0.192453	1	0.294	0.071343561	0.040769	0.759945	0.048905	0.699046
	N	7	7	7	7	7	7	7	7
March	Correlation Coefficient	-0.07412	-0.25226	0.429	-0.71428571	0.5	-0.78571	0	-0.25
	Sig. (2-tailed)	0.874507	0.585241	0.337	0.071343561	0.25317	0.036238	1	0.588724
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	0.345512	-0.5	-0.571	-0.21428571	0.25	-0.67857	-0.43644	-0.03571
	Sig. (2-tailed)	0.447816	0.25317	0.18	0.644511581	0.588724	0.09375	0.327582	0.939408
	N	7	7	7	7	7	7	7	7
May	Correlation Coefficient	0.327327	-0.65465	0.144	-0.85714286	0.504525	-0.60714	-0.79282	0.181848
	Sig. (2-tailed)	0.473597	0.110567	0.758	0.013697327	0.248203	0.148231	0.033444	0.696364
	N	7	7	7	7	7	7	7	7
June	Correlation Coefficient	0.889499	-0.32143	-0.306	-0.78571429	0.214286	-0.57143	0.163663	-0.42857
	Sig. (2-tailed)	0.007339	0.482072	0.504	0.036238463	0.644512	0.180202	0.725862	0.337368
	N	7	7	7	7	7	7	7	7
July	Correlation Coefficient	0.054554	-0.32434	0.071	-0.82142857	0.357143	-0.28571	0.828862	0.414431
	Sig. (2-tailed)	0.907523	0.477885	0.879	0.023448808	0.431611	0.534509	0.021174	0.355269
	N	7	7	7	7	7	7	7	7
August	Correlation Coefficient	0.400066	-0.32143	0.111	-0.53571429	0.306319	-0.67857	0.522544	0.306319
	Sig. (2-tailed)	0.373847	0.482072	0.812	0.215217456	0.504027	0.09375	0.228878	0.504027
	N	7	7	7	7	7	7	7	7
September	Correlation Coefficient	-0.01802	-0.14415	0.357	-0.46428571	-0.03571	-0.39286	0.727393	0.345512
	Sig. (2-tailed)	0.969415	0.757818	0.432	0.293934108	0.939408	0.383317	0.063935	0.447816
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	0.472805	-0.35714	-0.464	-0.53571429	0.392857	-0.28571	-0.34236	0.111187
	Sig. (2-tailed)	0.283962	0.431611	0.294	0.215217456	0.383317	0.534509	0.452251	0.812407
	N	7	7	7	7	7	7	7	7
November	Correlation Coefficient	-0.14286	-0.28571	-0.571	-0.35714286	0.198206	-0.75	-0.73422	0.324337
	Sig. (2-tailed)	0.759945	0.534509	0.18	0.431611352	0.670085	0.052181	0.060247	0.477885
	N	7	7	7	7	7	7	7	7
December	Correlation Coefficient	0.111187	-0.42857	0	-0.28571429	0	-0.82143	0.109109	-0.71429
	Sig. (2-tailed)	0.812407	0.337368	1	0.534509229	1	0.023449	0.815871	0.071344
	N	7	7	7	7	7	7	7	7

Significant correlation at $p < 0.05$.

Appendix Table C.7.29: Summary of trends for station N-20, 2003 to 2009.

Season	Spearman rho	pH	Ra-226
January	Correlation Coefficient	-0.532312	-0.774827
	Sig. (2-tailed)	0.218709	0.04076
	N	7	7
April/May	Correlation Coefficient	-0.259437	0.302372
	Sig. (2-tailed)	0.574237	0.509819
	N	7	7
July	Correlation Coefficient	0.529641	-0.794461
	Sig. (2-tailed)	0.279826	0.059028
	N	6	6
October/November	Correlation Coefficient	-0.018019	-0.355529
	Sig. (2-tailed)	0.969415	0.433847
	N	7	7

	Significant correlation at $p < 0.05$.
--	---

Appendix Table C.7.30: Summary of trends for station N-22, 2003 to 2009.

Season	Spearman rho	pH	Acidity	Ra-226
April/May	Correlation Coefficient	-0.692345	-0.678571	-0.846881
	Sig. (2-tailed)	0.084724	0.09375	0.016197
	N	7	7	7
October/November	Correlation Coefficient	0.2965	-0.321429	-0.49099
	Sig. (2-tailed)	0.518477	0.482072	0.263194
	N	7	7	7

	Significant correlation at $p < 0.05$.
--	---

Appendix Table C.7.31: Summary of trends for Lacnor/Nordic porewater stations, 2003 to 2009.

Station	Spearman rho	Iron	pH	Sulphate
UW7-2	Correlation Coefficient	0.167857143	0.007274	0.64545455
	Sig. (2-tailed)	0.549855554	0.979474	0.0319628
	N	15	15	11
UW7-4	Correlation Coefficient	-0.860714286	0.057348	-0.4090909
	Sig. (2-tailed)	3.80553E-05	0.839131	0.21154501
	N	15	15	11
UW7-6	Correlation Coefficient	-0.235164835	0.626705	0.57751027
	Sig. (2-tailed)	0.418333896	0.016468	ns
	N	14	14	10
UW9-1	Correlation Coefficient	-0.596428571	0.224271	-0.1545455
	Sig. (2-tailed)	0.018931925	0.421651	0.65003397
	N	15	15	11
UW9-2	Correlation Coefficient	-0.175	0.614701	-0.0545455
	Sig. (2-tailed)	0.532748148	0.014748	0.87344658
	N	15	15	11
UW9-3	Correlation Coefficient	0.435714286	-0.401436	0.51818182
	Sig. (2-tailed)	0.104493357	0.138047	0.10249154
	N	15	15	11

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

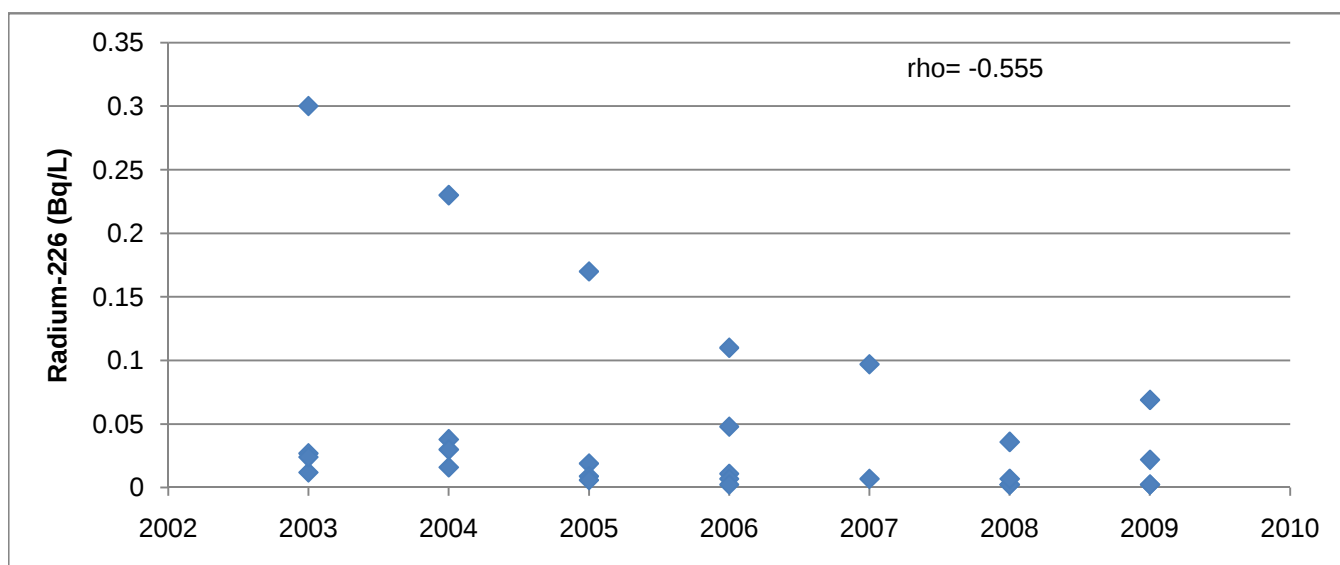
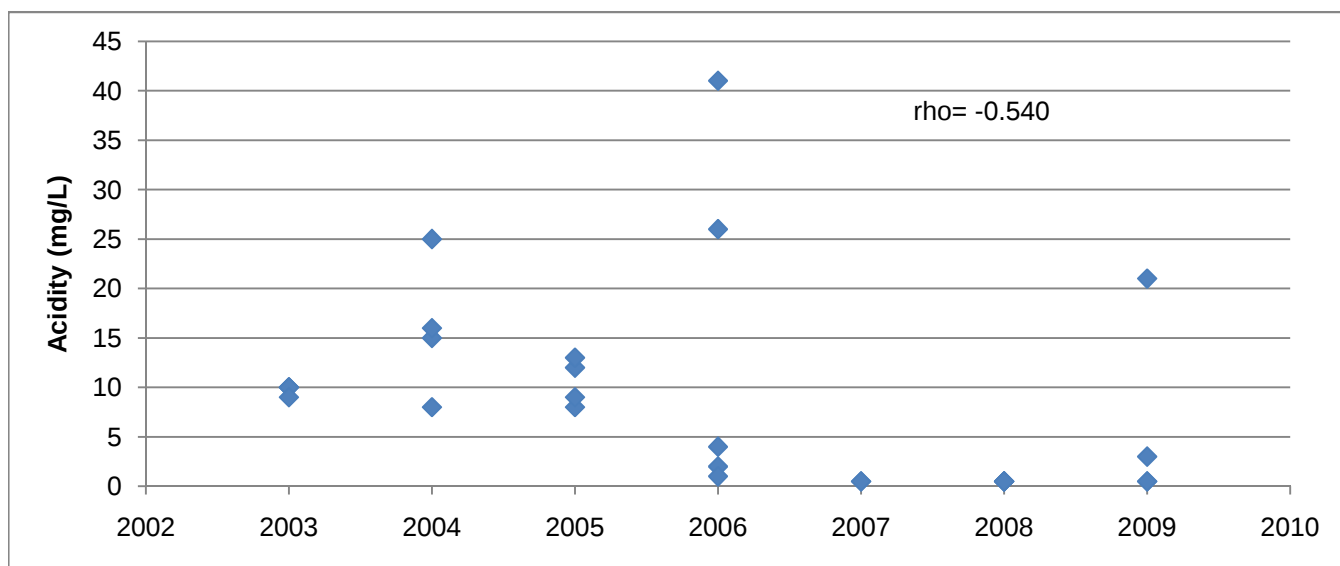
Significant trend where p<0.05.

Appendix Table C.7.32: Summary of trends for Lacnor/Nordic groundwater stations.

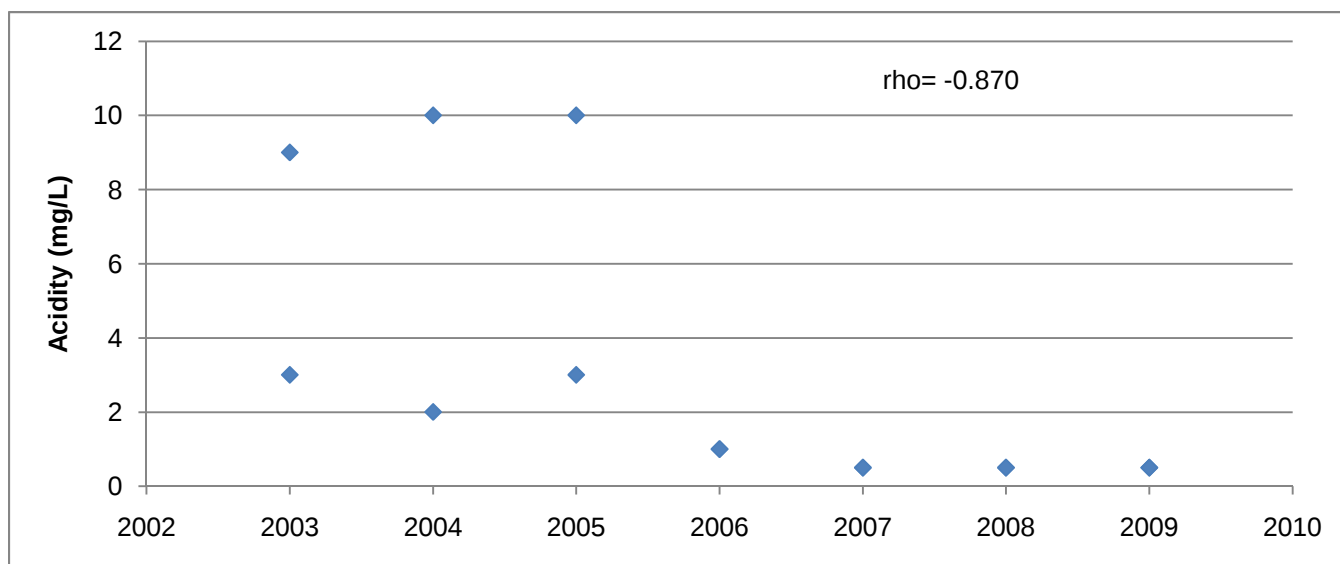
Station	Spearman rho	Iron	pH	Sulphate
M12-1	Correlation Coefficient	0.060714286	0.831132	0.85714286
	Sig. (2-tailed)	0.829812095	0.000123	0.00653002
	N	15	15	8
M12-3	Correlation Coefficient	-0.775	0.587213	-0.5238095
	Sig. (2-tailed)	0.000689645	0.02136	0.18272075
	N	15	15	8
M12-6	Correlation Coefficient	-0.868131868	0.804011	-0.8571429
	Sig. (2-tailed)	5.67982E-05	0.000529	0.01369733
	N	14	14	7
M12-9	Correlation Coefficient	-0.796703297	0.78119	-0.2702812
	Sig. (2-tailed)	0.001113653	0.001616	0.55773075
	N	13	13	7
M13-1	Correlation Coefficient	0.10989011	0.218844	-0.6694619
	Sig. (2-tailed)	0.7208098	0.472555	ns
	N	13	13	9
M13-23	Correlation Coefficient	-0.248351648	0.759914	-0.7333333
	Sig. (2-tailed)	0.391919539	0.001611	<0.05
	N	14	14	9
M13-6	Correlation Coefficient	-0.938461538	0.735923	-0.9666667
	Sig. (2-tailed)	0.000001	0.002695	<0.001
	N	14	14	9
M13-9	Correlation Coefficient	-0.741758242	-0.150009	-0.7185758
	Sig. (2-tailed)	0.003701314	0.624734	<0.05
	N	13	13	8
M14-1	Correlation Coefficient	0.30952381	0.096393	-0.3590924
	Sig. (2-tailed)	ns	ns	ns
	N	8	8	5
M14-3	Correlation Coefficient	-0.69047619	-0.222375	-0.9
	Sig. (2-tailed)	ns	ns	ns
	N	8	8	5
M14-6	Correlation Coefficient	-0.4	-0.604392	-0.6
	Sig. (2-tailed)	ns	ns	ns
	N	9	9	5
M14-9	Correlation Coefficient	-0.574860606	0.282256	-0.9746794
	Sig. (2-tailed)	ns	ns	ns
	N	8	8	5
95N4-A	Correlation Coefficient	-0.601398601	0.686778	0.43333333
	Sig. (2-tailed)	0.038588453	0.013623	ns
	N	12	12	9
95N4-B	Correlation Coefficient	-0.839160839	-0.103975	-0.4518868
	Sig. (2-tailed)	0.000642826	0.747776	ns
	N	12	12	9
95N7-A	Correlation Coefficient	-0.552447552	-0.613309	-0.1904762
	Sig. (2-tailed)	0.062511483	0.033937	ns
	N	12	12	8
95N7-B	Correlation Coefficient	-0.531468531	-0.599671	0.42857143
	Sig. (2-tailed)	0.075362335	0.039299	ns
	N	12	12	8

Appendix Table C.7.32: Summary of trends for Lacnor/Nordic groundwater stations.

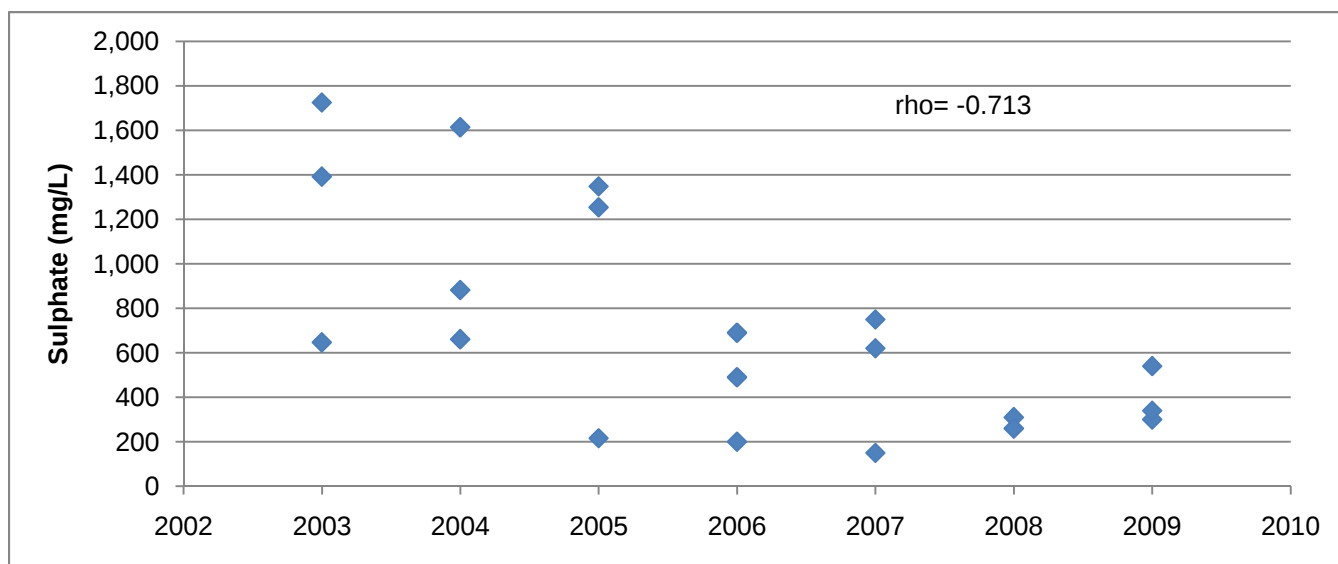
Station	Spearman rho	Iron	pH	Sulphate
95N11	Correlation Coefficient	-0.699300699	-0.454309	0.71428571
	Sig. (2-tailed)	0.011374199	0.118862	ns
	N	12	13	7
95N12-A	Correlation Coefficient	-0.107692308	-0.273967	0.08368274
	Sig. (2-tailed)	0.714030809	0.343219	ns
	N	14	14	9
95N12-B	Correlation Coefficient	-0.56043956	-0.536899	-0.7065995
	Sig. (2-tailed)	0.046345906	0.058505	ns
	N	13	13	8
95N13-A	Correlation Coefficient	-0.844885	0.196689	-0.3090909
	Sig. (2-tailed)	0.000142726	0.500338	0.35502844
	N	14	14	11
95N13-C	Correlation Coefficient	-0.885714286	0.623664	-0.6636364
	Sig. (2-tailed)	2.504E-05	0.017158	0.02598413
	N	14	14	11
95N13-E	Correlation Coefficient	-0.885714286	0.640894	-0.5909091
	Sig. (2-tailed)	2.504E-05	0.013521	0.0555756
	N	14	14	11
95N14-A	Correlation Coefficient	-0.010989011	0.155274	-0.486259
	Sig. (2-tailed)	0.97025839	0.596079	0.12937217
	N	14	14	11
95N14-B	Correlation Coefficient	0.353846154	-0.34774	-0.1757576
	Sig. (2-tailed)	0.214539871	0.223112	ns
	N	14	14	10
95N14-C	Correlation Coefficient	0.402197802	-0.319598	-0.6102572
	Sig. (2-tailed)	0.15397443	0.265335	ns
	N	14	14	9
95N16-A	Correlation Coefficient	-0.847637027	0.498261	-0.2688813
	Sig. (2-tailed)	0.000497797	0.099215	ns
	N	12	12	10
95N16-C	Correlation Coefficient	-0.986013986	0.809879	-0.6280605
	Sig. (2-tailed)	0.000001	0.001408	ns
	N	12	12	10
95N16-E	Correlation Coefficient	-0.825174825	0.704686	-0.6484848
	Sig. (2-tailed)	0.000951363	0.010497	<0.05
	N	12	12	10
95N17-A	Correlation Coefficient	0.697802198	0.109265	-0.4909091
	Sig. (2-tailed)	0.008000717	0.710019	ns
	N	13	14	10
95N17-B	Correlation Coefficient	0.521978022	-0.500154	-0.3333333
	Sig. (2-tailed)	0.067291712	0.068556	ns
	N	13	14	10
95N17-C	Correlation Coefficient	0.494505495	-0.655612	-0.0062531
	Sig. (2-tailed)	0.085823531	0.010909	ns
	N	13	14	10



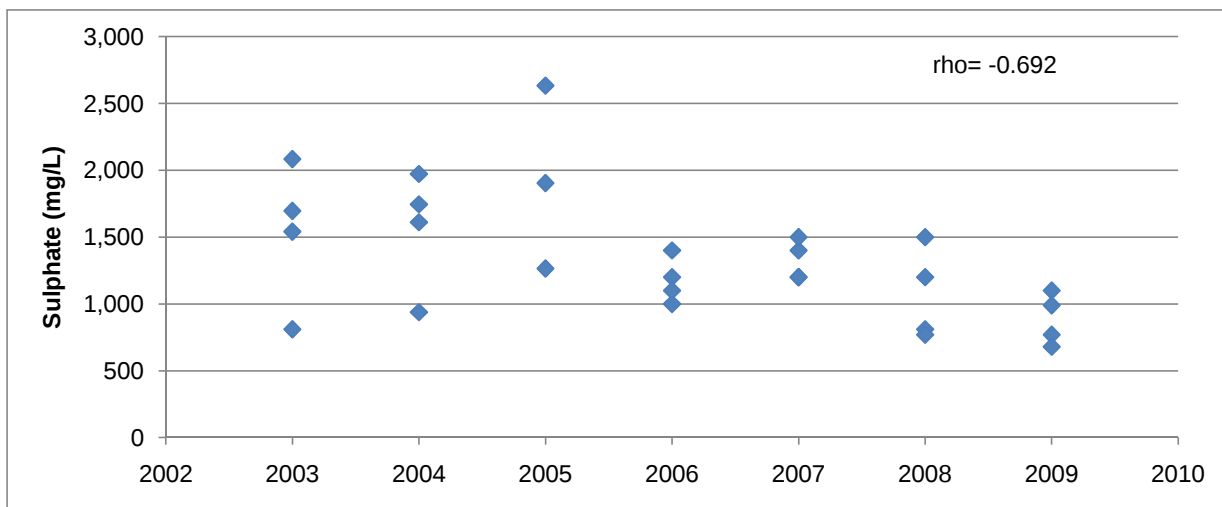
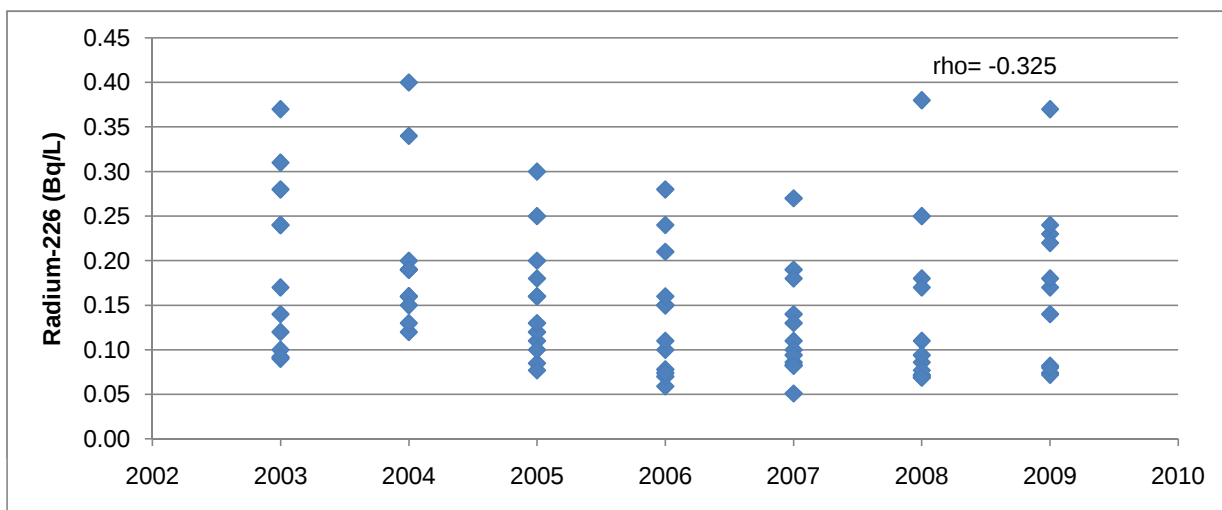
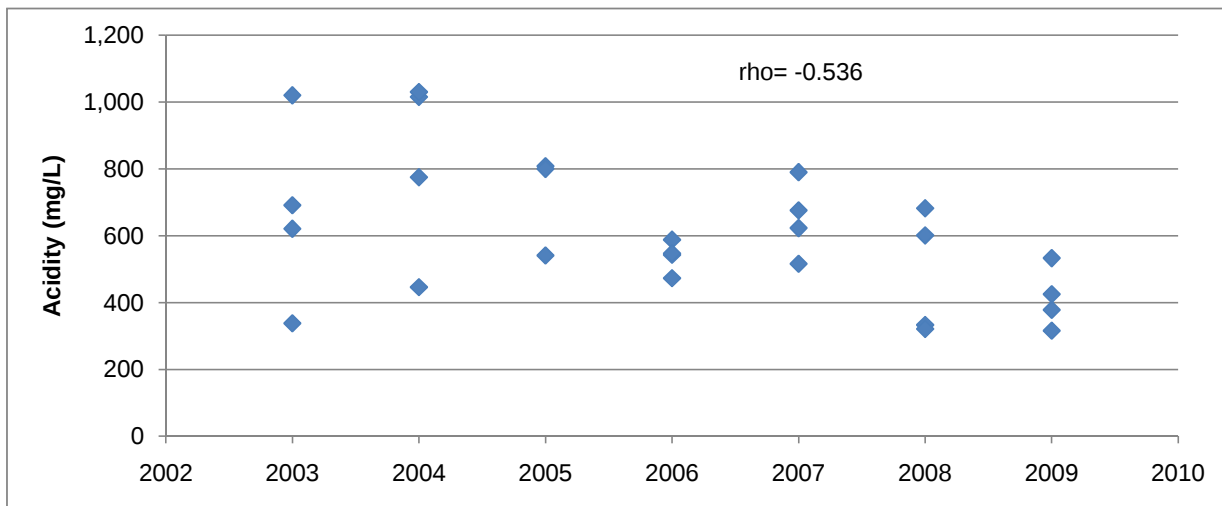
Appendix Figure C.7.1: Significant common (average) trends observed for acidity and radium-226 over all seasons at station ECA-131, 2003 to 2009.



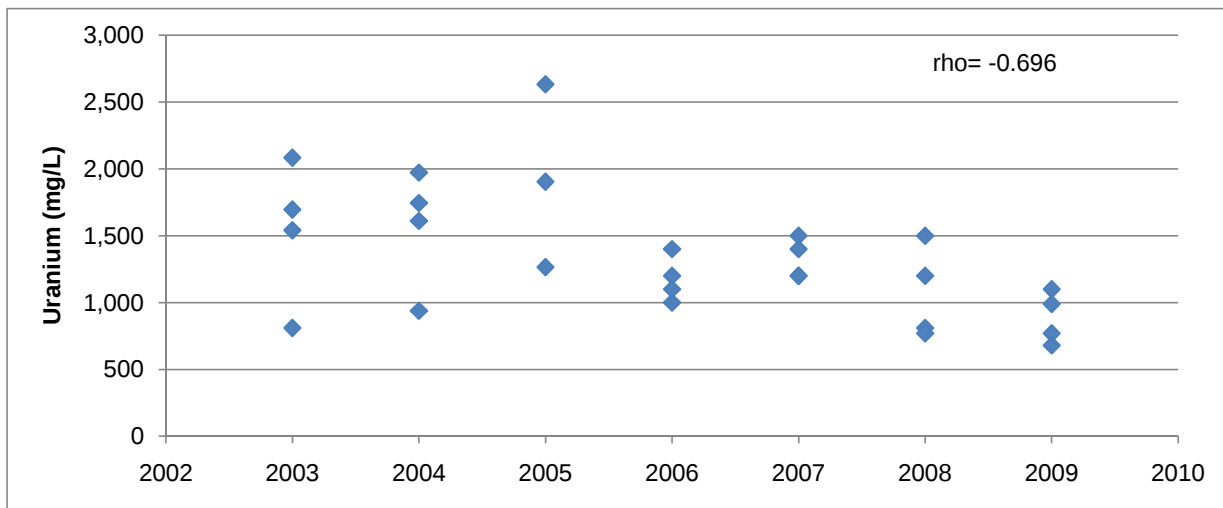
Appendix Figure C.7.2: Significant common (average) trends observed for acidity over all seasons at station ECA-132, 2003 to 2009.



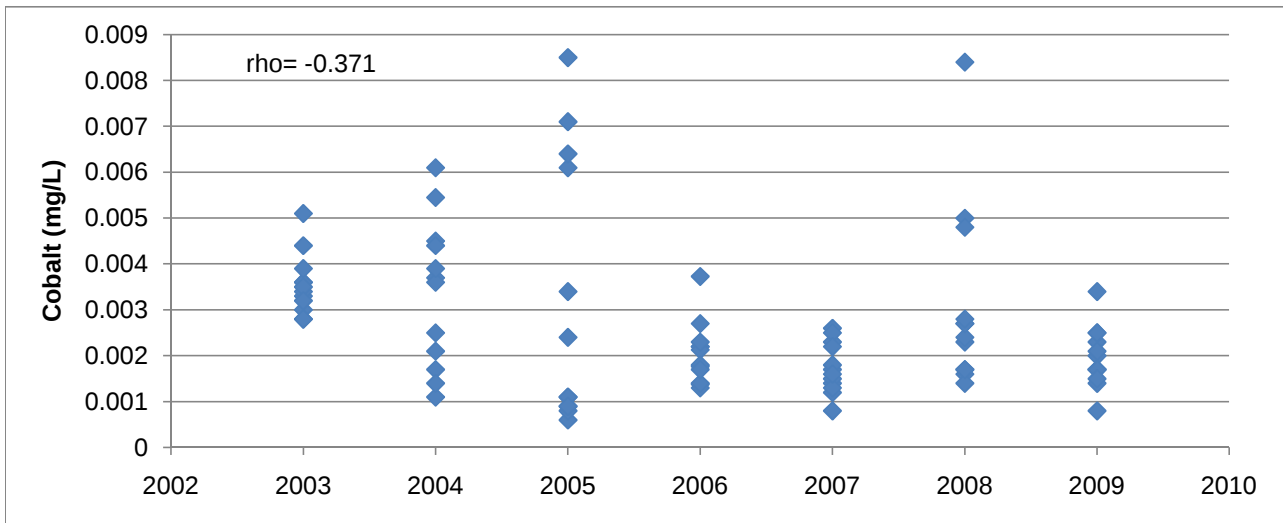
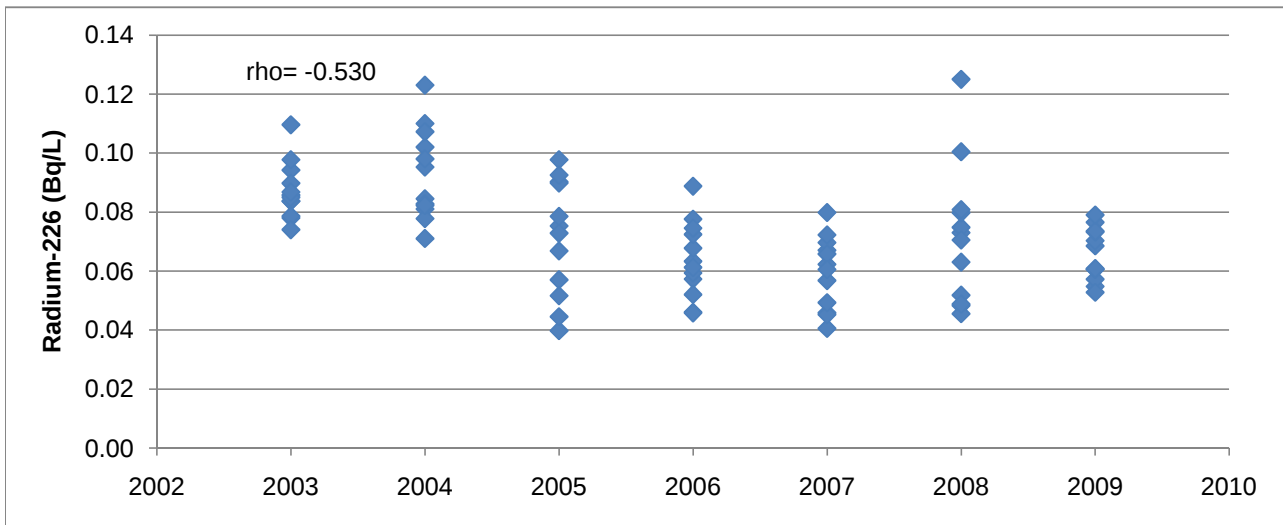
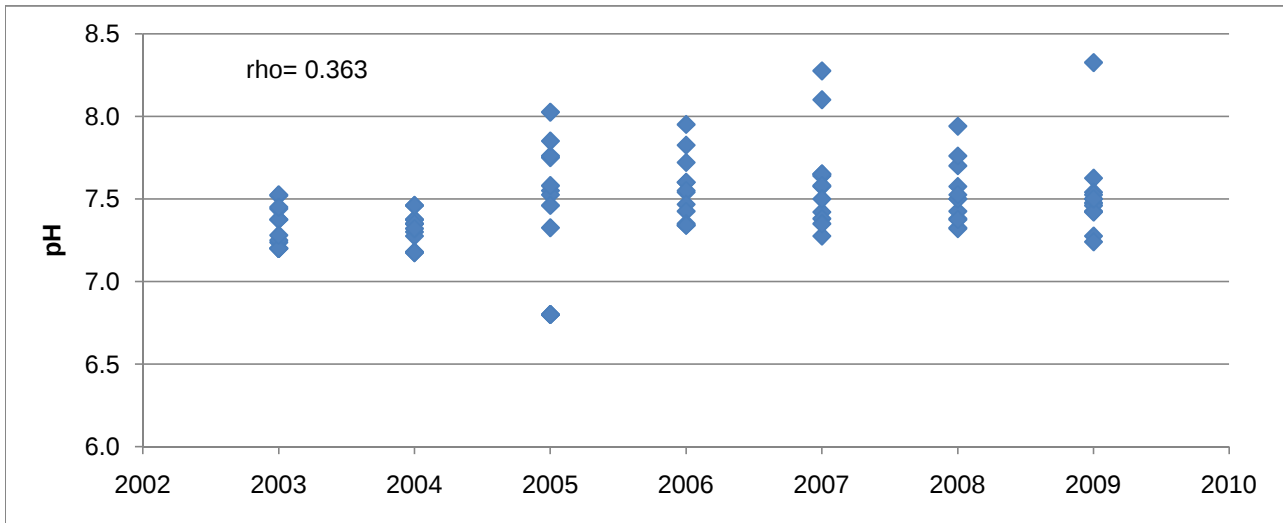
Appendix Figure C.7.3: Significant common (average) trends observed for sulphate over all seasons at station L-03, 2003 to 2009.



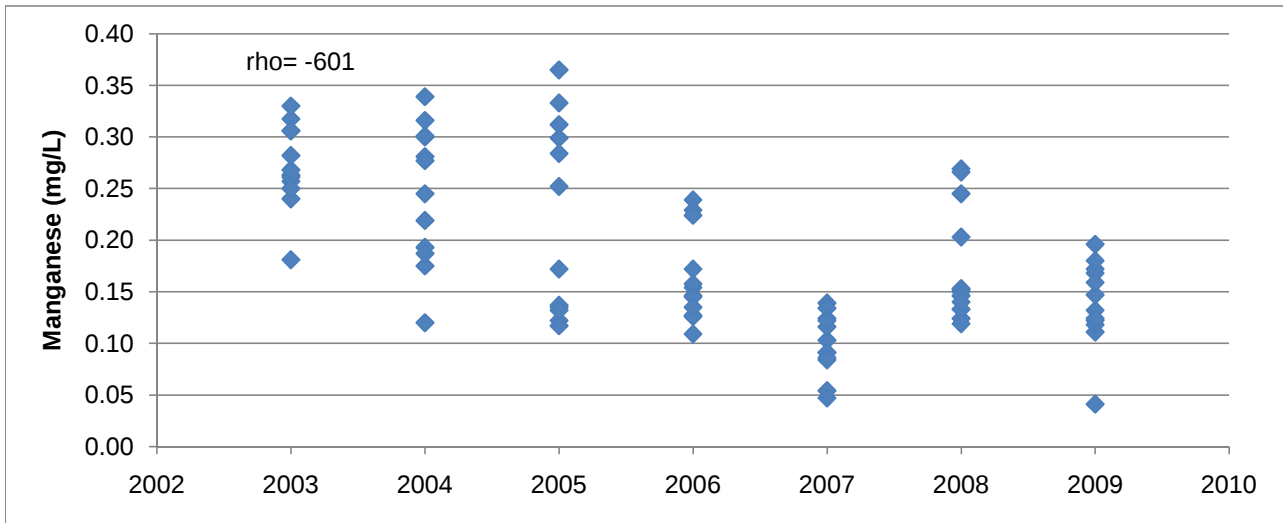
Appendix Figure C.7.4: Significant common (average) trends observed for acidity, radium-226, sulphate and uranium over all seasons at station N-17, 2003 to 2009.



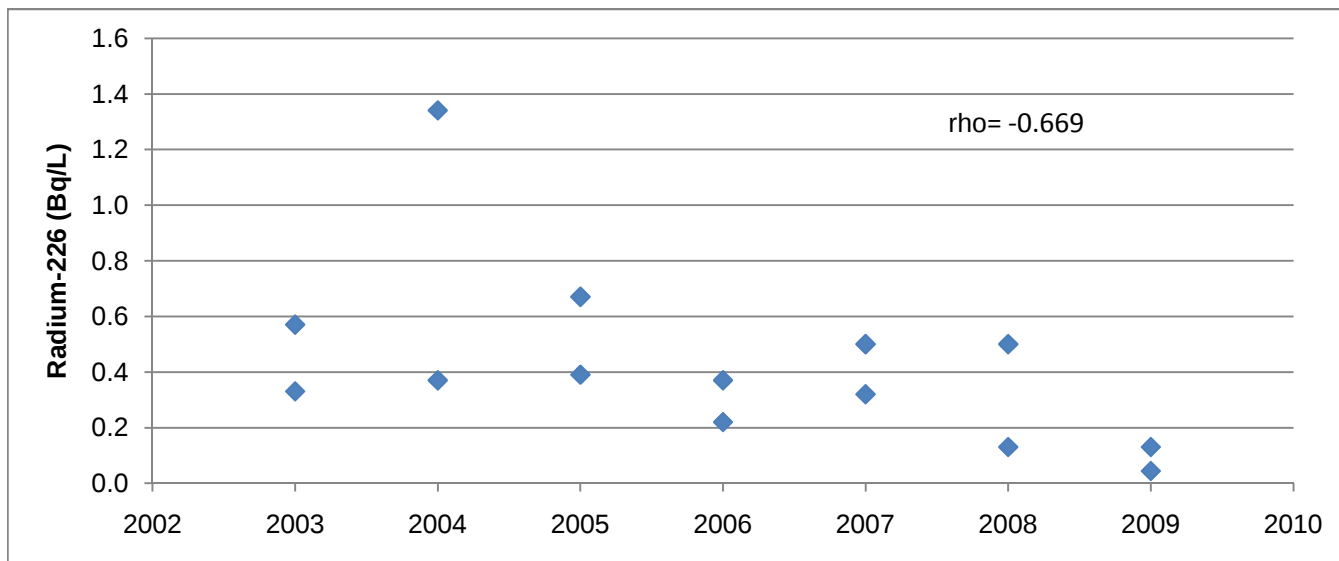
Appendix Figure C.7.4: Significant common (average) trends observed for acidity, radium-226, sulphate and uranium over all seasons at station N-17, 2003 to 2009.



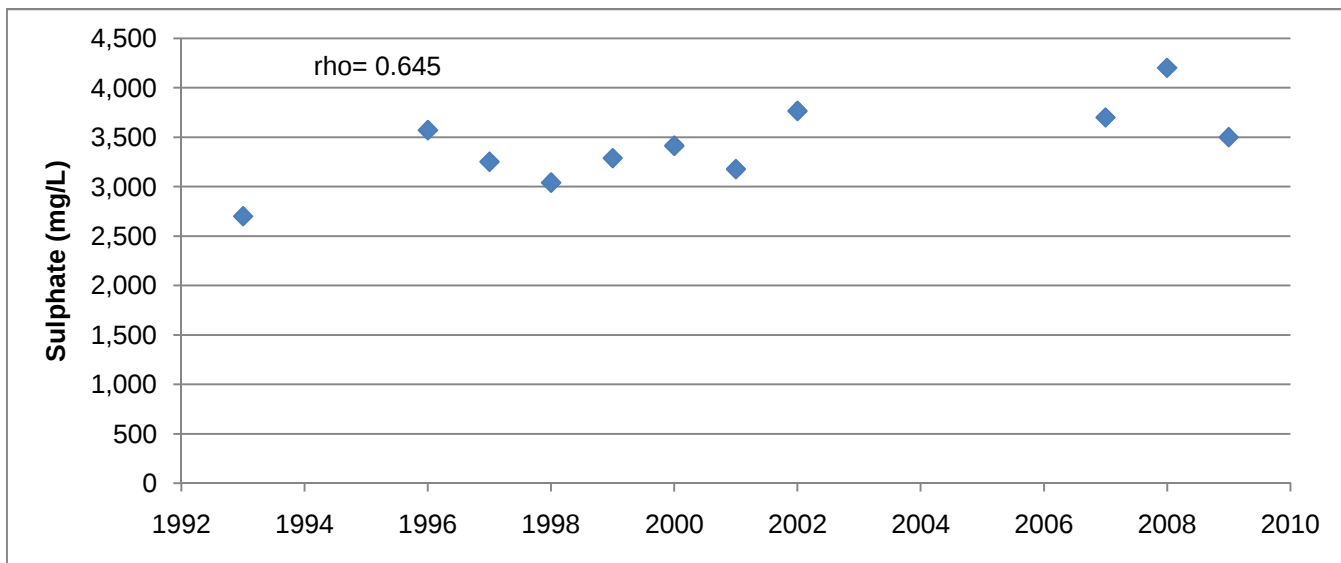
Appendix Figure C.7.5: Significant common (average) trends observed for pH, radium-226, cobalt, and manganese over all seasons at station ECA-131, 2003 to 2009.



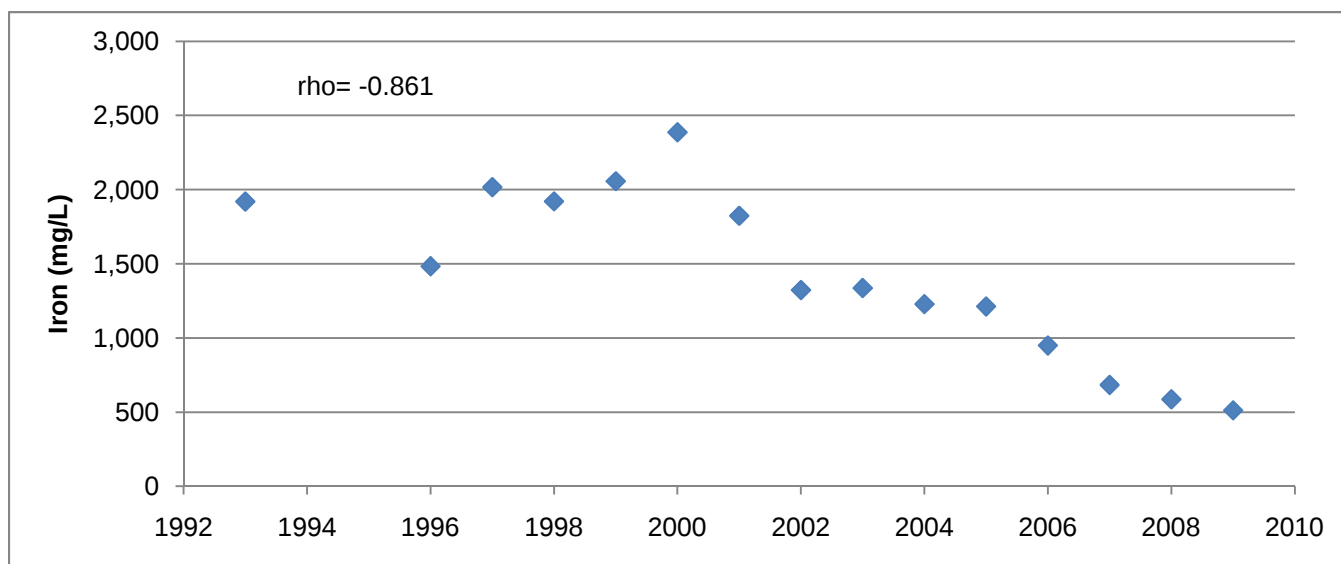
Appendix Figure C.7.5: Significant common (average) trends observed for pH, radium-226, cobalt, and manganese over all seasons at station ECA-131, 2003 to 2009.



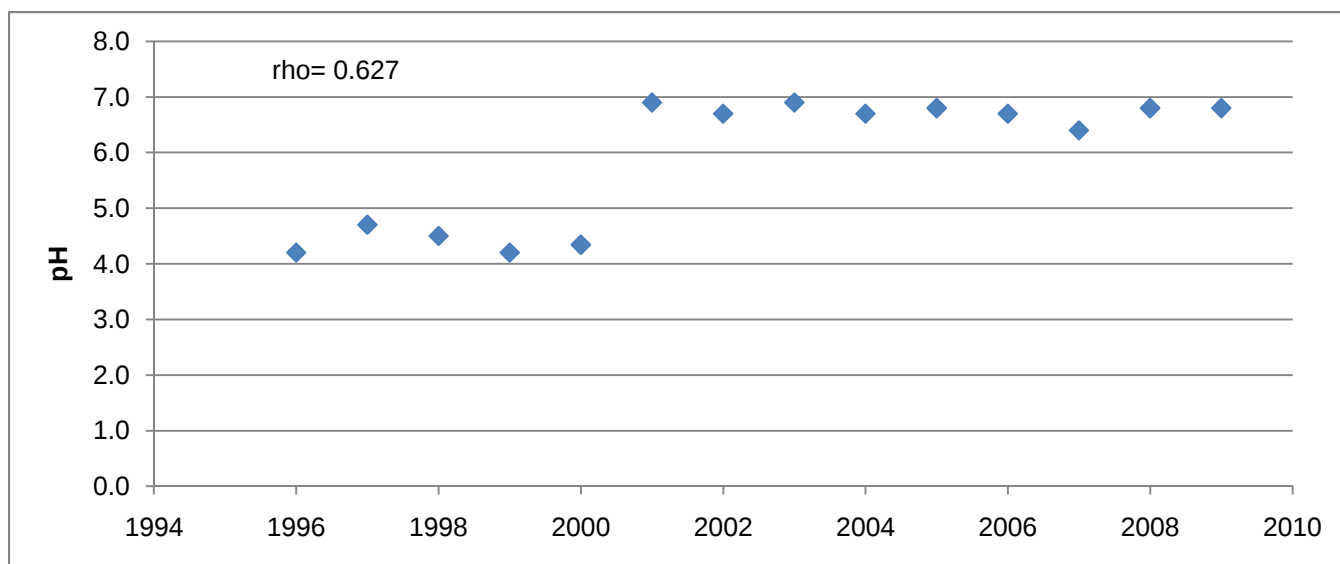
Appendix Figure C.7.6: Significant common (average) trends observed for radium-226 over all seasons at station N-22, 2003 to 2009.



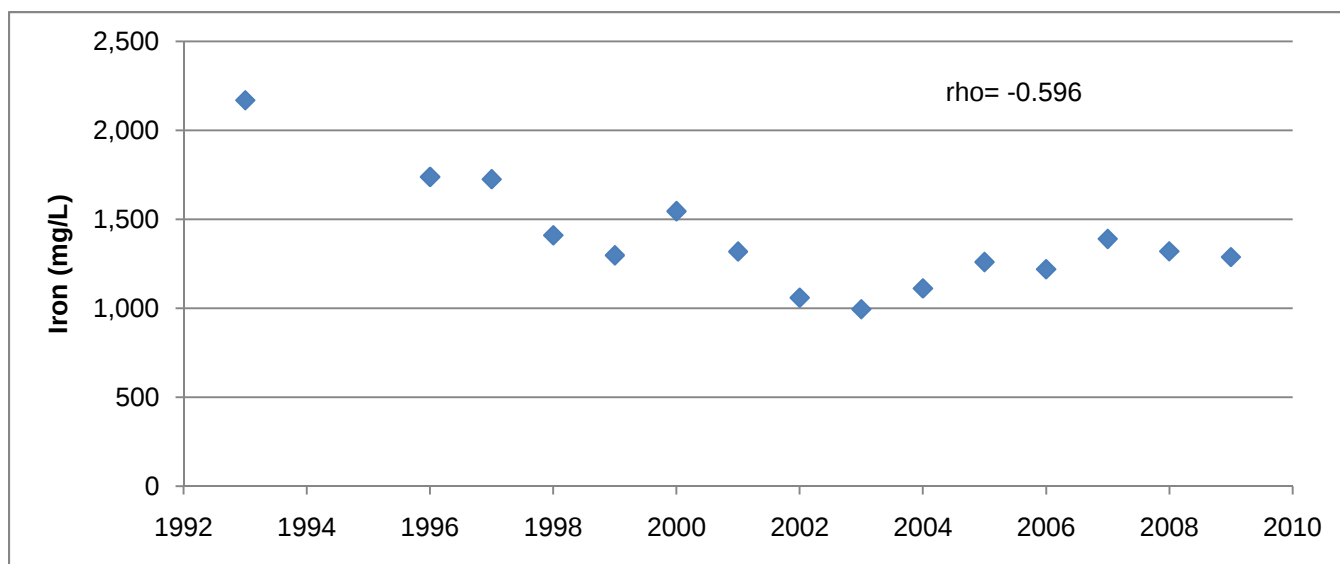
Appendix Figure C.7.7: Significant trends observed for sulphate at station UW7-2, 1993 to 2009.



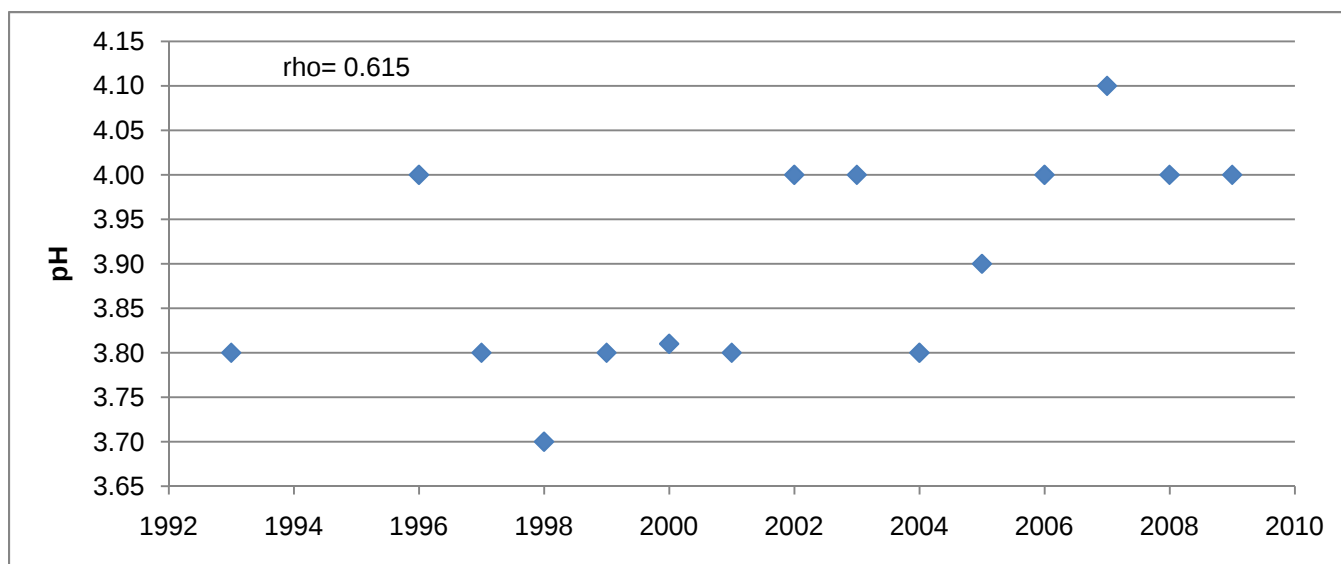
Appendix Figure C.7.8: Significant trends observed for iron at station UW7-4, 1993 to 2009.



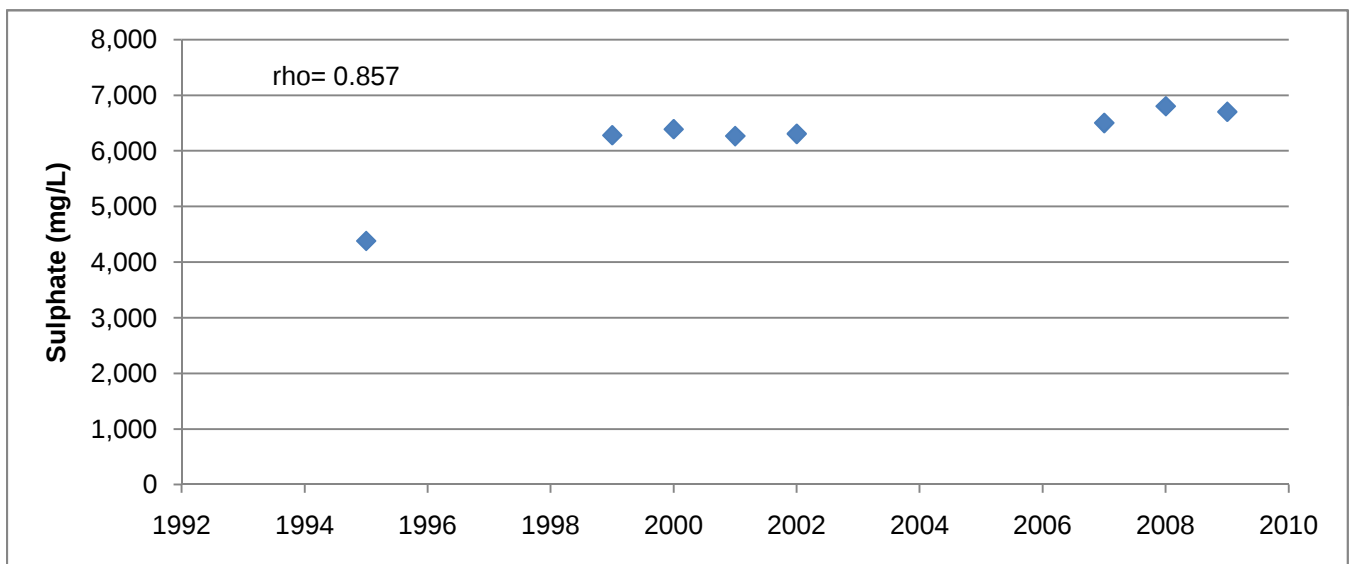
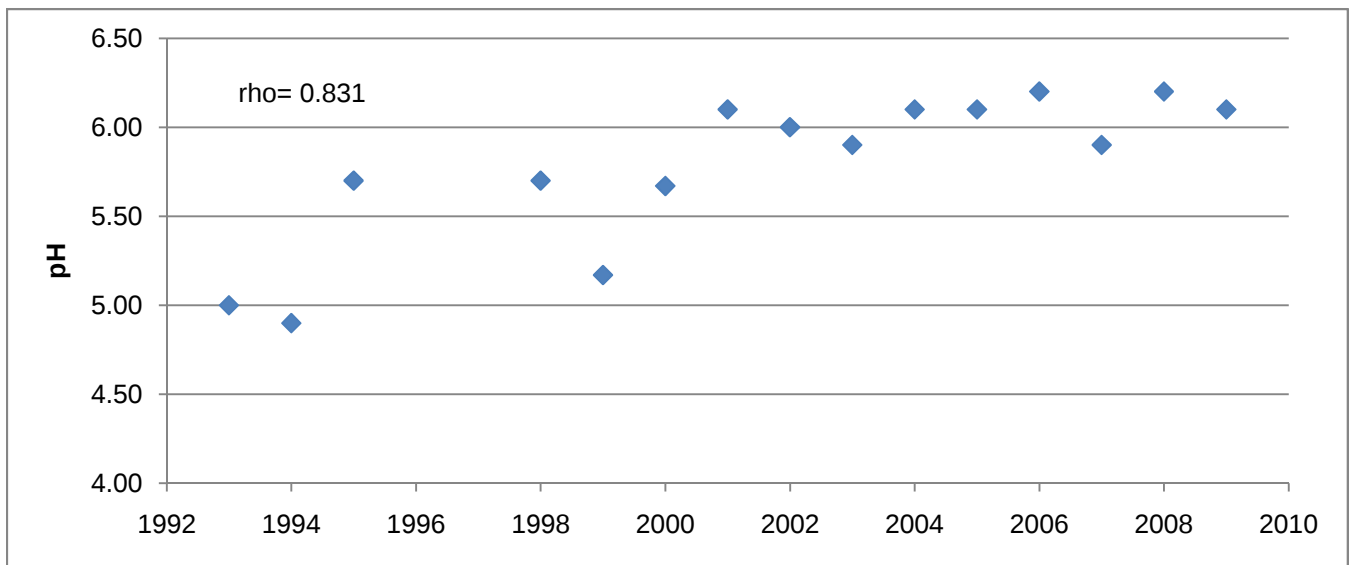
Appendix Figure C.7.9: Significant trends observed for pH at station UW7-6, 1996 to 2009.



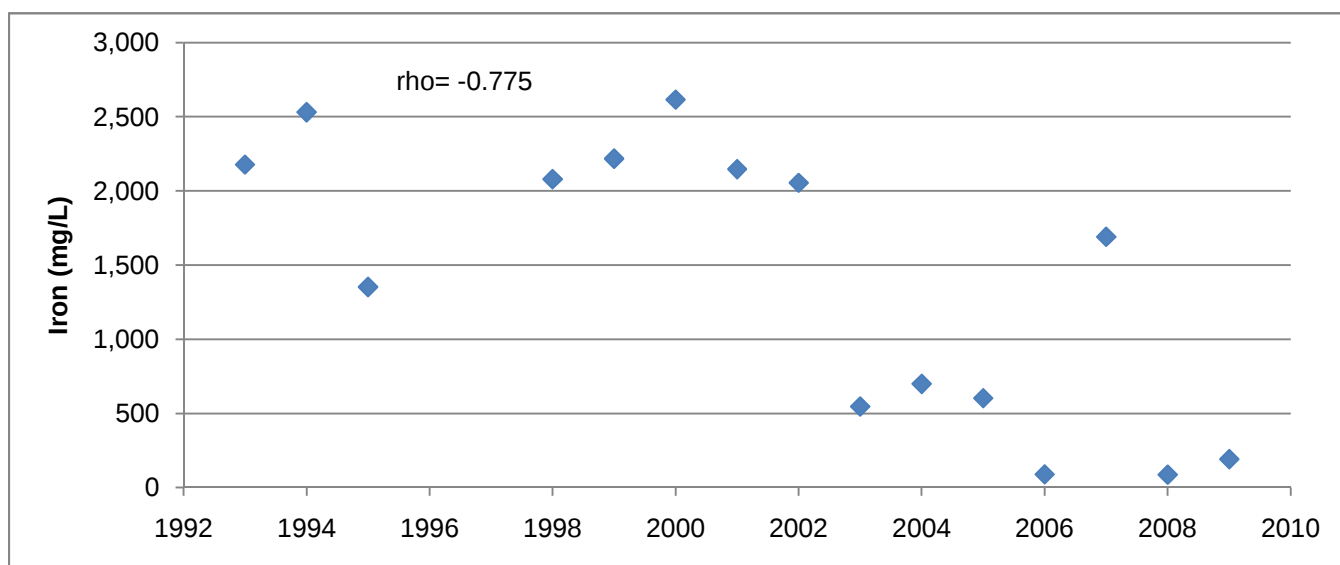
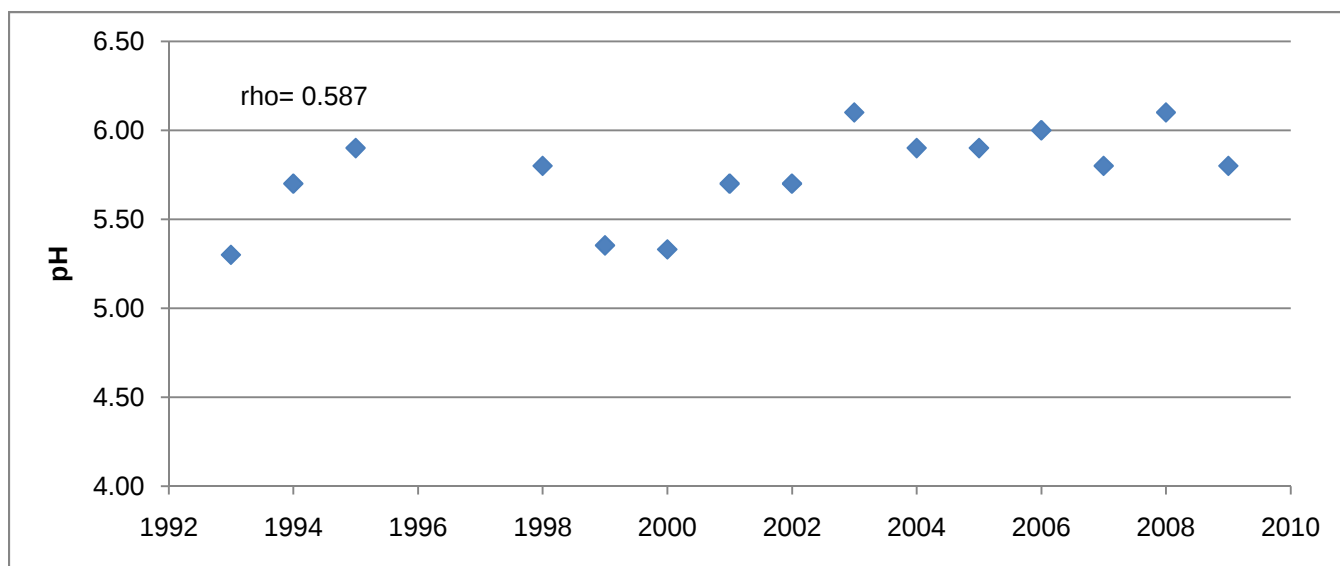
Appendix Figure C.7.10: Significant trends observed for iron at station UW9-1, 1993 to 2009.



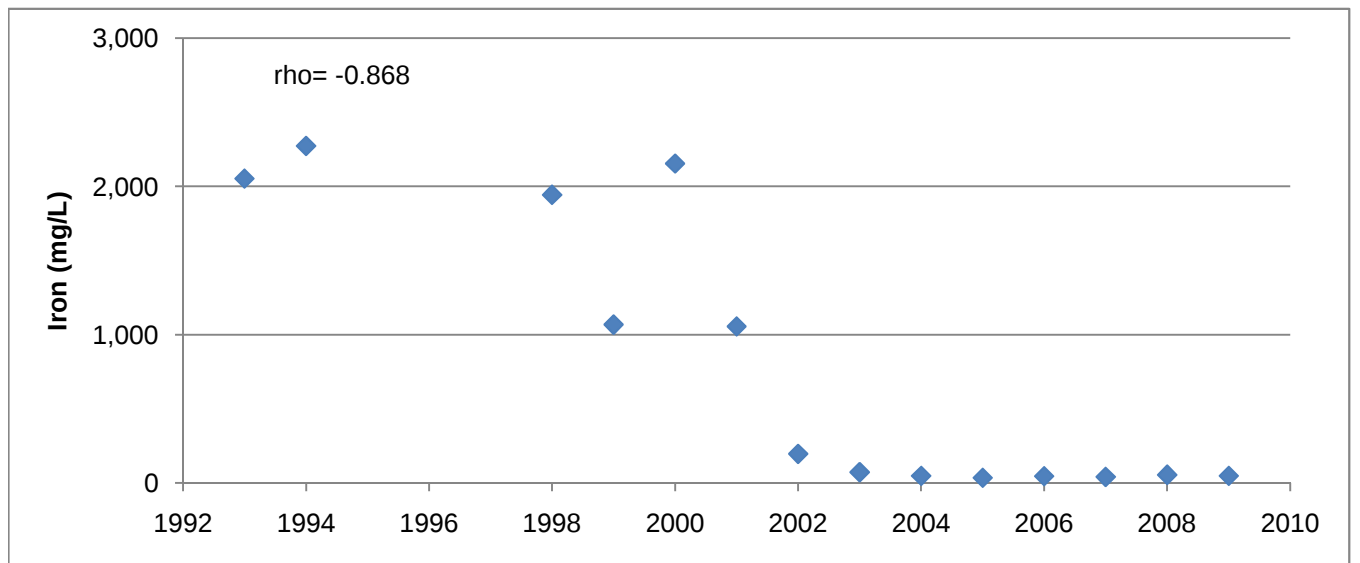
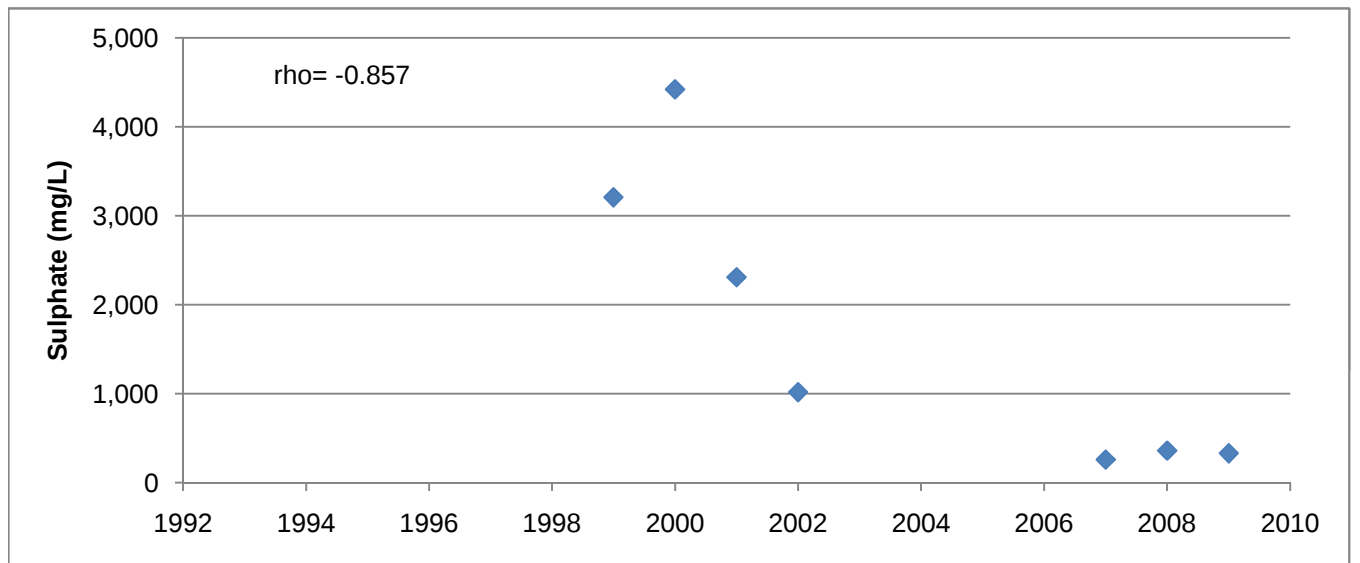
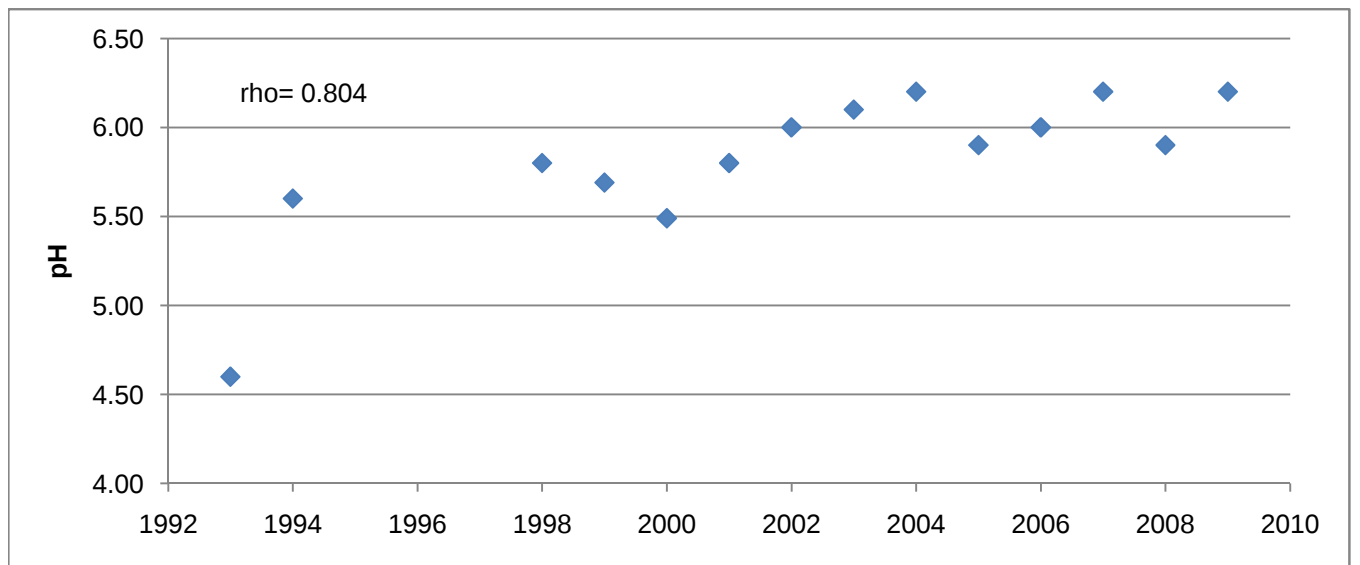
Appendix Figure C.7.11: Significant trends observed for pH at station UW9-2, 1993 to 2009.



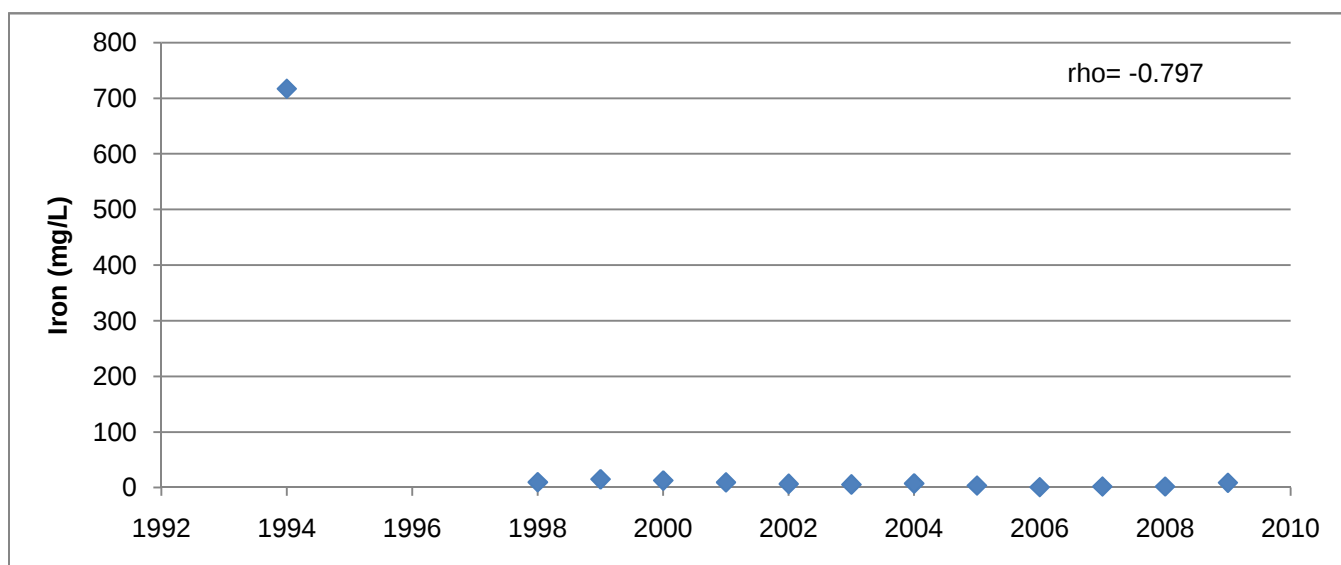
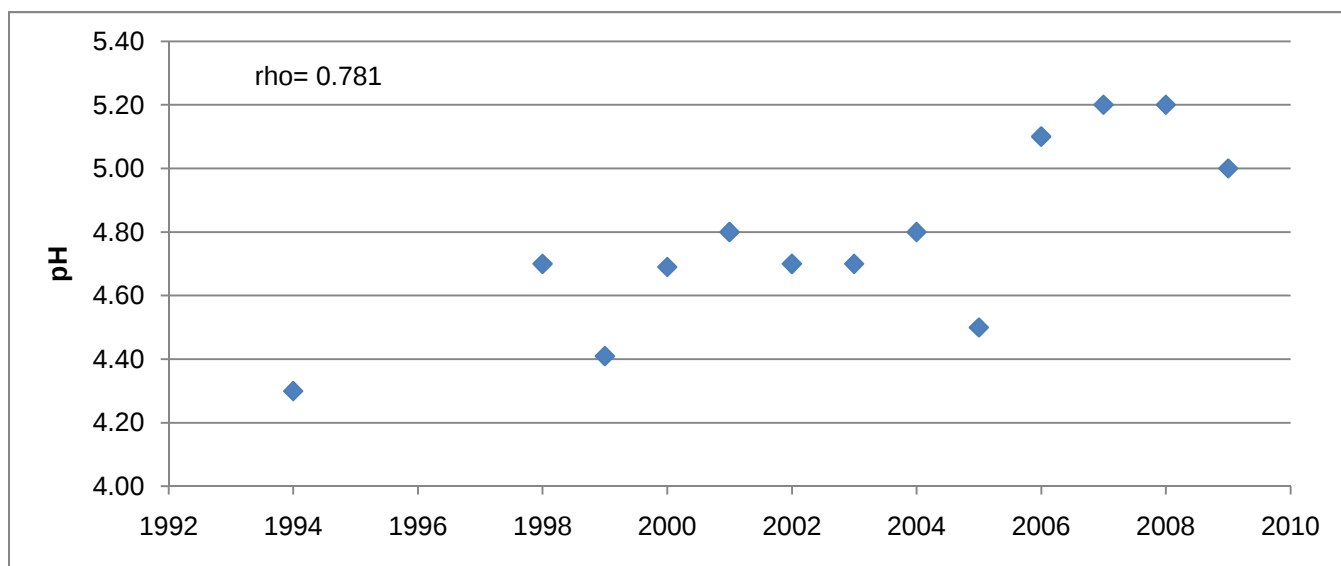
Appendix Figure C.7.12: Significant trends observed for pH and sulphate at station M12-1, 1993 to 2009.



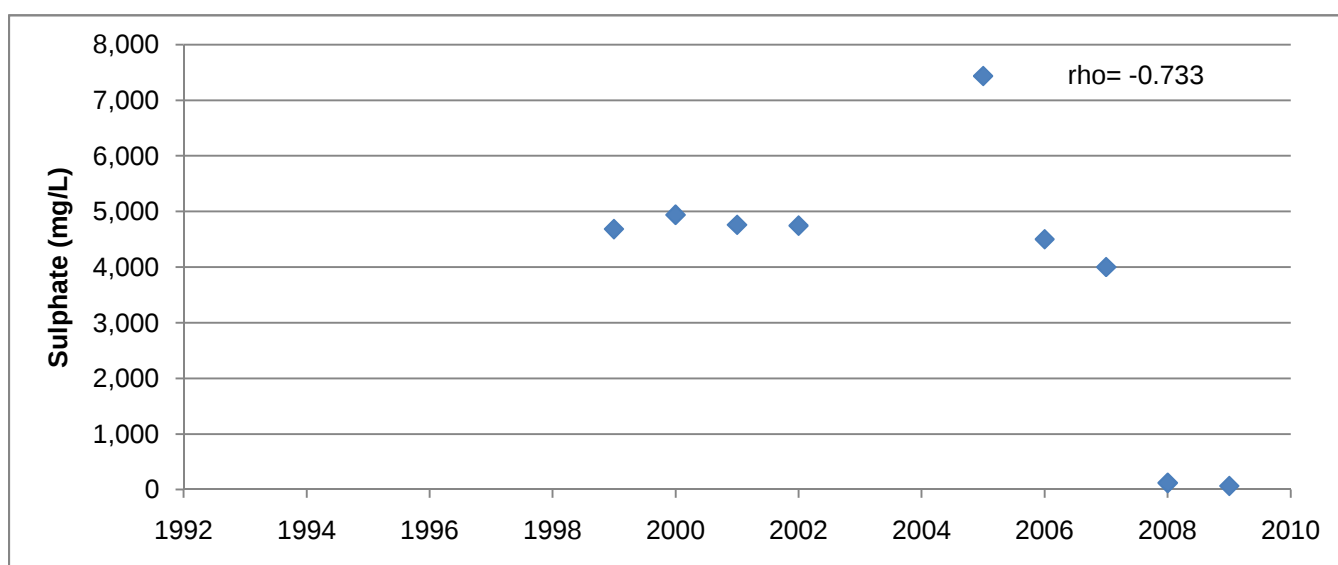
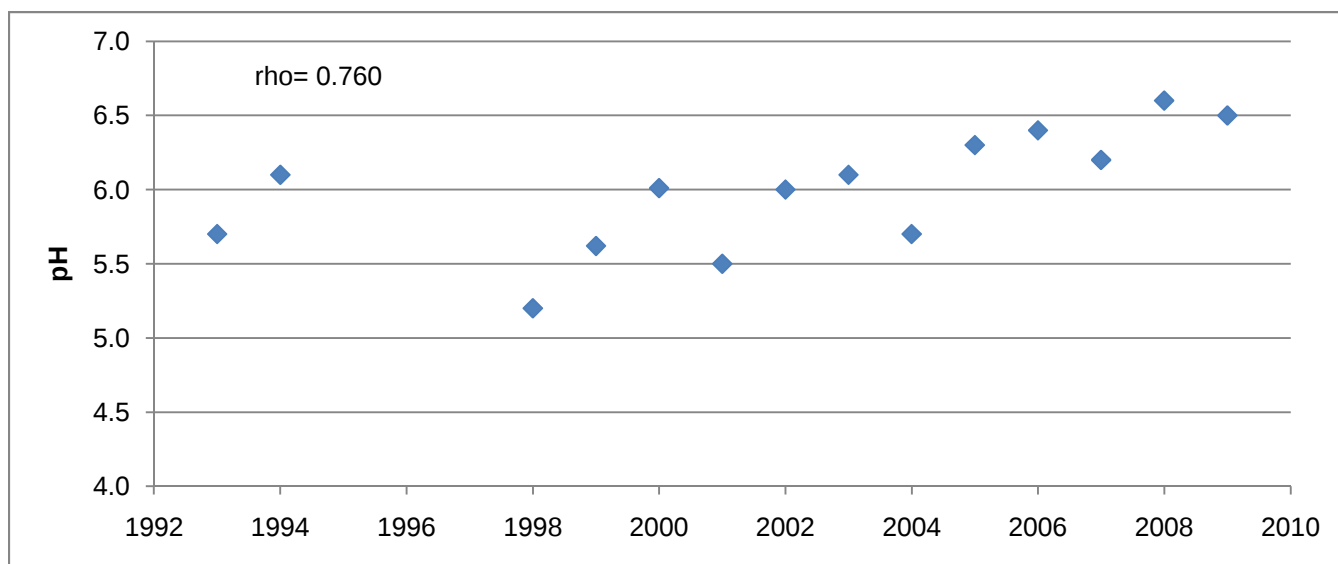
Appendix Figure C.7.13: Significant trends observed for pH and iron at station M12-3, 1993 to 2009.



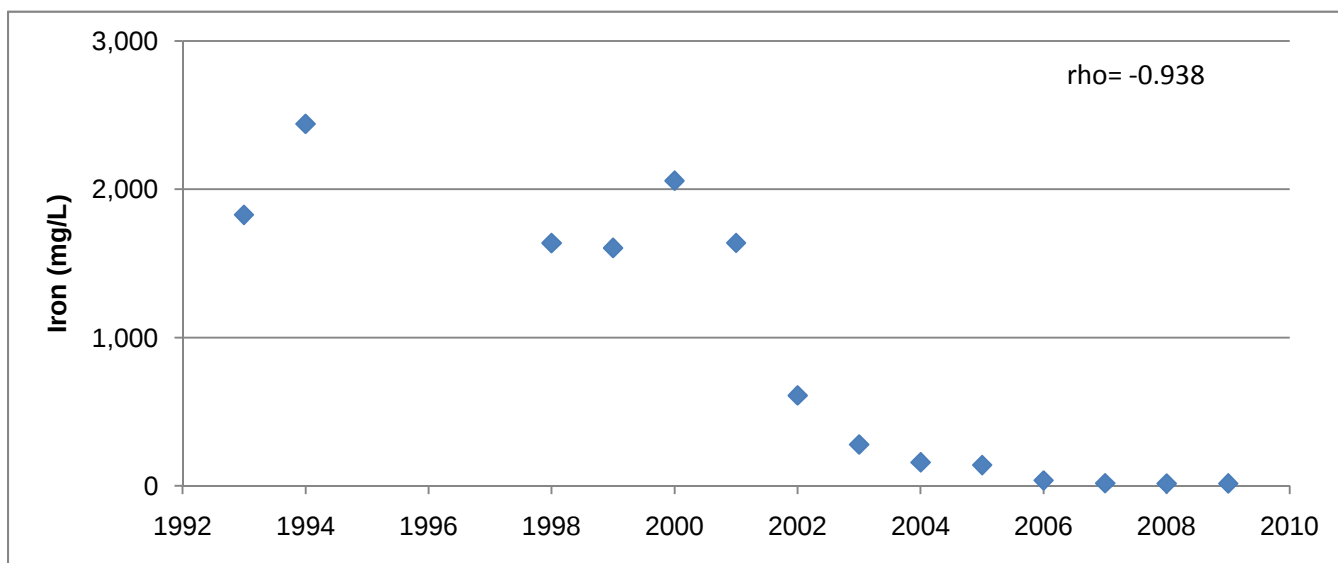
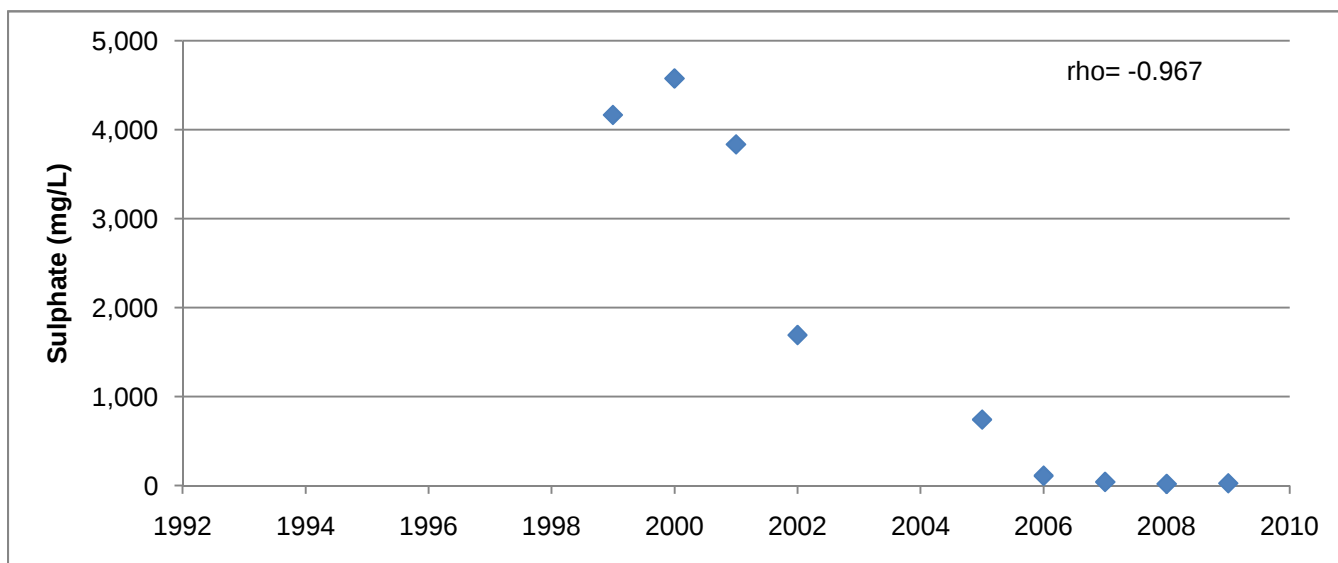
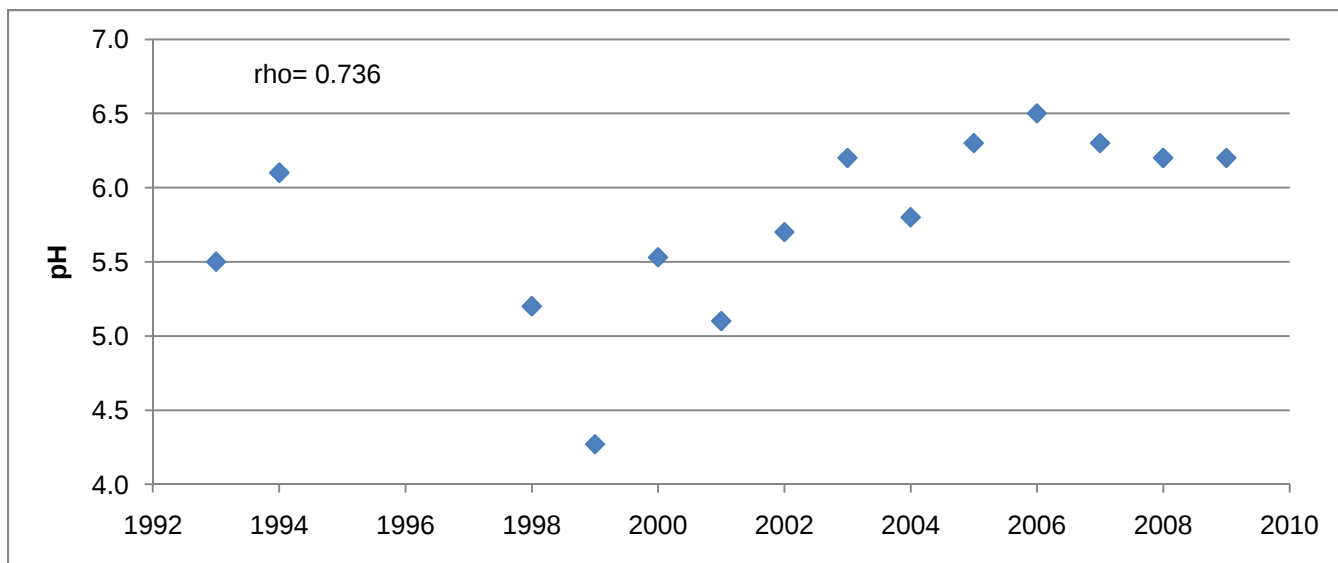
Appendix Figure C.7.14: Significant trends observed for pH, sulphate and iron at station M12-6, 1993 to 2009.



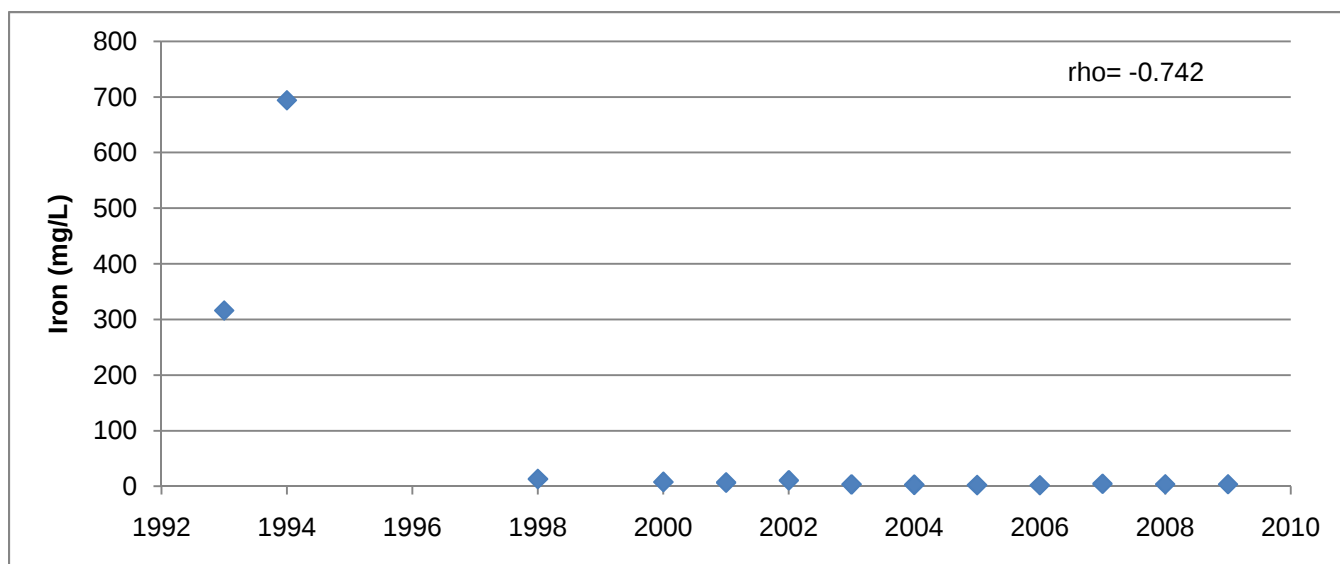
Appendix Figure C.7.15: Significant trends observed for pH and iron at station M12-9, 1994 to 2009.



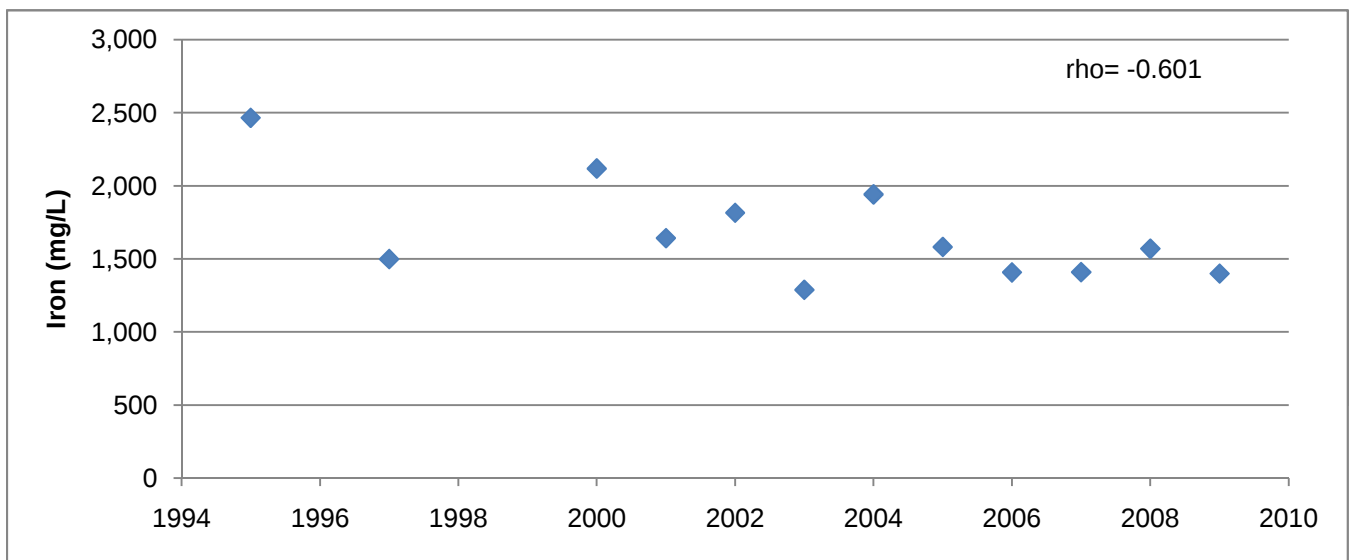
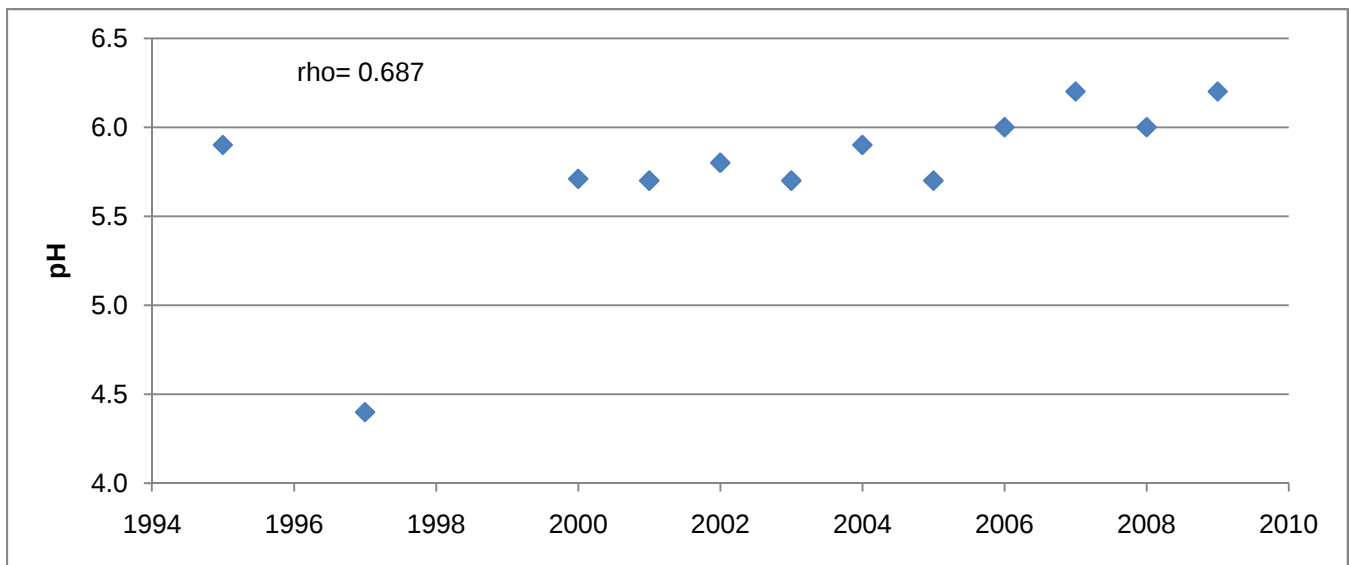
Appendix Figure C.7.16: Significant trends observed for pH and sulphate at station M13-3, 1993 (or 1999) to 2009.



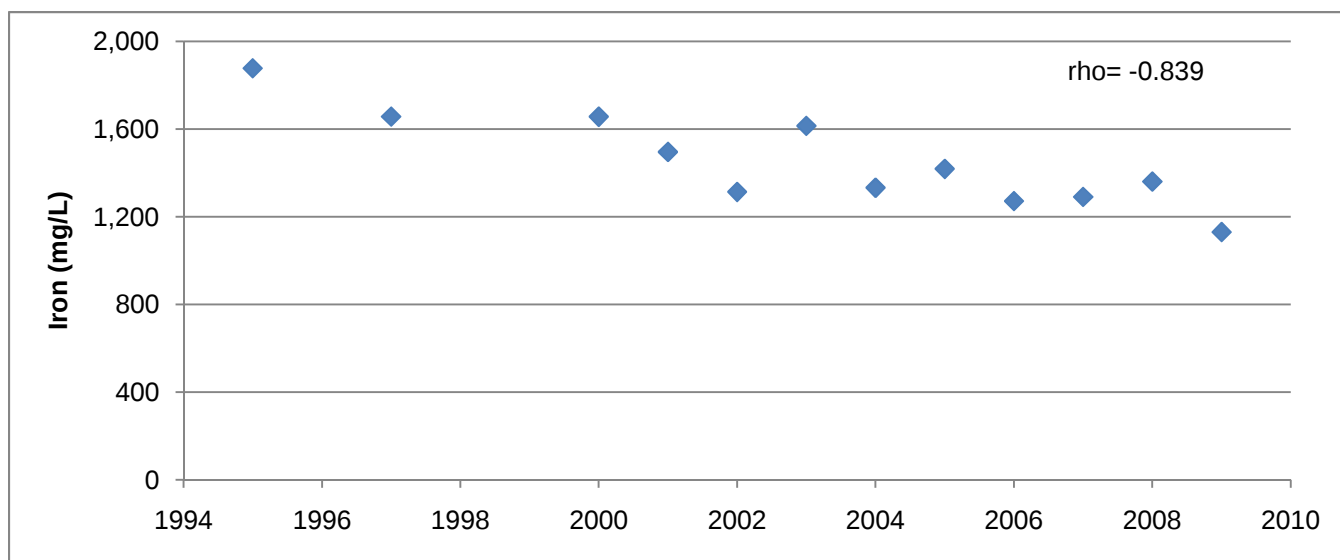
Appendix Figure C.7.17: Significant trends observed for pH, sulphate and iron at station M13-6, 1993 (or 1999) to 2009.



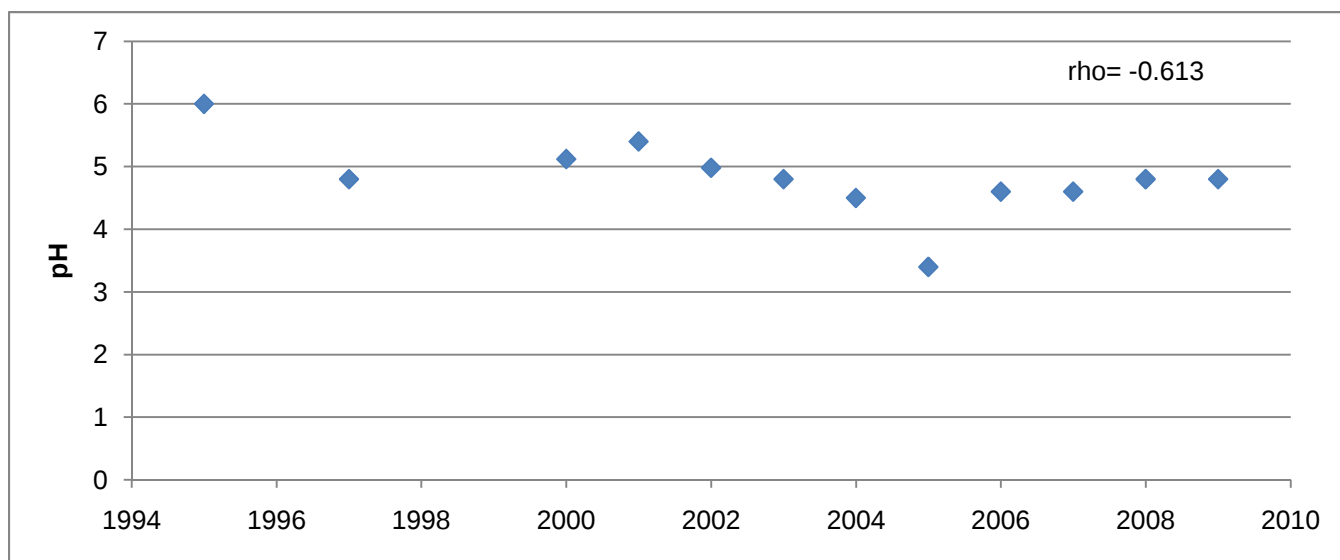
Appendix Figure C.7.18: Significant trends observed for iron at station M13-9, 1993 to 2009.



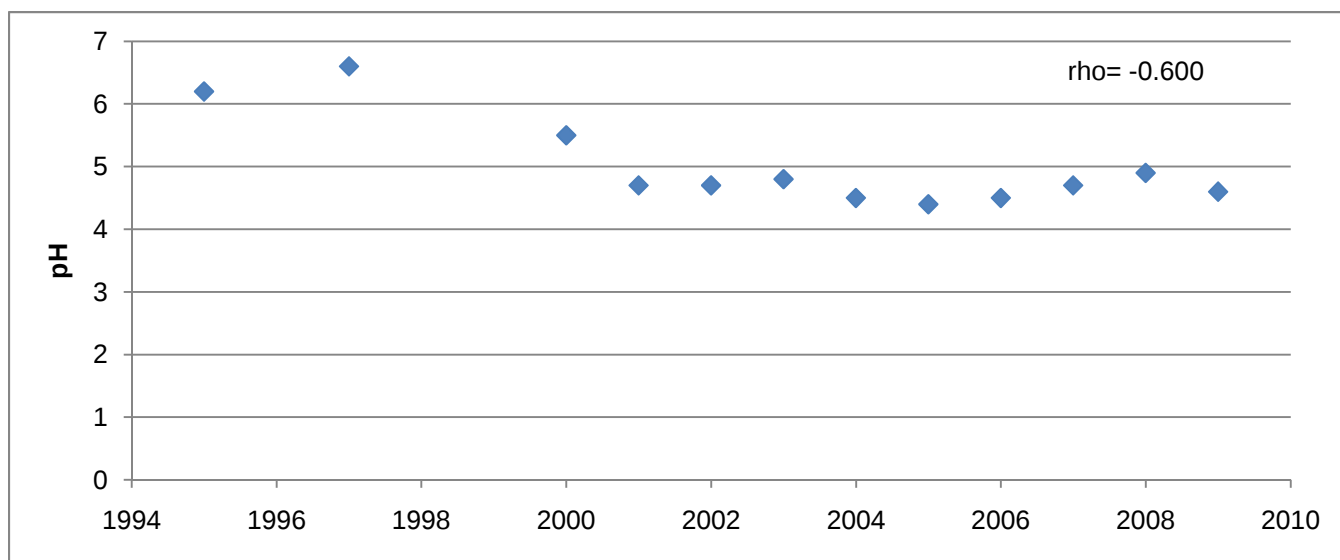
Appendix Figure C.7.19: Significant trends observed for pH and iron at station 95N4-A, 1995 to 2009.



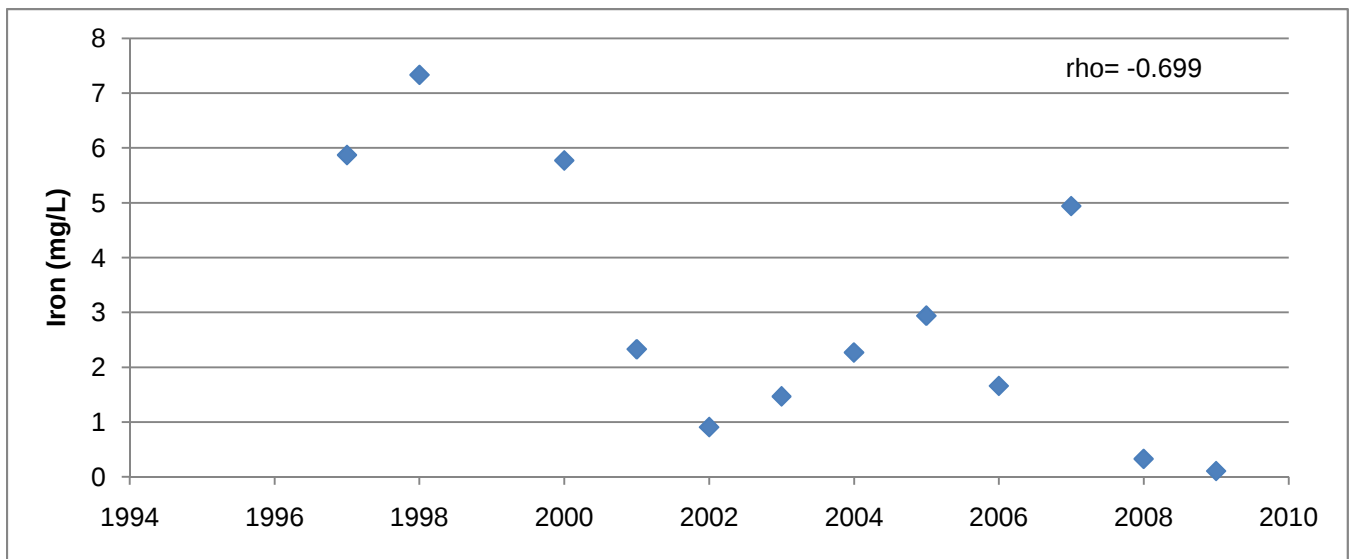
Appendix Figure C.7.20: Significant trends observed for iron at station 95N4-B, 1995 to 2009.



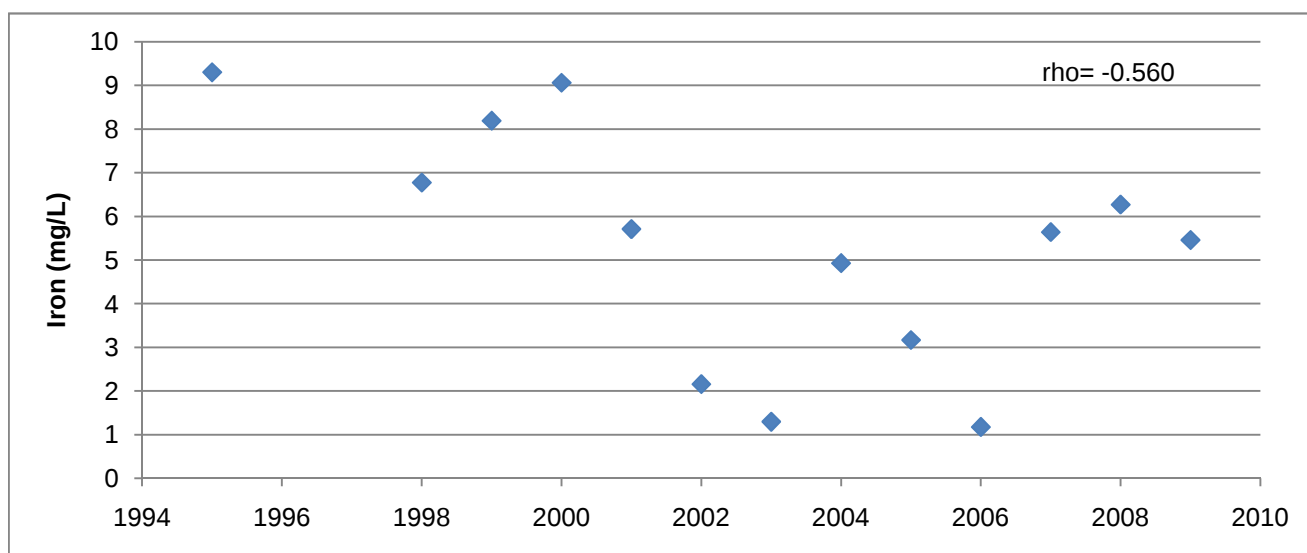
Appendix Figure C.7.21: Significant trends observed for pH at station 95N7-A, 1995 to 2009.



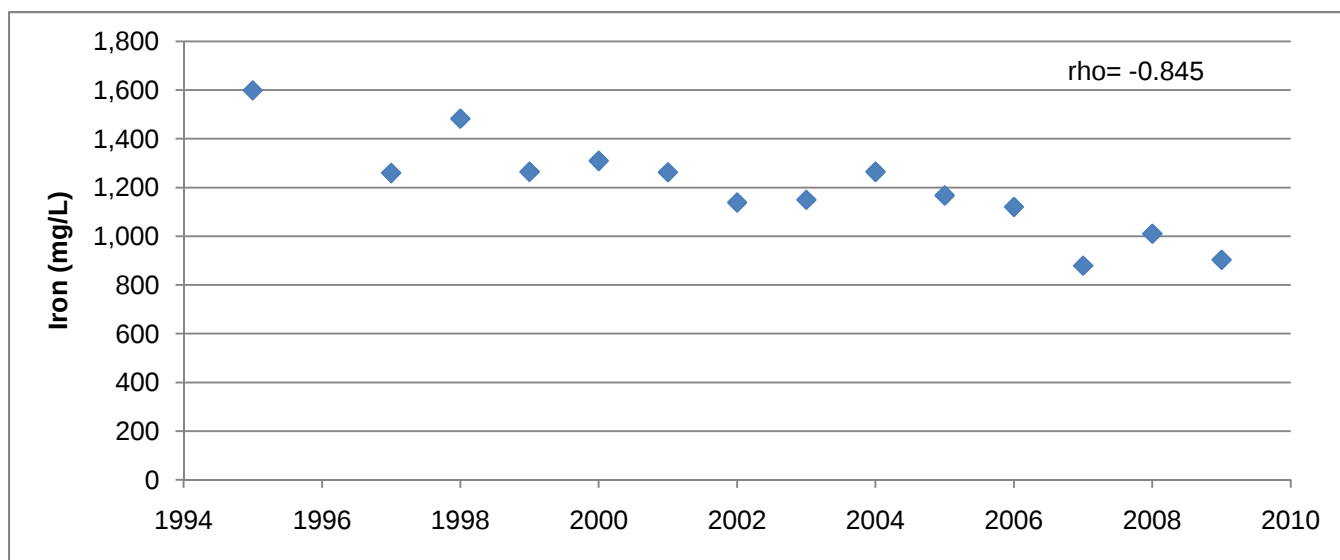
Appendix Figure C.7.22: Significant trends observed for pH at station 95N7-B, 1995 to 2009.



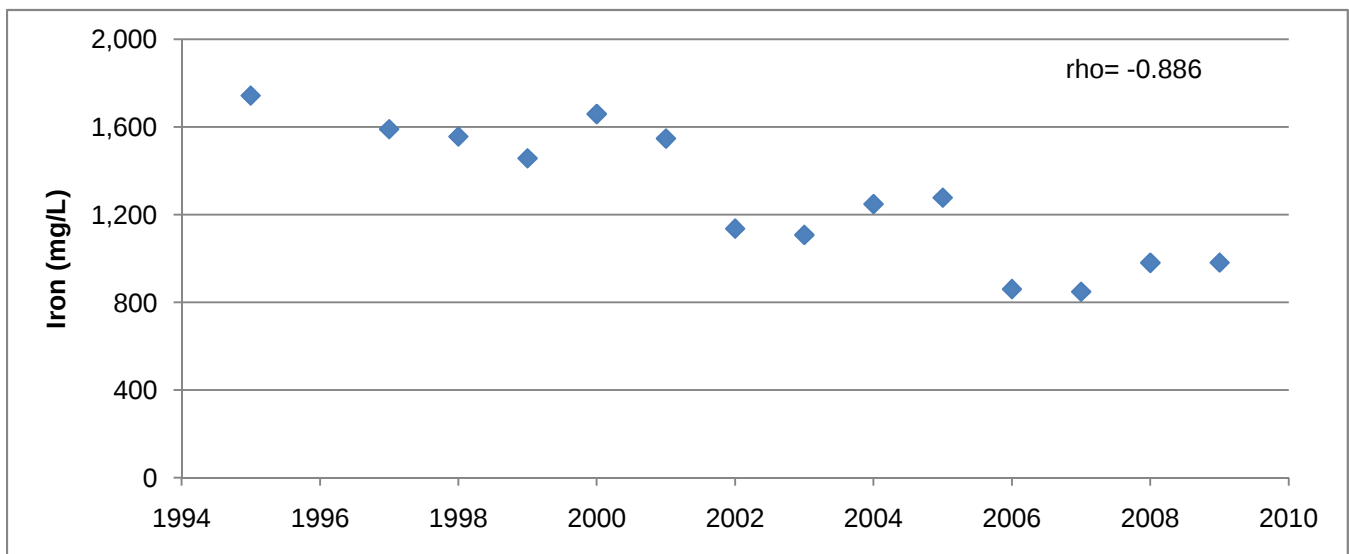
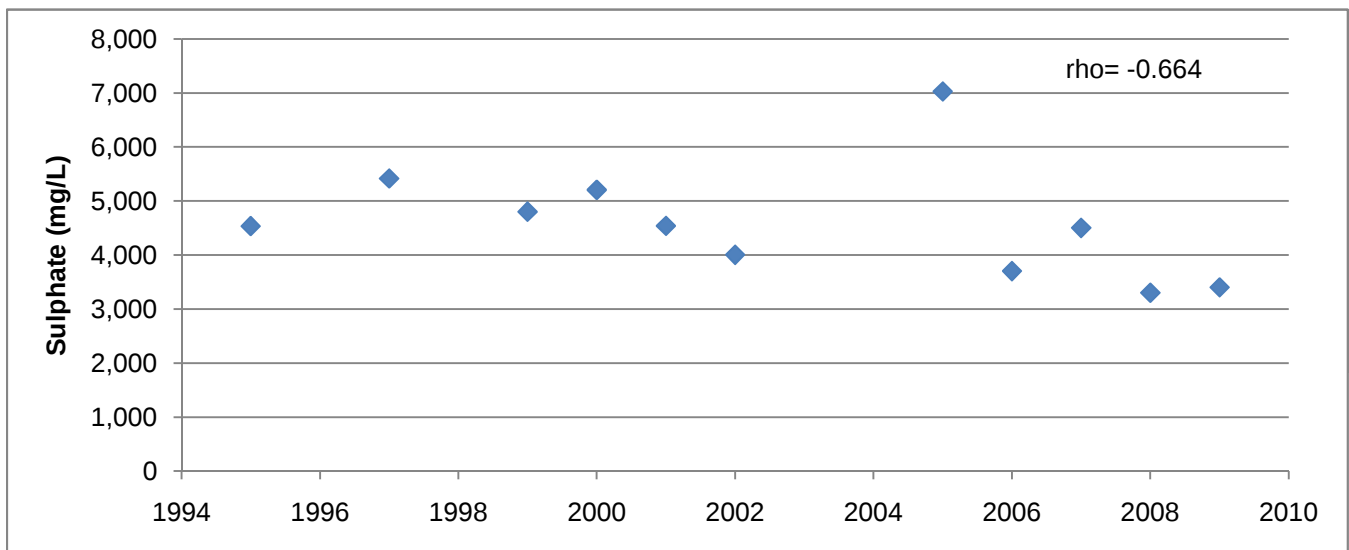
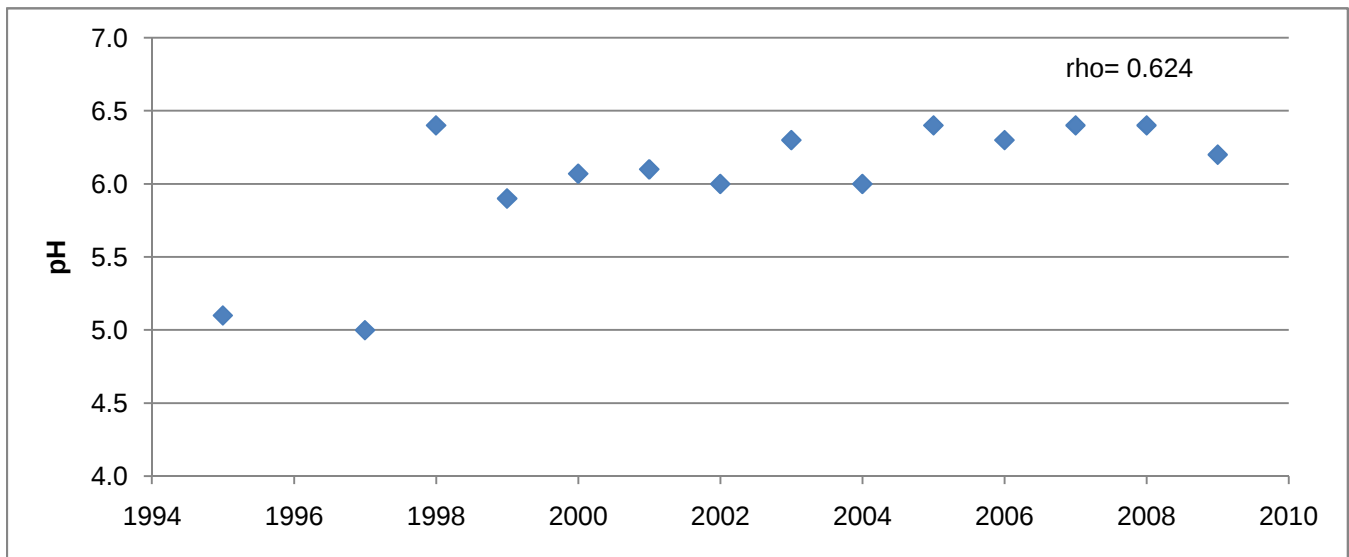
Appendix Figure C.7.23: Significant trends observed for iron at station 95N11, 1995 to 2009.



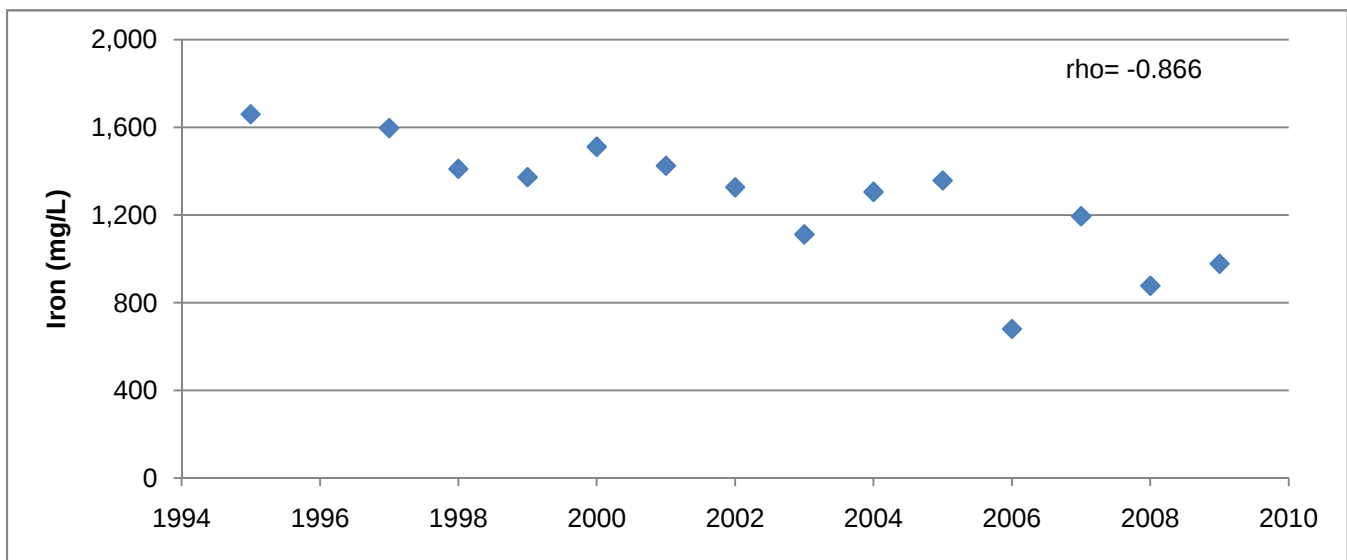
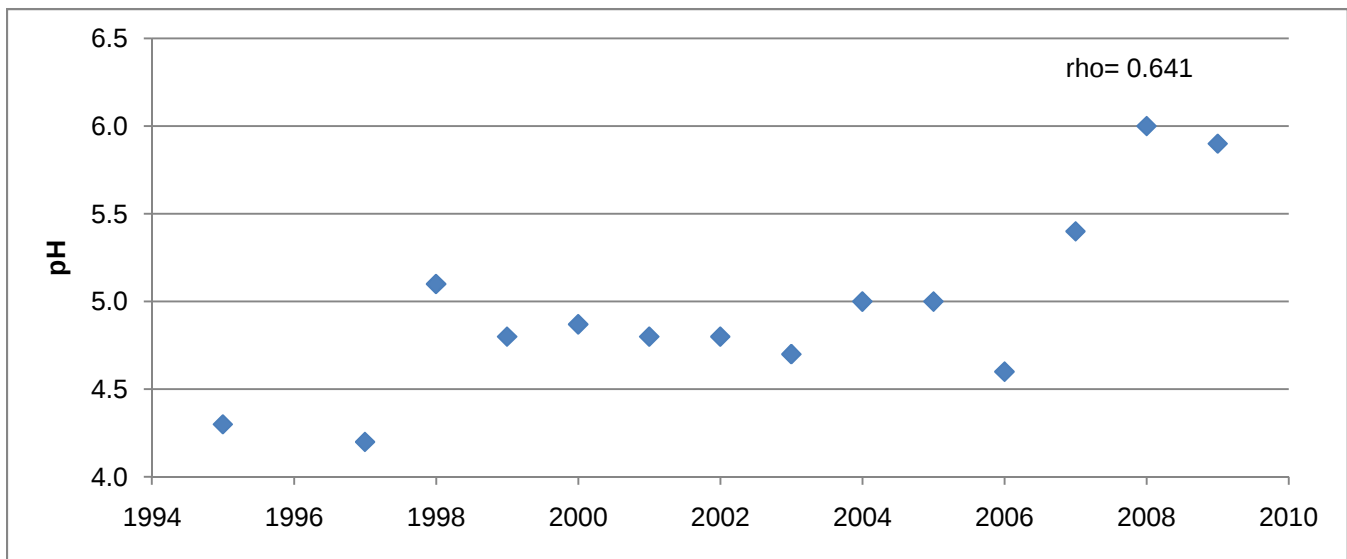
Appendix Figure C.7.24: Significant trends observed for iron at station 95N12-B, 1995 to 2009.



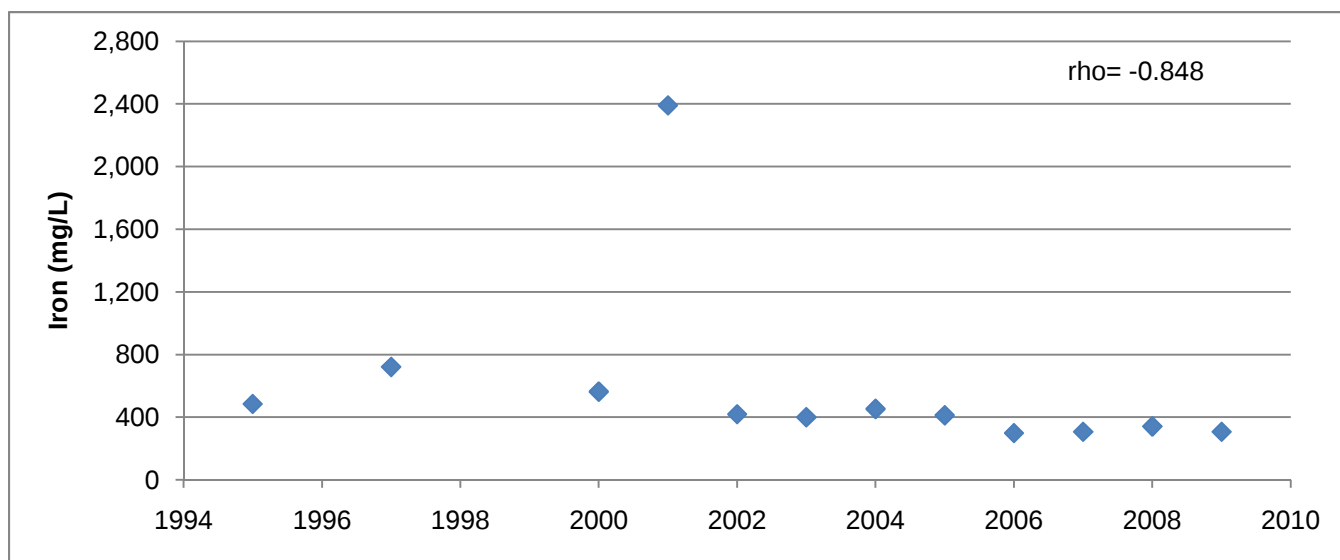
Appendix Figure C.7.25: Significant trends observed for iron at station 95N13-A, 1995 to 2009.



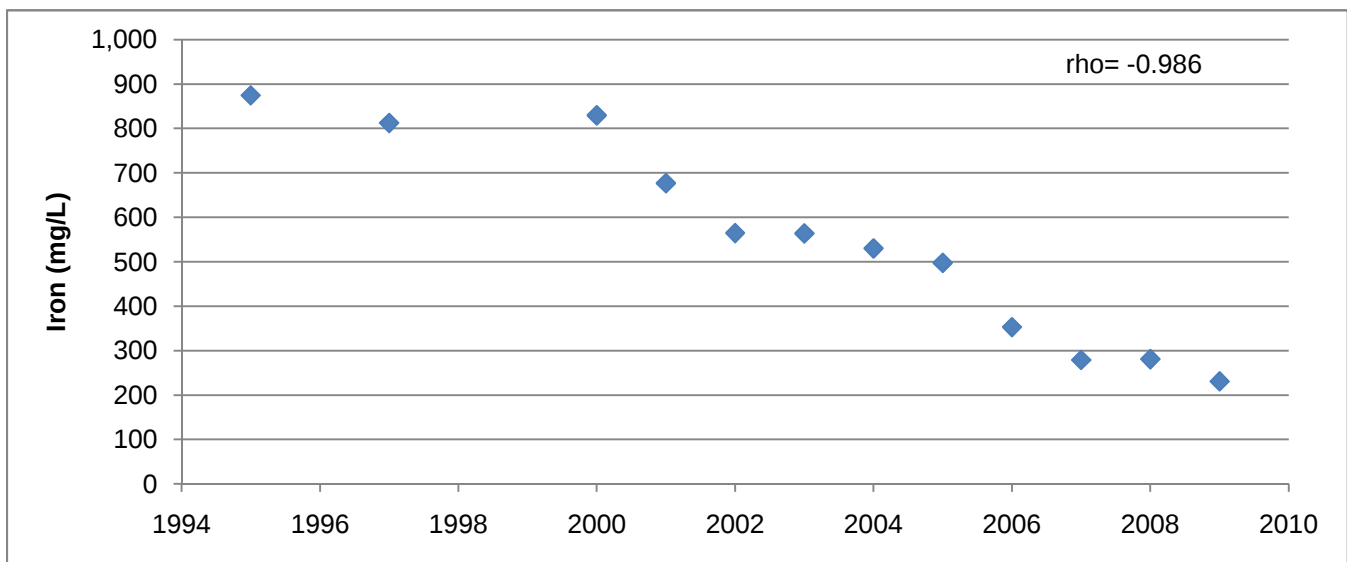
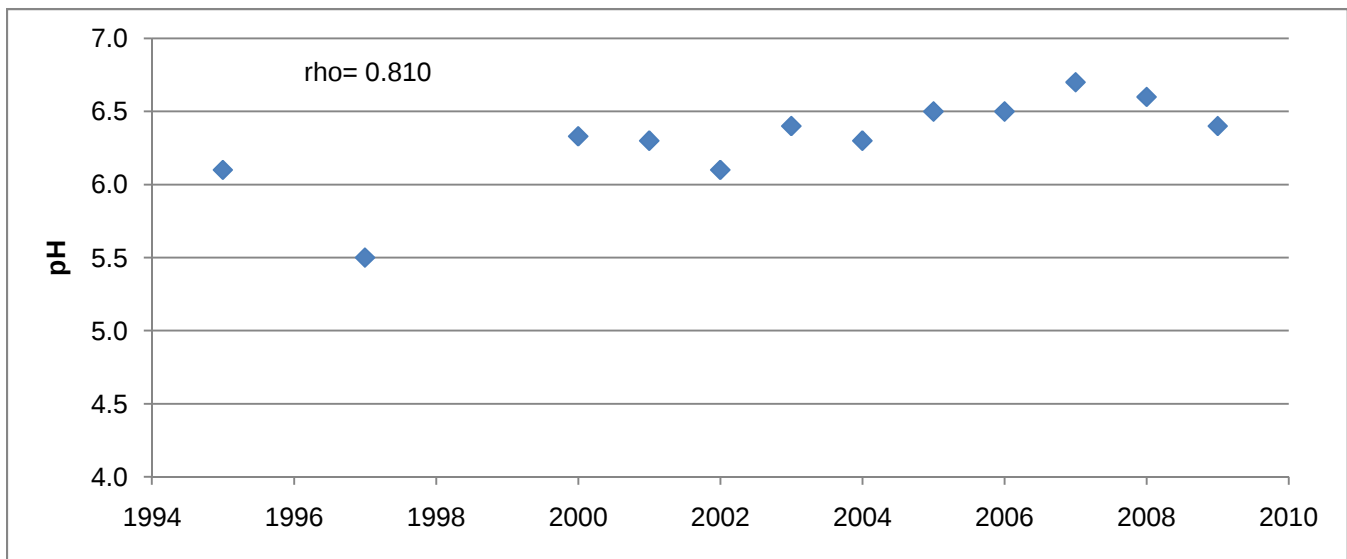
Appendix Figure C.7.26: Significant trends observed for pH, sulphate and iron at station 95N13-C, 1995 to 2009.



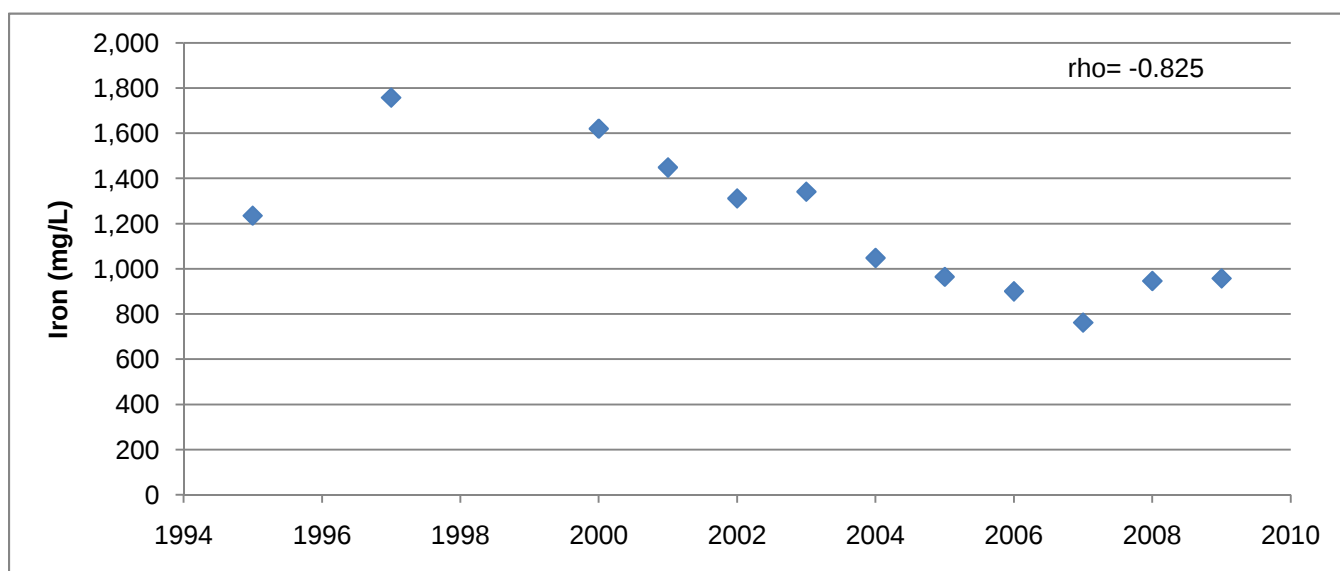
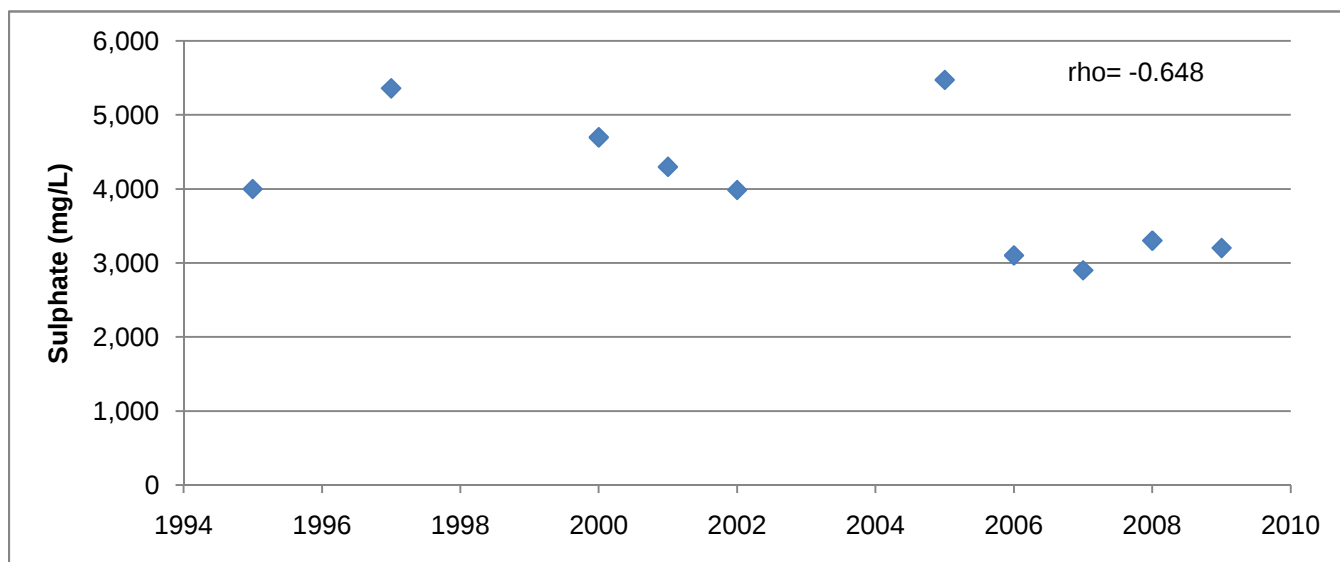
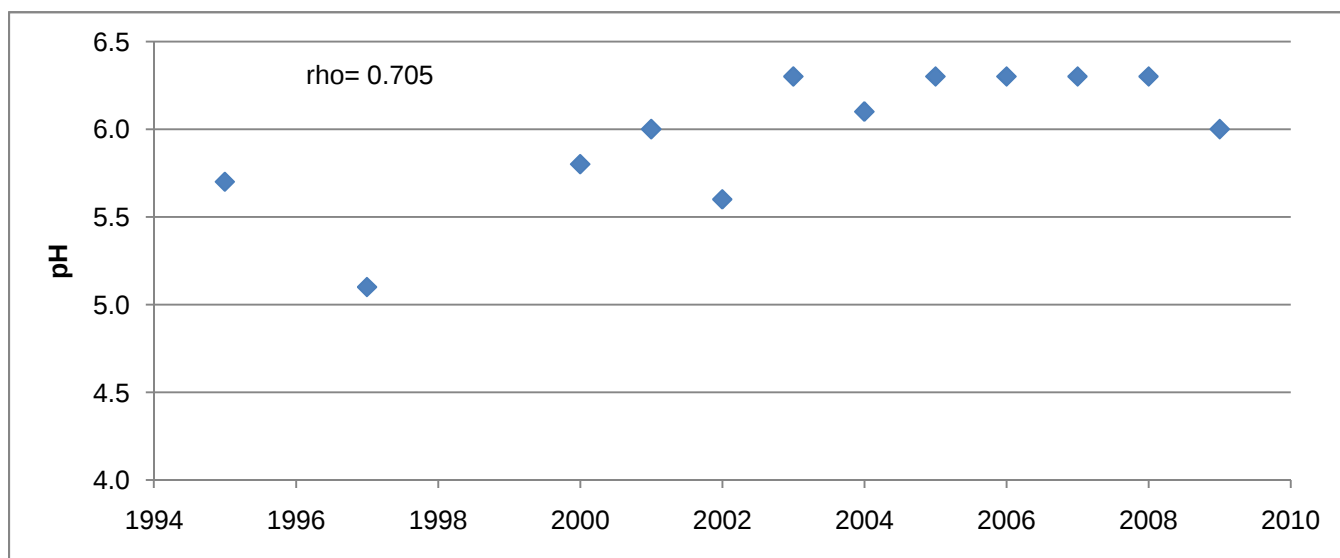
Appendix Figure C.7.27: Significant trends observed for pH and iron at station 95N13-E, 1995 to 2009.



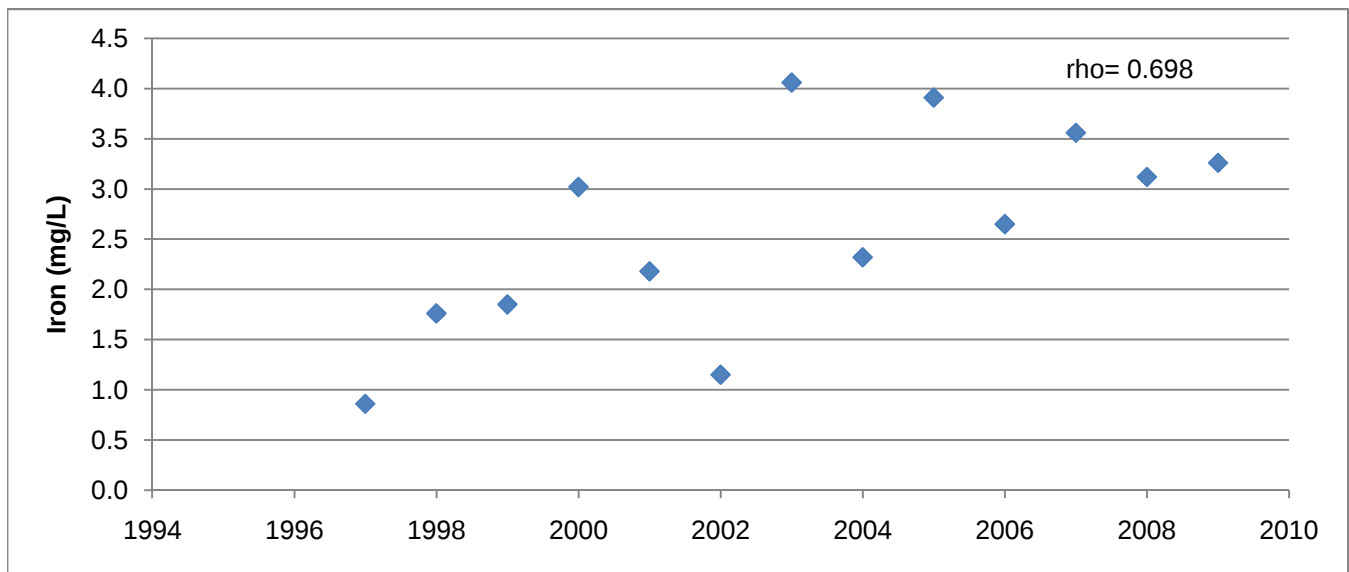
Appendix Figure C.7.28: Significant trends observed for iron at station 95N16-A, 1995 to 2009.



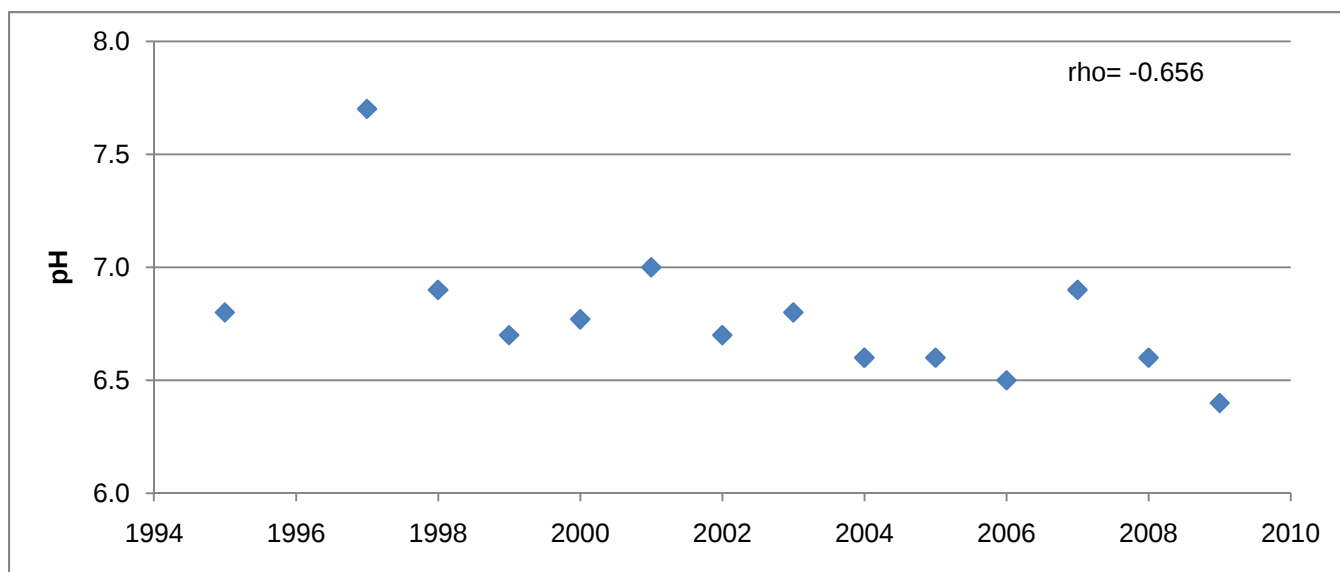
Appendix Figure C.7.29: Significant trends observed for pH and iron at station 95N16-C, 1995 to 2009.



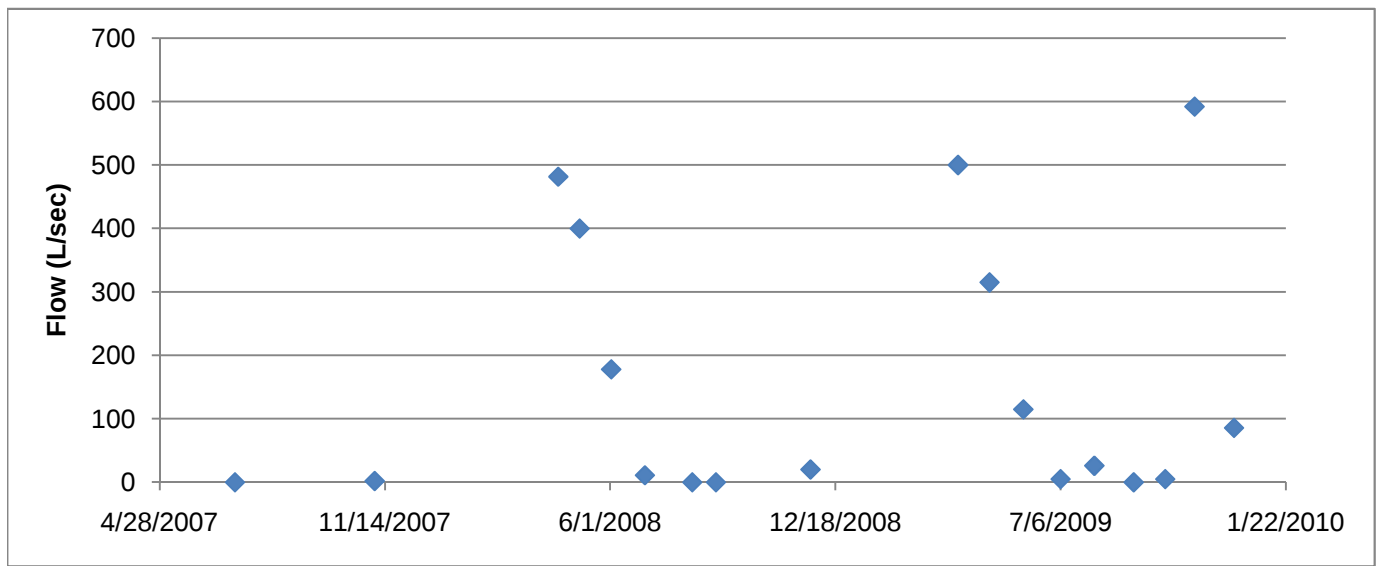
Appendix Figure C.7.30: Significant trends observed for pH, sulphate and iron at station 95N16-E, 1995 to 2009.



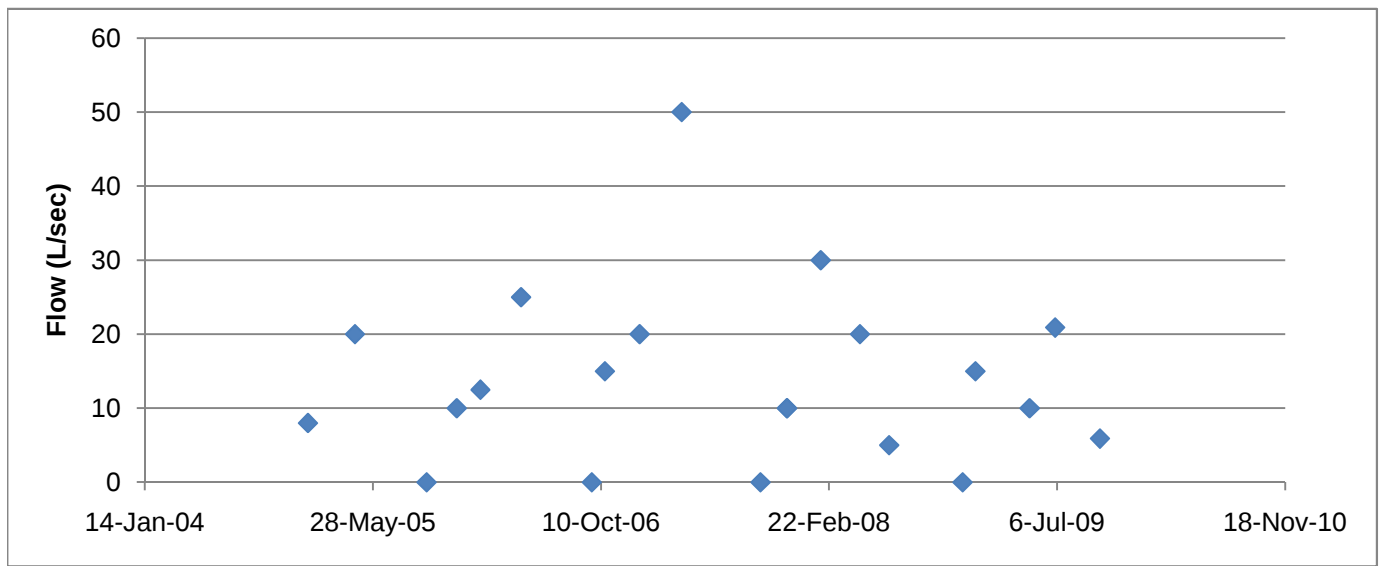
Appendix Figure C.7.31: Significant trends observed for iron at station 95N17-A, 1997 to 2009.



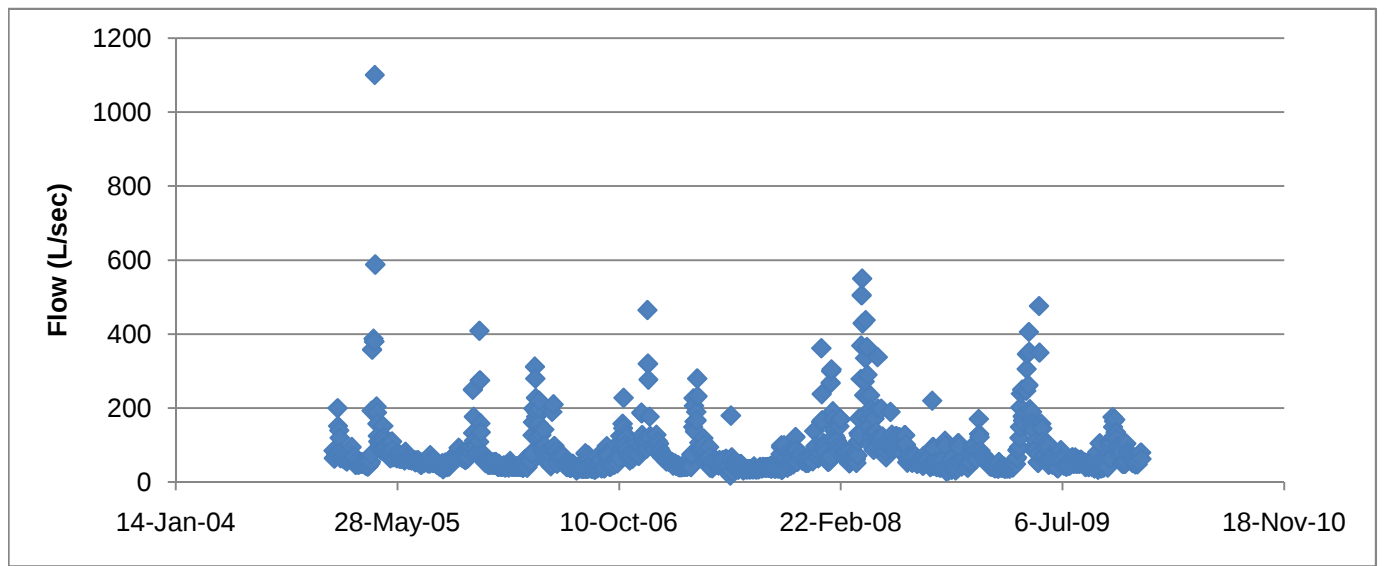
Appendix Figure C.7.32: Significant trends observed for pH at station 95N17-C, 1995 to 2009.



Appendix Figure C.7.33: Flows at station ECA-131 from 2007 to 2009.



Appendix Figure C.7.34: Flows at station L-03 from 2005 to 2009.



Appendix Figure C.7.35: Flows at station N-17 from 2005 to 2009.

APPENDIX C.8

Pronto TMA

Appendix Table C.8.1: Pronto final point of control (PR-04) discharge criteria.

Parameter ^d	Units	Discharge Criteria		Action Level	Internal Investigation
		Grab Sample ^a	Monthly Mean ^b		
pH	pH units	6.0-9.5		<6.5 or >9.0	<7.0 or >8.5
Dissolved Radium-226 ^c	Bq/L	1.10	0.37	0.37	0.20
Iron	mg/L	-	1.0	1.00	0.50
Total Suspended Solids	mg/L	-	15	10	7.5

^a Samples to be collected during periods of discharge.

^b Arithmetic mean of all grab samples collected within a given month.

^c Discharge criteria are for dissolved radium-226, Action level and Internal Investigation based on total Radium-226. Measured and reported values are for total radium-226.

^d Copper, lead, nickel and zinc monitoring discontinued in January 2010 as per regulatory approval of Cycle 3 design

Appendix Table C.8.2: Water quality at station PR-02, 2005 to 2009.

Date	Acidity (mg/L)	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra-226 (Bq/L)	Sulphate (mg/L)	U (mg/L)
3/16/2005	171	0.00025	0.00015	8.95	0.0002	3	0.21	608	0.046
4/6/2005	137	0.0229	0.0666	4.54	0.278	3.4	0.17	271	0.027
10/26/2005	129	0.0216	0.124	6.49	0.635	3.1	0.36	1097	0.105
1/11/2006	85	0.031	0.289	12	0.799	3	0.24	470	0.0754
3/29/2006							0.24		
4/5/2006	45	0.0317	0.269	14.3	0.663	3.5	0.18	400	0.0457
5/3/2006							0.17		
7/13/2006	72	0.0293	0.204	5.56	0.613	2.8	0.18	430	0.0524
8/2/2006							0.19		
11/8/2006	59	0.028	0.139	7.99	0.5	2.9	0.22	340	0.0503
1/10/2007	50	0.026	0.1240	10.5	0.403	3.1	0.160	310.0	0.0371
4/4/2007	40	0.035	0.1300	16	0.485	3.4	0.210	330.0	0.0369
7/11/2007	76	0.033	0.1540	6.51	0.708	2.9	0.280	500.0	0.0635
11/28/2007							0.310		
12/5/2007	91	0.028	0.3160	12.1	0.814	3	0.260	490.0	0.0756
1/16/2008	89	0.028	0.3210	13.8	0.721	3.2	0.250	470.0	0.0685
2/6/2008							0.170		
4/9/2008	48	0.029	0.2080	11.8	0.438	3.1	0.180	290.0	0.0361
5/7/2008							0.140		
6/4/2008							0.160		
12/10/2008	96	0.031	0.2350	12.6	0.765	3	0.330	540.0	0.0801
1/15/2009	86	0.033	0.2260	18.7	0.751	3	0.320	510.0	0.0759
2/4/2009							0.240		
3/25/2009							0.340		
4/1/2009	70	0.031	0.2540	17	0.456	3.8	0.190	330.0	0.0431
5/6/2009							0.130		
11/18/2009	61	0.030	0.1490	9.070	0.615	3.1	0.240	380.0	0.0407
12/2/2009							0.250		
Number	17	17	17	17	17	17	28	17	17
Minimum	40	0.00025	0.00015	4.54	0.0002	2.8	0.13	271	0.027
Maximum	171	0.035	0.321	18.7	0.814	3.8	0.36	1097	0.105
Mean	83	0.02757	0.1888	11.05	0.567	3.1	0.226	456.8	0.0564
Median	76	0.02930	0.2040	11.80	0.615	3.1	0.215	430.0	0.0503
10th Perc.	46.8	0.02238	0.1010	6.12	0.353	2.9	0.160	302.0	0.0366

Concentration below maximum MDL.

Appendix Table C.8.3: Water quality at station PR-03, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH
3/10/2005	8.2	8/1/2006	9.3	1/22/2008	8.3	1/30/2009	8.6
3/11/2005	8.2	8/2/2006	9.3	1/23/2008	8.3	2/2/2009	8.4
3/14/2005	8	8/3/2006	9.1	1/24/2008	8.3	2/3/2009	8.4
3/15/2005	8.4	8/4/2006	9.3	1/25/2008	8.5	2/4/2009	8.5
3/16/2005	8.4	11/2/2006	9.2	1/28/2008	8.6	2/5/2009	8.5
3/17/2005	8.3	11/3/2006	9.2	1/29/2008	8.5	2/6/2009	8.5
3/18/2005	8.3	11/6/2006	9	1/30/2008	8.5	2/9/2009	8.4
3/21/2005	8.3	11/7/2006	9.1	1/31/2008	8.5	2/10/2009	8.5
3/22/2005	8.3	11/8/2006	9.3	2/1/2008	8.4	2/11/2009	8.1
3/23/2005	8.4	11/9/2006	9	2/4/2008	8.5	2/12/2009	8.2
3/24/2005	8.4	11/10/2006	9	2/5/2008	8.5	2/13/2009	8.2
3/28/2005	8.6	11/13/2006	9	2/6/2008	8.4	3/23/2009	8.2
3/29/2005	8.7	11/14/2006	9	2/7/2008	8.5	3/24/2009	8.0
3/30/2005	8.6	11/15/2006	9.2	2/8/2008	8.5	3/25/2009	8.3
3/31/2005	8.6	11/16/2006	9.3	2/11/2008	8.6	3/26/2009	8.4
4/1/2005	7.6	11/17/2006	9.2	2/12/2008	8.6	3/27/2009	8.5
4/4/2005	8.8	11/20/2006	9.3	2/13/2008	8.6	3/30/2009	8.8
4/5/2005	8.8	11/21/2006	9.3	2/14/2008	8.6	3/31/2009	8.6
4/6/2005	8.6	11/22/2006	9.4	2/15/2008	8.6	4/1/2009	8.3
4/7/2005	8.5	11/23/2006	9.4	2/19/2008	8.4	4/2/2009	8.2
4/8/2005	8.6	11/24/2006	9	2/20/2008	8.5	4/3/2009	8.2
4/11/2005	8.8	11/27/2006	9	2/21/2008	8.6	4/6/2009	8.4
4/12/2005	8.8	11/28/2006	9	2/22/2008	8.6	4/7/2009	8.3
4/13/2005	8.8	11/29/2006	9	2/25/2008	8.8	4/8/2009	8.4
4/14/2005	8.8	1/2/2007	8.3	2/26/2008	8.8	4/9/2009	8.3
4/15/2005	8.8	1/3/2007	8.3	2/27/2008	8.8	4/13/2009	8.4
4/18/2005	9.3	1/4/2007	8.6	2/28/2008	8.8	4/14/2009	8.4
4/19/2005	9	1/5/2007	8.7	4/3/2008	8.0	4/15/2009	8.5
4/20/2005	8.6	1/8/2007	8.7	4/4/2008	8.8	4/16/2009	8.6
4/21/2005	8.8	1/9/2007	9.0	4/7/2008	8.6	4/17/2009	8.6
10/20/2005	8.8	1/10/2007	8.8	4/8/2008	8.6	4/20/2009	8.4
10/21/2005	8.8	1/11/2007	8.6	4/9/2008	8.3	4/21/2009	8.4
10/24/2005	8.8	1/12/2007	8.9	4/10/2008	8.1	4/22/2009	8.4
10/25/2005	8.9	1/15/2007	8.8	4/11/2008	8.4	4/23/2009	8.6
10/26/2005	8.9	1/16/2007	8.7	4/14/2008	8.5	4/24/2009	8.0
10/27/2005	8.3	1/17/2007	8.6	4/15/2008	8.5	4/27/2009	8.5
10/28/2005	8.9	1/18/2007	8.7	4/16/2008	8.5	4/28/2009	8.8
1/4/2006	8.5	1/19/2007	8.6	4/17/2008	8.8	4/29/2009	9.1
1/5/2006	8.3	1/22/2007	8.6	4/18/2008	8.6	4/30/2009	9.0
1/6/2006	8.4	1/23/2007	8.6	4/21/2008	8.4	5/1/2009	9.2
1/9/2006	8.4	1/24/2007	8.6	4/22/2008	8.4	5/4/2009	9.0
1/10/2006	8.4	1/25/2007	8.6	4/23/2008	8.6	5/5/2009	9.0
1/11/2006	8.4	1/26/2007	8.6	4/24/2008	9.1	5/6/2009	9.0

Appendix Table C.8.3: Water quality at station PR-03, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH
1/12/2006	8.4	1/29/2007	8.6	4/25/2008	9.6	5/7/2009	9.2
1/13/2006	8.4	4/2/2007	7.8	4/28/2008	9.1	5/8/2009	9.0
1/16/2006	8.3	4/3/2007	8.1	4/29/2008	8.6	5/11/2009	9.0
1/17/2006	8.3	4/4/2007	8.3	4/30/2008	8.6	5/12/2009	9.2
1/18/2006	8.3	4/5/2007	8.4	5/1/2008	8.6	5/13/2009	9.2
1/19/2006	8.3	4/9/2007	8.4	5/2/2008	8.6	5/14/2009	9.2
1/20/2006	8.3	4/10/2007	8.5	5/5/2008	8.8	5/15/2009	9.3
1/23/2006	8.3	4/11/2007	8.5	5/6/2008	9.0	5/19/2009	9.3
1/24/2006	8.4	4/12/2007	8.5	5/7/2008	9.1	5/20/2009	9.3
1/25/2006	8.4	4/13/2007	8.5	5/8/2008	9.0	5/21/2009	9.2
1/26/2006	8.4	4/16/2007	10.1	5/9/2008	9.1	5/22/2009	9.2
3/27/2006	8.2	4/17/2007	9.0	5/12/2008	9.0	5/25/2009	9.3
3/28/2006	8	4/18/2007	9.0	5/13/2008	9.2	5/26/2009	9.5
3/29/2006	8.2	4/19/2007	9.0	5/14/2008	9.2	5/27/2009	9.0
3/30/2006	8.4	4/20/2007	9.2	5/15/2008	9.2	5/28/2009	9.2
3/31/2006	8.2	4/23/2007	9.2	5/16/2008	9.2	11/4/2009	8.9
4/3/2006	8.1	4/24/2007	9.0	5/20/2008	9.2	11/5/2009	8.7
4/4/2006	8.1	4/25/2007	9.1	5/21/2008	9.2	11/6/2009	8.7
4/5/2006	8.3	4/26/2007	9.0	5/22/2008	9.2	11/9/2009	8.7
4/6/2006	8.2	4/27/2007	9.0	5/23/2008	9.4	11/10/2009	8.8
4/7/2006	8.3	7/4/2007	8.5	5/26/2008	9.2	11/11/2009	8.8
4/10/2006	8.3	7/5/2007	8.6	5/27/2008	9.5	11/12/2009	8.8
4/11/2006	8.4	7/6/2007	8.4	5/28/2008	9.4	11/13/2009	8.8
4/12/2006	8.4	7/9/2007	8.7	5/29/2008	9.5	11/16/2009	8.8
4/13/2006	8.4	7/10/2007	9.2	5/30/2008	9.5	11/17/2009	8.7
4/17/2006	8.6	7/11/2007	9.2	6/2/2008	9.6	11/18/2009	8.8
4/18/2006	8.6	7/12/2007	8.6	6/3/2008	9.5	11/19/2009	8.8
4/19/2006	8.6	7/13/2007	8.6	6/4/2008	9.6	11/20/2009	8.8
4/20/2006	8.6	7/16/2007	9.2	6/5/2008	9.5	11/23/2009	8.8
4/21/2006	8.6	7/17/2007	9.3	6/6/2008	9.6	11/24/2009	9.0
4/24/2006	8.2	7/18/2007	9.5	6/9/2008	9.8	11/25/2009	8.8
4/25/2006	8.4	7/19/2007	9.5	6/10/2008	10.0	11/26/2009	8.8
4/26/2006	8.2	11/26/2007	8.6	6/11/2008	10.0	11/27/2009	9.1
4/27/2006	8.4	11/27/2007	8.6	12/2/2008	8.8	11/30/2009	8.6
4/28/2006	8.6	11/28/2007	8.5	12/3/2008	8.8	12/1/2009	9.0
5/1/2006	8.6	11/29/2007	8.5	12/4/2008	8.8	12/2/2009	8.8
5/2/2006	8.6	11/30/2007	8.5	12/5/2008	9.1	12/3/2009	8.8
5/3/2006	8.3	12/3/2007	8.5	12/8/2008	8.8	12/4/2009	8.7
5/4/2006	8.6	12/4/2007	8.5	12/9/2008	8.5	12/7/2009	9.2
5/5/2006	8.8	12/5/2007	8.6	12/10/2008	9.2	12/8/2009	9.0
7/11/2006	8.6	12/6/2007	8.5	12/11/2008	9.2	12/9/2009	9.0
7/12/2006	8.6	12/7/2007	8.3	12/12/2008	9.3	12/10/2009	9.0
7/13/2006	8.6	12/10/2007	8.3	1/13/2009	8.5	12/11/2009	9.1

Appendix Table C.8.3: Water quality at station PR-03, 2005 to 2009.

Date	pH	Date	pH	Date	pH	Date	pH
7/14/2006	8.8	12/11/2007	8.3	1/14/2009	8.9	12/14/2009	9.0
7/17/2006	8.8	12/12/2007	8.3	1/15/2009	8.9	12/15/2009	9.0
7/18/2006	8.9	12/13/2007	8.3	1/16/2009	8.8	12/16/2009	9.0
7/19/2006	9	1/9/2008	8.3	1/19/2009	8.6	12/17/2009	9.0
7/20/2006	8.8	1/10/2008	8.3	1/20/2009	8.6	Number	384
7/21/2006	8.8	1/11/2008	8.5	1/21/2009	8.5	Minimum	7.6
7/24/2006	9	1/14/2008	8.5	1/22/2009	8.7	Maximum	10.1
7/25/2006	9.2	1/15/2008	8.5	1/23/2009	8.7	Mean	8.7
7/26/2006	9.2	1/16/2008	8.5	1/26/2009	8.7	Median	8.6
7/27/2006	9.3	1/17/2008	8.5	1/27/2009	8.8	10th Perc	8.3
7/28/2006	9.4	1/18/2008	8.5	1/28/2009	8.5		
7/31/2006	9.2	1/21/2008	8.5	1/29/2009	8.6		

Appendix Table C.8.4: Water quality at station PR-04, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
3/16/2005					8.2	0.11		1	
3/23/2005					8.2	0.13		1	
3/30/2005					8.1	0.13		1	
4/6/2005	0.135	0.0184	0.679	0.177	8.1	0.086		0.5	0.016
4/13/2005					8.2	0.047		0.5	
4/20/2005					8	0.079		0.5	
10/26/2005	0.0914	0.028	0.226	0.373	7.8	0.14	680	0.5	0.014
1/11/2006	0.089	0.0945	0.63	0.526	8.1	0.14	480		0.0232
1/18/2006					8.1	0.059		3	
1/25/2006					8.1	0.15		3	
3/29/2006	0.095	0.0681	0.46	0.468	7.6	0.14		2	0.036
4/5/2006	0.0509	0.0663	0.48	0.418	7.8	0.13	400	1	0.026
4/12/2006					8.1	0.071		2	
4/19/2006					8.2	0.083		1	
4/26/2006					8	0.081		1	
5/3/2006	0.119	0.0239	0.44	0.202	7.8	0.11	340	1	0.00396
7/13/2006	0.0329	0.00872	0.08	0.0652	8.2	0.042	340	5	0.0136
7/19/2006					8	0.1		1	
7/26/2006					8.3	0.14		1	
8/2/2006	0.0721	0.00512	0.08	0.0775	8.5	0.13	420	0.5	0.00508
11/8/2006	0.045	0.0247	0.26	0.231	8.2	0.1		1	0.0168
11/15/2006					8.2	0.11		0.5	
11/22/2006					8.4	0.13		1	
11/29/2006					8	0.1		0.5	
1/3/2007					7.3	0.074		1	
1/10/2007	0.112	0.0223	0.45	0.208	8.3	0.086	270.0	1	0.0115
1/17/2007					8.4	0.110		1	
1/24/2007					8.3	0.110		2	
4/4/2007	0.029	0.0254	0.46	0.246	7.5	0.090	270.0	2	0.0244
4/11/2007					8.3	0.0025		2	
4/18/2007					8.0	0.074		0.5	
4/25/2007					8.4	0.081		1	
7/11/2007	0.024	0.0292	0.12	0.295	8.2	0.150	450.0	0.5	0.0125
7/18/2007					8.2	0.120		0.5	
11/28/2007					7.8	0.047		1	
12/5/2007	0.022	0.0525	0.43	0.380	8.3	0.160	480.0	2	0.0117
12/12/2007					8.3	0.150		0.5	
1/10/2008					7.9	0.014		0.5	
1/16/2008	0.024	0.0676	0.36	0.410	8.3	0.150	470.0	0.5	0.0196
1/23/2008					8.3	0.150		2	
1/31/2008					8.2	0.030		0.5	
2/6/2008	0.019	0.0518	0.64	0.186	8.3	0.084	270.0	1	0.0127
2/13/2008					8.2	0.082		2	
2/20/2008					8.3	0.081		1	
2/27/2008					8.3	0.064		1	
4/9/2008	0.029	0.0324	0.54	0.142	7.6	0.068	270.0	1	0.0178
4/16/2008					8.3	0.059		2	
4/23/2008					8.1	0.059		2	
4/30/2008					8.3	0.058		0.5	
5/7/2008	0.021	0.0366	0.26	0.198	7.8	0.075	300.0	1	0.005
5/14/2008					7.5	0.074		1	
5/21/2008					8.3	0.084		1	
5/28/2008					8.2	0.097		1	
6/4/2008	0.023	0.0184	0.21	0.150	8.2	0.092	330.0	1	0.0031
6/11/2008					8.3	0.093		1	
12/10/2008	0.025	0.0482	0.44	0.395	7.9	0.150	540.0	2	0.019
1/15/2009	0.033	0.0297	0.13	0.302	7.6	0.130	470.0	0.5	0.0222
1/21/2009					8.2	0.190		1	
1/28/2009					8.3	0.160		2	
2/4/2009	0.023	0.0698	0.58	0.370	8.3	0.140	430.0	2	0.0188
2/11/2009					8.2	0.120		2	
3/25/2009	0.027	0.0417	0.37	0.322	7.5	0.120	360.0	1	0.0269

Appendix Table C.8.4: Water quality at station PR-04, 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra-226 (Bq/L)	Sulphate (mg/L)	TSS (mg/L)	U (mg/L)
4/1/2009	0.022	0.0524	0.54	0.244	8.2	0.100	330.0	1	0.0194
4/8/2009					8.2	0.080		1	
4/15/2009					8.2	0.053		2	
4/22/2009					7.8	0.061		2	
4/29/2009					8.0	0.085		1	
5/6/2009	0.027	0.0288	1.8	0.142	8.1	0.082	290.0	3	0.0084
5/13/2009			0.16		8.2	0.076		1	
5/20/2009			0.15		8.1	0.075		1	
5/27/2009			0.08		8.3	0.084		0.5	
11/5/2009					8.0	0.034		1	
11/11/2009					8.3	0.150		1	
11/18/2009	0.026	0.0335	0.3	0.344	8.0	0.130	380.0	0.5	0.0086
11/25/2009					8.2	0.150		1	
12/2/2009	0.026	0.0130	0.18	0.198	8.2	0.150	370.0	1	0.0057
12/9/2009					8.2	0.120		0.5	
12/16/2009					8.2	0.150		0.5	
Number	26	26	29	26	366	78	23	77	26
Minimum	0.019	0.00512	0.08	0.0652	7.2	0.0025	270	0.5	0.0031
Maximum	0.135	0.0945	1.8	0.526	8.9	0.19	680	5	0.036
Mean	0.048	0.0381	0.40	0.272	8.1	0.100	389	1.2	0.0155
Median	0.028	0.0311	0.37	0.245	8.2	0.095	370	1.0	0.0150
10th Perc.	0.022	0.0157	0.11	0.142	7.8	0.057	270	0.5	0.00504

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Concentration below maximum MDL.

Appendix Table C.8.5: Summary of seasonal trends for station PR-02, 2003 - 2009.

Season	Spearman rho	Acidity	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient							-0.1		
	Sig. (2-tailed)							0.872888572		
	N							5		
January/March	Correlation Coefficient	-0.21429	0.428571	0.214286	0.214	-0.107142857	0.33541		-0.10811	0.428571
	Sig. (2-tailed)	0.644512	0.337368	0.644512	0.645	0.819150856	0.581091		0.817533	0.337368
	N	7	7	7	7	7	5		7	7
February/March	Correlation Coefficient							0.257142857		
	Sig. (2-tailed)							0.622787172		
	N							6		
April	Correlation Coefficient	-0.64286	0.678571	0.5	0.571	0.571428571	-0.11119	0.854686737	0.43245	0.642857
	Sig. (2-tailed)	0.119392	0.09375	0.25317	0.18	0.180201989	0.812407	0.014273916	0.332527	0.119392
	N	7	7	7	7	7	7	7	7	7
May/June	Correlation Coefficient							-0.4		
	Sig. (2-tailed)							0.504631575		
	N							5		
October/November	Correlation Coefficient							0.371428571		
	Sig. (2-tailed)							0.468478134		
	N							6		
October/November/ December	Correlation Coefficient	-0.46429	0.234244	0.428571	0.429	0.178571429	0.679156		-0.60714	-0.17857
	Sig. (2-tailed)	0.293934	0.613155	0.337368	0.337	0.701657943	0.093357		0.148231	0.701658
	N	7	7	7	7	7	7		7	7
December	Correlation Coefficient							0.6		
	Sig. (2-tailed)							0.28475698		
	N							5		

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

 Significant trend where p<0.05.

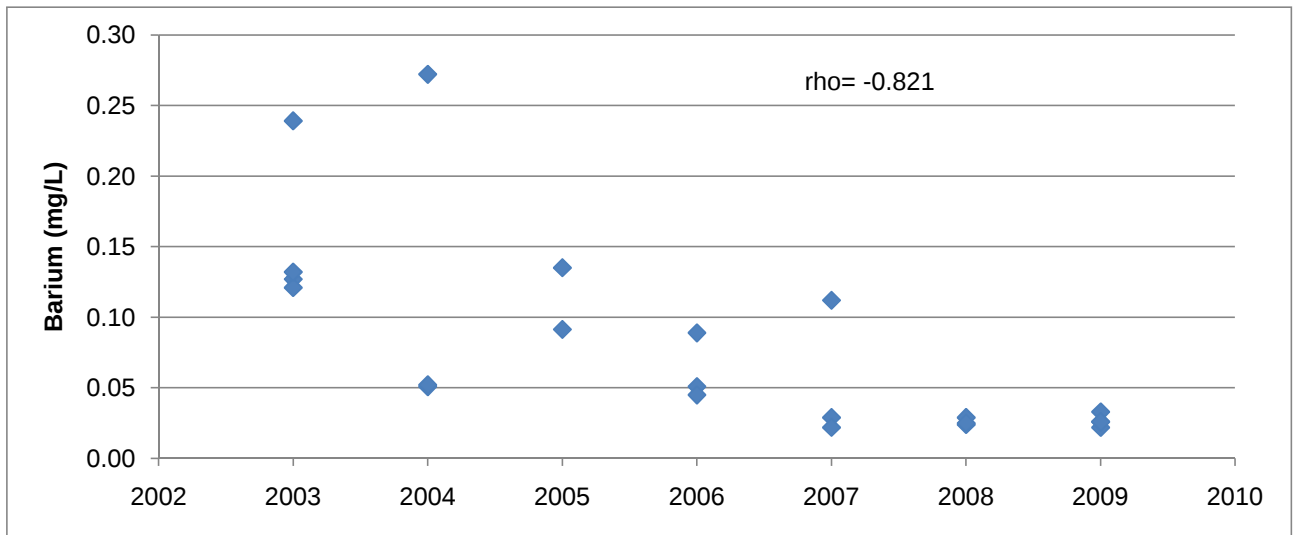
Appendix Table C.8.6: Summary of seasonal trends for station PR-04, 2003 - 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	TSS	Uranium
January	Correlation Coefficient	-0.8	-0.3	-0.7	-0.6	0.6	0	-0.8	-0.6
	Sig. (2-tailed)	0.104088	0.623838	0.188	0.28475698	0.284757	1	0.104088	0.284757
	N	5	5	5	5	5	5	5	5
February/March	Correlation Coefficient					0.542857	0.657142857	0.028989	
	Sig. (2-tailed)					0.265703	0.156174927	0.956529	
	N					6	6	6	
April	Correlation Coefficient	-0.954994	0.342356	-0.595	0.126131245	-0.214286	-0.321428571	-0.270281	0.571429
	Sig. (2-tailed)	0.000806	0.452251	0.159	0.787572159	0.644512	0.482072038	0.557731	0.180202
	N	7	7	7	7	7	7	7	7
May/June	Correlation Coefficient					0.8	-0.2	0.67082	
	Sig. (2-tailed)					0.104088	0.747060078	0.21517	
	N					5	5	5	
October/Nov	Correlation Coefficient	-0.9	0.8	0.9	0.3	0.485714	-0.428571429	0.542857	0.1
	Sig. (2-tailed)	0.037386	0.104088	0.037	0.623837665	0.328723	0.396501458	0.265703	0.872889
	N	5	5	5	5	6	6	6	5
December	Correlation Coefficient	-0.6	-0.2	-0.6	-0.1	0	0.6	-0.1	0
	Sig. (2-tailed)	0.284757	0.74706	0.285	0.872888572	1	0.28475698	0.872889	1
	N	5	5	5	5	5	5	5	5

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

"ns" denotes not significant.

Significant trend where p<0.05.



Appendix Figure C.8.1: Significant common (average) trends observed for barium over all seasons at station PR-04, 2003 to 2009.

APPENDIX D

SAMP Water Quality Data

APPENDIX D.1
Denison and Spanish American
TMA

Appendix Table D.1.1: Water quality at station D-2 from 2005 - 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
1/4/2005								6.8	0.078		< 1		
1/11/2005	0.0541	0.0015	0.002	0.26	0.266	0.002	< 0.0006	7	0.064	476	1	0.063	0.002
1/18/2005								7.3	0.084		1		
1/25/2005								6.9	0.12		1		
2/1/2005								7.2	0.11		1		
2/8/2005								7.1	0.072		< 1		
2/15/2005	0.0716	0.0017	0.003	0.465	0.392	0.0026	< 0.0006	7.1	0.064	523	< 1	0.064	0.001
2/22/2005								7.3	0.074		< 1		
3/1/2005								7.2	0.05		< 1		
3/8/2005								7.3	0.042		< 1		
3/15/2005	0.0337	0.0016	< 0.001	0.145	0.43	0.0029	< 0.0006	7.2	0.03	570	< 1	0.087	0.003
3/22/2005								7	0.034		< 1		
3/29/2005								7.5	0.04		< 1		
4/5/2005								7.3	0.032		< 1		
4/12/2005	0.226	0.0007	< 0.001	0.124	0.137	0.0014	< 0.0006	7.3	0.068	165	< 1	0.022	0.003
4/19/2005								7.4	0.066		1		
4/26/2005								7.4	0.27		2		
5/3/2005								7.4	0.16		1		
5/10/2005	0.111	0.0018	< 0.001	0.233	0.402	0.0022	< 0.0006	7.3	0.23	536	1	0.085	0.002
5/17/2005								7.3	0.28		< 1		
5/24/2005								7.3	0.17		< 1		
5/31/2005								7.4	0.089		< 1		
6/7/2005								7.4	0.11		< 1		
6/14/2005	0.0453	0.0006	< 0.001	0.042	0.142	0.0018	< 0.0006	7.3	0.08	563	< 1	0.072	< 0.001
6/21/2005								7.5	0.12		1		
6/28/2005								7.2	0.089		1		
7/5/2005								7.3	0.097		< 1		
7/12/2005	0.0264	< 0.0003	< 0.001	0.012	0.0205	< 0.0003	< 0.0006	7.3	0.048	595	< 1	0.065	0.007
7/19/2005								7.6	0.061		< 1		
7/26/2005								7.1	0.062		1		
8/2/2005								7.6	0.2		< 1		
8/9/2005	0.0387	< 0.0003	< 0.001	0.026	0.0354	< 0.0003	< 0.0006	7.5	0.051	612	1	0.08	0.003
8/16/2005								7.5	0.061		< 1		
8/23/2005								7.1	0.042		< 1		
8/30/2005								7.4	0.12		< 1		
9/6/2005								7.1	0.09		< 1		
9/13/2005	0.0455	< 0.0003	< 0.001	0.033	0.0591	0.0017	< 0.0006	7.8	0.054	682	< 1	0.095	0.009
9/20/2005								7.3	0.12		< 1		
9/27/2005								7.2	0.12		1		
10/4/2005								7.3	0.06		< 1		
10/11/2005	0.0463	0.0005	< 0.001	0.033	0.164	0.0025	< 0.0006	7.3	0.069	757	< 1	0.104	0.008
10/18/2005								7.3	0.11		1		
10/25/2005								7.3	0.22		< 1		
11/1/2005								7.3	0.19		< 1		
11/8/2005								7.4	0.14		< 1		
11/15/2005	0.084	0.0015	< 0.001	0.118	0.318	0.0032	< 0.0006	7.2	0.17	661	< 1	0.115	0.002
11/22/2005								7.2	0.15		< 1		
11/29/2005								7	0.23		< 1		
12/6/2005								7.5	0.055		< 1		
12/13/2005	0.0296	0.0017	< 0.001	0.119	0.359	0.0038	< 0.0006	7.4	0.056	628	< 1	0.115	0.001
12/20/2005								7.2	0.035		< 1		
12/29/2005								7.3	0.037		< 1		
1/3/2006								7.6	0.016		< 3		
1/10/2006	0.026	0.0023	0.001	0.12	0.376	0.005	< 0.0002	7.1	0.02	630	< 2	0.0926	0.002
1/17/2006								7	0.019		< 2		
1/24/2006								7.3	0.026		2		
1/31/2006								7.5	0.027		< 2		
2/7/2006								7.3	0.024		< 2		
2/14/2006	0.03	0.0019	< 0.0008	0.15	0.389	0.007	< 0.0002	7.3	0.025	580	< 2	0.0912	0.004
2/21/2006								7.4	0.021		< 2		
2/28/2006								7.4	0.028		< 2		
3/7/2006								7.2	0.03		2		
3/14/2006	0.038	0.002	< 0.0008	0.1	0.518	0.005	< 0.0002	7.3	0.031	570	< 2	0.0932	0.003
3/21/2006								7.2	0.042		< 2		
3/28/2006								7.1	0.031		< 2		
4/4/2006								7.3	0.12		< 1		
4/11/2006	0.0955	0.00125	0.0007	0.23	0.209	0.0023	< 0.0005	7.4	0.16	210	1	0.0314	0.0026
4/18/2006								7.1	0.12		2		
4/24/2006								7.4	0.11		1		
5/2/2006								7.5	0.096		2		
5/9/2006	0.151	0.00194	0.0008	0.32	0.397	0.0037	0.00042	7.5	0.11	460	2	0.0697	0.0048
5/16/2006								7.5	0.12		< 1		
5/23/2006								7.7	0.12		2		
5/30/2006								7.6	0.041		< 1		

Appendix Table D.1.1: Water quality at station D-2 from 2005 - 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
6/6/2006								7.6	0.047		< 1		
6/13/2006	0.0606	0.00095	0.0007	0.07	0.289	0.0029	0.00033	7.4	0.078	480	1	0.0661	0.0006
6/20/2006								7.4	0.1		1		
6/27/2006								7.5	0.12		1		
7/4/2006								7.5	0.091		1		
7/11/2006	0.0571	0.0009	0.0011	0.07	0.301	0.004	< 0.0005	7.6	0.083	500	< 1	0.0751	0.003
7/18/2006								7.5	0.045		< 1		
7/24/2006								7.5	0.11		1		
8/1/2006								7.5	0.07		1		
8/8/2006	0.041	0.0005	0.0155	0.06	0.094	0.005	0.001	7.4	0.047	530	1	0.0852	0.013
8/15/2006								7.3	0.054		1		
8/22/2006								7.6	0.062		1		
8/29/2006								7.5	0.03		2		
9/5/2006								7.5	0.048		2		
9/12/2006	0.0506	0.0005	0.0013	0.06	0.12	0.0065	0.0006	7.5	0.046	570	1	0.0984	0.0012
9/19/2006								7.4	0.094		1		
9/26/2006								7.5	0.098		2		
10/3/2006								7.4	0.085		1		
10/10/2006	0.064	0.0008	0.0007	0.06	0.217	0.005	< 0.0005	7.4	0.057	620	1	0.103	0.003
10/17/2006								7.5	0.072		3		
10/24/2006								7.5	0.095		2		
10/31/2006								7.4	0.086		1		
11/7/2006								7.5	0.1		< 1		
11/14/2006	0.086	0.0022	0.0006	0.15	0.425	0.008	0.0005	7.5	0.1	570	< 1	0.0979	0.005
11/21/2006								7.5	0.087		< 1		
11/28/2006								7.5	0.082		1		
12/5/2006								7.4	0.086		1		
12/12/2006	0.062	0.0027	0.001	0.15	0.459	0.008	0.0016	7.4	0.072	590	1	0.0901	0.003
12/19/2006								7.3	0.059		< 1		
12/28/2006								7.3	0.11		2		
1/2/2007								6.9	0.110				
1/9/2007	0.088	0.0015		0.58	0.231			7.4	0.120	330.0		0.0466	
1/16/2007								7.2	0.110				
1/23/2007								7.1	0.092				
1/30/2007								7.2	0.082				
2/6/2007								7.1	0.087				
2/13/2007	0.069	0.0024		1.00	0.396			7.0	0.082	460.0		0.0508	
2/20/2007								7.1	0.057				
2/27/2007								7.1	0.060				
3/6/2007								7.1	0.052				
3/13/2007	0.048	0.0034		1.29	0.582			7.1	0.061	540.0		0.0611	
3/20/2007								7.2	0.034				
3/27/2007								6.9	0.048				
4/3/2007								7.3	0.079				
4/10/2007	0.076	0.0014		0.37	0.240			7.4	0.120	260.0		0.0309	
4/17/2007								6.8	0.076				
5/1/2007								7.4	0.140				
5/8/2007	0.117	0.0022		0.61	0.481			7.4	0.160	480.0		0.0613	
5/15/2007								7.4	0.200				
5/22/2007								7.2	0.160				
5/29/2007								7.1	0.120				
6/5/2007								7.5	0.079				
6/12/2007	0.063	0.0016		0.11	0.471			7.7	0.091	500.0		0.0875	
6/19/2007								7.0	0.068				
6/26/2007								7.4	0.076				
7/3/2007								7.2	0.051				
7/10/2007	0.064	0.0007		0.03	0.137			7.3	0.088	550.0		0.0692	
7/17/2007								7.6	0.170				
7/24/2007								7.6	0.270				
7/31/2007								7.5	0.060				
8/7/2007								7.5	0.260				
8/14/2007	0.065	0.0010		0.06	0.313			7.3	0.082	600.0		0.0859	
8/21/2007								7.3	0.140				
8/28/2007								7.6	0.061				
9/4/2007								7.6	0.058				
9/11/2007	0.063	0.0012		0.08	0.322			7.7	0.085	550.0		0.0957	
9/18/2007								7.7	0.100				
9/25/2007								7.4	0.110				
10/2/2007								7.3	0.100				
10/9/2007	0.080	0.0014		0.07	0.370			7.1	0.110	600.0		0.0993	
10/16/2007								7.0	0.140				
10/23/2007								7.0	0.160				
10/30/2007								6.9	0.160				
11/6/2007								7.3	0.160				

Appendix Table D.1.1: Water quality at station D-2 from 2005 - 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
11/13/2007	0.161	0.0020		0.19	0.479			7.2	0.120	560.0		0.1060	
11/20/2007								7.3	0.120				
11/27/2007								7.1	0.073				
12/4/2007								7.4	0.048				
12/11/2007	0.034	0.0021		0.10	0.501			7.1	0.045	580.0		0.1010	
12/18/2007								7.3	0.029				
12/28/2007								7.1	0.031				
1/2/2008								7.0	0.028				
1/8/2008	0.031	0.0023		0.58	0.524			6.8	0.031	490.0		0.0750	
1/15/2008								6.7	0.029				
1/22/2008								6.6	0.032				
1/31/2008								6.6	0.035				
2/5/2008								6.6	0.026				
2/12/2008	0.032	0.0032		1.35	0.573			6.6	0.021	500.0		0.0605	
2/19/2008								6.8	0.071				
2/26/2008								6.8	0.270				
3/4/2008								6.7	0.210				
3/11/2008	0.077	0.0016		0.84	0.369			6.8	0.210	240.0		0.0441	
3/18/2008								6.8	0.180				
3/25/2008								6.8	0.140				
4/1/2008								6.9	0.100				
4/8/2008	0.099	0.0018		0.52	0.311			6.8	0.290	310.0		0.0455	
4/15/2008								6.9	0.260				
4/22/2008								6.8	0.180				
4/29/2008								6.9	0.180				
5/6/2008								7.4	0.220				
5/13/2008	0.126	0.0018		0.34	0.463			7.2	0.220	360.0		0.0594	
5/20/2008								7.3	0.240				
5/27/2008								7.6	0.180				
6/3/2008								7.6	0.140				
6/10/2008	0.123	0.0013		0.14	0.350			7.5	0.110	380.0		0.0574	
6/17/2008								7.4	0.110				
6/24/2008								7.6	0.088				
7/1/2008								7.7	0.190				
7/8/2008	0.107	0.0015		0.07	0.322			7.6	0.200	390.0		0.0697	
7/22/2008								7.6	0.099				
7/29/2008								7.7	0.095				
8/5/2008								7.4	0.140				
8/12/2008	0.100	0.0008		0.07	0.205			7.4	0.120	440.0		0.0777	
8/19/2008								7.5	0.130				
8/26/2008								7.4	0.077				
9/2/2008								7.5	0.110				
9/9/2008	0.105	0.0011		0.11	0.230			7.5	0.062	490.0		0.0817	
9/16/2008								7.4	0.070				
9/23/2008								7.3	0.130				
9/30/2008								7.7	0.071				
10/7/2008								7.0	0.092				
10/14/2008	0.091	0.0012		0.14	0.319			7.2	0.078	500.0		0.1030	
10/21/2008								7.2	0.097				
10/28/2008								7.2	0.130				
11/4/2008								7.1	0.140				
11/11/2008	0.111	0.0015		0.14	0.341			7.2	0.110	510.0		0.1030	
11/18/2008								7.0	0.140				
11/25/2008								7.1	0.088				
12/2/2008								7.1	0.032				
12/9/2008	0.041	0.0019		0.08	0.340			7.1	0.050	560.0		0.1000	
12/16/2008								7.0	0.044				
12/23/2008								6.7	0.170				
12/30/2008								6.7	0.290				
1/6/2009								7.1	0.260				
1/13/2009	0.145	0.0007		0.35	0.147			6.8	0.240	290.0		0.0498	
1/19/2009								7.4	0.240				
1/27/2009								6.9	0.180				
2/3/2009								6.8	0.160				
2/10/2009	0.091	0.0018		0.73	0.394			6.9	0.140	380.0		0.0535	
2/17/2009								6.8	0.130				
2/24/2009								6.8	0.230				
3/3/2009								7.0	0.340				
3/10/2009	0.129	0.0013		0.54	0.288			7.1	0.280	310.0		0.0485	
3/17/2009								7.0	0.210				
3/24/2009								7.0	0.170				
3/31/2009								6.9	0.290				
4/7/2009								7.4	0.360				
4/14/2009	0.278	0.0010		0.32	0.181			6.9	0.270	200.0		0.0362	

Appendix Table D.1.1: Water quality at station D-2 from 2005 - 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
4/21/2009								7.0	0.230				
4/28/2009								6.7	0.170				
5/5/2009								7.0	0.200				
5/12/2009	0.159	0.0015		0.36	0.375			7.0	0.270	310.0		0.0529	
5/19/2009								7.2	0.330				
5/26/2009								7.9	0.430				
6/2/2009								7.3	0.280				
6/9/2009	0.129	0.0012		0.16	0.285			7.2	0.150	360.0		0.0659	
6/16/2009								7.3	0.096				
6/23/2009								7.2	0.085				
6/29/2009								7.3	0.140				
7/7/2009								7.3	0.170				
7/14/2009	0.201	0.0009		0.07	0.203			7.3	0.190	390.0		0.0732	
7/21/2009								7.3	0.290				
7/28/2009								7.1	0.100				
8/4/2009								7.0	0.061				
8/11/2009	0.067	0.0008		0.07	0.191			7.2	0.100	400.0		0.0854	
8/18/2009								7.2	0.073				
8/25/2009								7.3	0.088				
8/31/2009								7.3	0.068				
9/8/2009	0.051	0.0006		0.06	0.124			7.1	0.100	430.0		0.0924	
9/14/2009								7.1	0.035				
9/22/2009								7.1	0.015				
9/29/2009								7.1	0.120				
10/6/2009								6.8	0.140				
10/13/2009	0.134	0.0018		0.19	0.357			6.9	0.180	460.0		0.1130	
10/20/2009								7.0	0.170				
10/27/2009								6.9	0.160				
11/3/2009								6.9	0.170				
11/10/2009								7.0	0.180				
11/17/2009								6.8	0.150				
11/24/2009								6.8	0.130				
12/1/2009								6.9	0.120				
12/8/2009	0.089	0.0026		0.16	0.343			6.7	0.120	450.0		0.1060	
12/15/2009								6.6	0.140				
12/22/2009								6.8	0.130				
12/29/2009								6.9	0.100				
Number	59	59	24	59	59	24	24	657	259	59	104	59	24
Minimum	0.026	0.0003	0.0006	0.012	0.0205	0.0003	0.0002	6.6	0.015	165	1	0.022	0.0006
Maximum	0.278	0.0034	0.0155	1.35	0.582	0.008	0.0016	7.9	0.430	757	3	0.1150	0.013
Mean	0.0851	0.0014	0.0017	0.255	0.310	0.0036	0.0006	7.3	0.115	479	1	0.0764	0.004
Median	0.0716	0.0015	0.0010	0.140	0.322	0.0031	0.0006	7.3	0.100	500	1	0.0777	0.003
10th Perc.	0.0334	0.0006	0.0007	0.056	0.134	0.0015	0.0002	7.0	0.034	306	1	0.0464	0.001

a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.1.2: Water quality at station D-3 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
1/4/2005								6.9	0.066		< 1		
1/11/2005	0.201	< 0.0003	< 0.001	0.034	0.0016	0.0006	< 0.0006	6.9	0.12	98.5	< 1	0.008	0.002
1/18/2005								7.6	0.085		< 1		
1/25/2005								6.9	0.092		< 1		
2/1/2005								7.2	0.13		< 1		
2/8/2005								7.5	0.087		< 1		
2/15/2005	0.195	< 0.0003	< 0.001	0.034	0.0041	0.0005	< 0.0006	7.1	0.13	92.4	< 1	0.018	0.001
2/22/2005								7.4	0.15		< 1		
3/1/2005								7.2	0.13		< 1		
3/8/2005								7.3	0.16		< 1		
3/15/2005	0.169	< 0.0003	< 0.001	0.033	0.0029	< 0.0003	< 0.0006	7.4	0.12	128	< 1	0.024	0.001
3/22/2005								7.5	0.15		< 1		
3/29/2005								7.7	0.12		< 1		
4/5/2005								7.6	0.083		< 1		
4/12/2005	0.267	< 0.0003	< 0.001	0.056	0.0045	0.0004	< 0.0006	7.5	0.07	42.1	< 1	< 0.005	< 0.001
4/19/2005								7.5	0.098		< 1		
4/26/2005								7.6	0.14		< 1		
5/3/2005								7.5	0.11		< 1		
5/10/2005	0.18	< 0.0003	< 0.001	0.03	0.0049	< 0.0003	< 0.0006	7.3	0.17	81.1	< 1	0.006	< 0.001
5/17/2005								7.4	0.09		< 1		
5/24/2005								7.2	0.19		< 1		
5/31/2005								7.2	0.16		< 1		
6/7/2005								7.4	0.21		< 1		
6/14/2005	0.156	0.0003	< 0.001	0.084	0.0244	0.0008	< 0.0006	7.3	0.18	85.6	< 1	0.008	< 0.001
6/21/2005								7.4	0.2		< 1		
6/28/2005								7.1	0.17		< 1		
10/4/2005								7.2	0.14		< 1		
10/11/2005	0.168	< 0.0003	< 0.001	0.002	0.005	0.0011	< 0.0006	7.3	0.14	121	< 1	0.013	0.006
10/18/2005								7.2	0.16		< 1		
10/25/2005								7.2	0.16		< 1		
11/1/2005								6.8	0.2		< 1		
11/8/2005								7.3	0.093		< 1		
11/15/2005	0.128	< 0.0003	< 0.001	0.048	0.0031	0.0007	< 0.0006	6.6	0.071	109	< 1	0.014	0.002
11/22/2005								6.8	0.087		< 1		
11/29/2005								7.2	0.11		1		
12/6/2005								7.5	0.081		< 1		
12/13/2005	0.129	< 0.0003	< 0.001	0.021	0.0016	0.0009	< 0.0006	7.6	0.068	97.2	< 1	0.01	0.001
12/20/2005								7.2	0.073		< 1		
12/29/2005								7.4	0.048		< 1		
1/3/2006								7.6	0.087		< 2		
1/10/2006	0.143	< 0.0003	0.001	< 0.02	0.0015	< 0.001	< 0.0002	7.2	0.1	110	< 2	0.0155	< 0.001
1/17/2006								7.1	0.1		< 2		
1/24/2006								7.3	0.109		2		
1/31/2006								7.4	0.1		< 2		
2/7/2006								7.5	0.098		< 2		
2/14/2006	0.147	< 0.0003	< 0.0008	< 0.02	0.0009	0.001	< 0.0002	7.5	0.11	120	< 2	0.0352	0.002
2/21/2006								7.4	0.097		< 2		
2/28/2006								7.5	0.1		< 2		
3/7/2006								7.3	0.11		< 2		
3/14/2006	0.16	< 0.0003	0.0029	0.11	0.0837	0.001	< 0.0002	7.5	0.095	130	< 2	0.0162	0.006
3/21/2006								7.5	0.081		< 2		
3/28/2006								7.3	0.088		< 2		
4/4/2006								7.5	0.076		< 1		
4/11/2006	0.474	0.00007	0.0006	0.05	0.00535	0.0008	< 0.0005	7.6	0.032	47	< 1	0.00135	0.0012
4/18/2006								7.2	0.14		< 1		
4/24/2006								7.6	0.16		< 1		
5/2/2006								7.3	0.12		< 1		
5/9/2006	0.193	0.00015	0.0005	0.03	0.00459	< 0.0007	0.00059	7.4	0.13	86	1	0.00611	0.004
5/16/2006								7.4	0.14		< 1		
5/23/2006								7.5	0.1		< 1		
5/30/2006								7.3	0.14		< 1		
6/6/2006								7.3	0.14		< 1		
6/13/2006	0.154	0.00024	0.001	0.07	0.0212	< 0.0007	0.00007	7.4	0.13	61	< 1	0.00611	0.0057
6/20/2006								7.4	0.14		< 1		
6/27/2006								7.4	0.15		< 1		
7/4/2006								7.5	0.19		< 1		
7/11/2006	0.144	0.001	0.0023	0.61	0.0777	< 0.002	< 0.0005	7.3	0.18	42	1	0.0065	0.004
8/8/2006	0.204	< 0.0005	0.0008	0.21	0.043	< 0.002	< 0.0005	7.5	0.21	77	< 1	0.0095	0.001
8/22/2006								7.5	0.18		1		
8/29/2006								7.6	0.22		3		
9/26/2006								7.3	0.149		< 1		
10/3/2006								7.3	0.15		< 1		
10/10/2006	0.172	< 0.0005	0.0007	< 0.02	0.003	< 0.002	< 0.0005	7.2	0.17	99	< 1	0.0116	0.005
10/17/2006								7.5	0.1		< 1		

Appendix Table D.1.2: Water quality at station D-3 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
10/24/2006								7.6	0.12		< 1		
10/31/2006								7.3	0.11		< 1		
11/7/2006								7.4	0.12		< 1		
11/14/2006	0.192	< 0.0005	0.0007	< 0.02	< 0.002	< 0.002	< 0.0005	7.5	0.098	91	< 1	0.0159	< 0.001
11/21/2006								7.5	0.11		< 1		
11/28/2006								7.6	0.11		< 1		
12/5/2006								7.6	0.091		< 1		
12/12/2006	0.211	< 0.0005	0.0006	< 0.02	< 0.002	< 0.002	0.0013	7.5	0.11	85	< 1	0.0071	< 0.001
12/19/2006								7.4	0.099		< 1		
12/28/2006								7.2	0.088		< 1		
1/9/2007	0.259	< 0.0005		0.03	< 0.002			7.5	0.100	67.0		0.0036	
2/13/2007	0.160	< 0.0005		0.03	0.004			7.2	0.098	95.0		0.0119	
3/13/2007	0.185	< 0.0005		0.06	0.004			7.3	0.089	92.0		0.0221	
4/10/2007	0.196	< 0.0005		0.03	0.002			7.5	0.065	48.0		0.0016	
5/8/2007	0.239	< 0.0005		< 0.02	0.004			7.4	0.150	110.0		0.0095	
6/12/2007	0.179	< 0.0005		0.24	0.036			7.4	0.200	67.0		0.0100	
10/9/2007	0.200	< 0.0005		< 0.02	< 0.002			6.6	0.140	110.0		0.0125	
11/13/2007	0.202	< 0.0005		< 0.02	< 0.002			7.1	0.100	100.0		0.0161	
12/11/2007	0.144	< 0.0005		< 0.02	< 0.002			7.2	0.080	100.0		0.0185	
1/8/2008	0.207	< 0.0005		0.08	0.010			7.2	0.085	81.0		0.0046	
2/12/2008	0.230	< 0.0005		0.05	0.002			6.9	0.097	74.0		0.0034	
3/11/2008	0.171	< 0.0005		0.02	< 0.002			7.1	0.085	94.0		0.0082	
4/8/2008	0.314	< 0.0005		0.17	0.046			7.0	0.094	41.0		0.0021	
5/13/2008	0.156	< 0.0005		0.03	0.003			7.2	0.040	37.0		0.0030	
6/10/2008	0.250	< 0.0005		0.03	0.005			7.2	0.160	63.0		0.0050	
7/8/2008	0.170	0.0007		0.30	0.065			7.1	0.150	33.0		0.0036	
8/12/2008	0.297	< 0.0005		0.11	0.016			7.3	0.180	58.0		0.0074	
9/9/2008	0.217	0.0006		0.31	0.051			7.3	0.160	52.0		0.0098	
10/14/2008	0.206	< 0.0005		0.33	0.038			7.3	0.160	58.0		0.0160	
11/11/2008	0.216	< 0.0005		0.18	0.015			7.1	0.160	78.0		0.0202	
12/9/2008	0.195	< 0.0005		0.04	0.005			7.3	0.110	96.0		0.0268	
1/13/2009	0.295	< 0.0005		0.08	0.007			6.8	0.110	78.0		0.0047	
2/10/2009	0.263	< 0.0005		0.08	0.012			6.8	0.110	100.0		0.0166	
3/10/2009	0.233	< 0.0005		0.04	0.016			7.1	0.120	110.0		0.0271	
4/14/2009	0.258	< 0.0005		0.11	0.014			7.0	0.089	37.0		0.0014	
5/12/2009	0.143	< 0.0005		0.09	0.011			7.3	0.096	34.0		0.0024	
6/9/2009	0.229	< 0.0005		0.09	0.011			7.3	0.120	53.0		0.0053	
7/14/2009	0.177	0.0008		1.07	0.101			7.3	0.150	32.0		0.0033	
8/11/2009	0.281	< 0.0005		0.42	0.043			7.2	0.220	54.0		0.0097	
9/8/2009								7.3	0.510				
9/29/2009	0.256	< 0.0005		0.05	0.010			7.2		53.0		0.0150	
10/13/2009	0.234	< 0.0005		0.06	0.008			7.0	0.140	80.0		0.0198	
11/10/2009	0.283	< 0.0005		0.05	0.004			7.2	0.140	70.0		0.0089	
12/8/2009	0.277	< 0.0005		0.05	0.008			6.9	0.140	78.0		0.0103	
Number	53	53	20	53	53	20	20	538	117	53	84	53	20
Minimum	0.128	0.00007	0.0005	0.002	0.0009	0.0003	0.00007	6.6	0.032	32	1	0.00135	0.001
Maximum	0.474	0.001	0.0029	1.07	0.101	0.002	0.0013	7.8	0.51	130	3	0.0352	0.006
Mean	0.210	0.0005	0.0010	0.11	0.016	0.001	0.0005	7.3	0.126	78.0	1	0.0109	0.002
Median	0.200	0.0005	0.0010	0.05	0.005	0.0009	0.0006	7.3	0.120	80	1	0.0095	0.001
10th Perc.	0.145	0.0003	0.0006	0.02	0.002	0.0004	0.0002	7.0	0.081	41.2	1	0.0031	0.001

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.1.3: Water quality at station D-9 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/4/2005	0.0155	0.0216	7.25	2.75	6.6	0.007	577	0.009
4/13/2005	0.0107	0.0098	2.79	1.65	6.5	< 0.005	346	0.006
7/5/2005	0.0158	0.0303	13.68	5.64	6.0	0.02	1011	0.008
10/4/2005	0.0218	0.0256	13.75	4.78	6.6	0.031	1122	0.014
1/3/2006	0.016	0.0271	15.8	4.43	6.8	0.023	730	0.0174
4/12/2006	0.0089	0.00588	1.69	0.84	6.9	0.006	150	0.00265
7/4/2006	0.022	0.0332	14.5	5.42	6.5	0.015	940	0.013
10/3/2006	0.021	0.0216	8.32	3.96	6.8	0.013	760	0.009
1/2/2007	0.015	0.0170	5.88	2.95	7.1	0.007	540	0.0083
4/3/2007	0.011	0.0084	3.02	1.45	6.8	0.008	220	0.0038
7/3/2007	0.022	0.0344	8.24	6.85	6.2	0.013	960	0.0068
10/2/2007	0.024	0.0245	9.04	4.70	6.5	0.012	950	0.0072
1/14/2008	0.013	0.0108	3.38	2.08	6.8	0.008	440	0.0064
4/29/2008	0.019	0.0081	1.69	1.59	6.7	0.007	320	0.0042
7/1/2008	0.020	0.0191	5.38	3.82	6.7	0.009	650	0.0066
10/7/2008	0.022	0.0221	9.86	4.44	6.4	0.014	800	0.0076
1/6/2009	0.017	0.0128	4.67	3.35	7.1	< 0.005	560	0.0069
5/5/2009	0.021	0.0091	2.41	2.02	6.6	0.009	450	0.0058
7/7/2009	0.020	0.0176	5.75	3.91	6.5	0.009	760	0.0071
10/6/2009	0.022	0.0162	7.25	4.13	6.5	0.006	790	0.0070
Number	20	20	20	20	20	20	20	20
Minimum	0.0089	0.00588	1.69	0.84	6	0.005	150	0.00265
Maximum	0.024	0.0344	15.8	6.85	7.1	0.031	1122	0.0174
Mean	0.0179	0.0188	7.22	3.538	6.6	0.011	653.8	0.0078
Median	0.0195	0.0184	6.57	3.865	6.6	0.009	690.0	0.0071
10th Perc.	0.0110	0.0084	2.34	1.576	6.4	0.006	310.0	0.0042

Appendix Table D.1.4: Water quality at station D-16 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/4/2005	0.0238	0.0025	0.111	0.927	6.1	0.017	237	< 0.005
4/13/2005	0.029	0.0034	0.072	1.160	5.9	0.016	223	< 0.005
7/5/2005	0.051	0.0157	12.74	6.060	6.3	0.073	363	< 0.005
10/4/2005	0.0323	0.0024	5.53	2.690	6.1	0.050	354	< 0.005
1/3/2006	0.027	0.0019	0.21	1.260	6.2	0.009	310	< 0.0002
4/12/2006	0.0265	0.00543	0.14	1.420	5.8	0.026	180	0.00014
7/4/2006	0.033	0.0099	24	7.000	6.4	0.093	300	0.0007
10/3/2006	0.024	0.0016	3.43	1.830	6.3	0.023	260	< 0.0005
1/2/2007	0.015	0.0015	0.20	0.813	6.3	0.009	160	< 0.0005
4/3/2007	0.021	0.0037	0.18	1.680	6.2	0.019	150	< 0.0005
7/3/2007	0.041	0.0091	15.70	6.440	6.1	0.039	420	0.0009
10/3/2007	0.041	0.0037	17.30	3.900	6.3	0.056	350	0.0006
1/14/2008	0.021	0.0026	0.16	1.020	6.0	0.014	190	< 0.0005
4/29/2008	0.023	0.0019	0.13	0.566	6.1	0.011	120	< 0.0005
7/1/2008	0.026	0.0059	11.30	5.200	6.3	0.024	220	< 0.0005
10/7/2008	0.033	0.0040	13.80	3.860	6.2	0.043	230	< 0.0005
1/6/2009	0.021	0.0012	0.28	1.130	6.5	0.016	220	< 0.0005
5/5/2009	0.023	0.0013	0.20	0.559	6.1	0.011	170	< 0.0005
7/7/2009	0.030	0.0053	16.60	5.140	6.5	0.037	240	0.0005
10/6/2009	0.029	0.0018	3.53	2.510	6.5	0.030	290	< 0.0005
Number	20	20	20	20	20	20	20	20
Minimum	0.015	0.0012	0.072	0.559	5.8	0.009	120	0.00014
Maximum	0.051	0.0157	24	7	6.5	0.093	420	0.005
Mean	0.0285	0.0042	6.28	2.758	6.2	0.0308	249.4	0.00140
Median	0.0268	0.0030	1.86	1.755	6.2	0.0235	233.5	0.00050
10th Perc.	0.021	0.0015	0.13	0.788	6.0	0.0108	159.0	0.00047

Appendix Table D.1.5a: Summary of Annual Plant Operations and Discharge at Denison TMA-1, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	114	87	84	97	135
Maximum Daily Plant Flow (L/s @ D-1)	197	219	219	403	227
Minimum Daily Plant Flow (L/s @ D-1)	0	0	0	0	0
Monthly Average Daily Plant Flow (L/s @ D-1)	50	61	47	117	68
Total Volume Treated (ML)	494	462	344	977	796
Barium Chloride Consumption					
Total (kg/month)	634	580	487	1214	1205
Monthly Average (mg/L)	1.3	1.3	1.42	1.24	1.51
Caustic Soda Consumption					
Total (kg/month)	152	127	0.00	1008.00	1620.00
Monthly Average (mg/L)	0.31	0.27	0.00	1.03	2.03
DAM 10 SEEPAGE					
Discharge Days	365	365	365	366	365
Max Daily Seepage Flow (L/s @ D-13,D-14,D-19)	24	24	35.00	22	20
Min Daily Seepage Flow (L/s @ D-13,D-14,D-19)	19	18	19.00	20	15
Monthly Seepage Flow (L/s @ D-13,D-14,D-19)	21	21	23.00	21	19
Total Volume (ML)	660	670	717.00	663	536
Site Total Including ETP Operations (ML)	-	-	1061.00	1640	1392
*EFFLUENT					
Discharge Days	365	365	365	366	365
Maximum Daily Discharge Flow (L/s @ D-2)	173	194	194	367	314
Minimum Daily Discharge Flow (L/s @ D-2)	1	1	1	2	2
Monthly Average Daily Discharge Flow (L/s @ D-2)	23	24	20	44	36
Total Annual Volume Discharged (ML)	715	744	637	1404	1144

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.1.5b: Summary of Annual Plant Operations and Discharge at Denison TMA-2, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	288	315	302	366	357
Maximum Daily Plant Flow (L/s @ D-3)	161	75	78	199	81
Minimum Daily Plant Flow (L/s @ D-3)	0	0	0	1	1
Monthly Average Daily Plant Flow (L/s @ D-3)	9.0	10	7	11	8
Total Volume Treated (ML)	225	280	191	337	248
Barium Chloride Consumption					
Total (kg/month)	442	564	479	547	470
Monthly Average (mg/L)	2.0	2.0	3.00	2.00	2.00
Caustic Soda Consumption					
Total (kg/month)	0	0	0.00	0.00	0.00
Monthly Average (mg/L)	0	0	0.00	0.00	0.00
*EFFLUENT					
Discharge Days	268	308	267	366	352
Maximum Daily Discharge Flow (L/s @ D-3)	161	75	78	199	81
Minimum Daily Discharge Flow (L/s @ D-3)	0	0	0	1	1
Monthly Average Daily Discharge Flow (L/s @ D-3)	9.7	10	8	11	8
Total Annual Volume Discharged (ML)	224	279	182	337	249

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.1.6: Mean annual discharge and seepage loadings from Denison TMA, 2005 - 2009.

Station		Drainage Type	Mean Annual Discharge (m ³)		Sulphate (kg/yr)	Radium (MBq/yr)	Uranium (kg/yr)	Barium (kg/yr)	Cobalt (kg/yr)	Iron (kg/yr)	Manganese (kg/yr)
Serpent River Drainage	D-4	Outlet of Dunlop Lake	46,644,865	Mean	250,343	117	12	648	11	1,646	539
				S.D.	20,235	0.0	5	35	2	806	154
	D-6	Outlet of Cinder Lake	1,767,370	Mean	80,357	10	0.5	29	0.6	466	377
				S.D.	38,540	3	0.0	3	0.1	136	131
	D-2	ETP Discharge	801,628	Mean	384,970	144	61	94	1.5	332	303
				S.D.	115,895	105	20	60	0.7	247	138
	D-3	Seepage from TMA 2	255,905	Mean	19,411	26	2.7	53	0.1	17	3.4
				S.D.	3,901	5.4	0.3	16	0.0	12	2.8
	D-5	Serpent River d/s of Denison	50,496,276	Mean	1,253,233	4,557	112	4,659	12	2,959	1,465
				S.D.	332,793	1,013	20	1,023	1.5	288	60
	Q-09	Quirke Lake Intlet	67,185,723	Mean	5,684,136	5,718	312	5,909	37		
				S.D.	926,920	866	66	931	4.7		
Quirke Lake Drainage	D-9	Seepage from Dam 17	109,288	Mean	52,368	1.0	0.7	1.7	1.5	536	278
				S.D.	3,898	0.2	0.1	0.3	0.2	134	12
	D-16	Seepage from Dam 9	42,463	Mean	8,222	0.9	0.0	1.1	0.1	88	66
				S.D.	4,180	0.5	0.0	0.6	0.1	31	31
	SR-01	Outlet of Quirke Lake	136,511,119	Mean	7,792,055	4,205	218	5,477	31		
				S.D.	1,335,662	665	55	231	6		

MBq/yr = Million Bequerels per year

Appendix Table D.1.7: Summary of seasonal trends for station D-2, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	0.607143	-0.54554	0.558581	-0.535714286	-0.82143	0.5	-0.75	-0.535714
	Sig. (2-tailed)	0.148231	0.205282	0.192453	0.215217456	0.023449	0.25317	0.0521814	0.2152175
	N	7	7	7	7	7	7	7	7
February	Correlation Coefficient	0.535714	0.035714	0.821429	-0.285714286	-0.71429	0.71428571	-0.678571	-0.785714
	Sig. (2-tailed)	0.215217	0.939408	0.023449	0.534509229	0.071344	0.07134356	0.0937503	0.0362385
	N	7	7	7	7	7	7	7	7
March	Correlation Coefficient	0.892857	-0.45047	0.5	-0.642857143	-0.85714	0.42857143	-0.738769	-0.535714
	Sig. (2-tailed)	0.006807	0.310429	0.25317	0.119392373	0.013697	0.33736831	0.0578585	0.2152175
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	0.178571	-0.07143	0.571429	0.321428571	-0.35714	0.46428571	0.1785714	0.5585812
	Sig. (2-tailed)	0.701658	0.879048	0.180202	0.482072038	0.431611	0.29393411	0.7016579	0.1924525
	N	7	7	7	7	7	7	7	7
May	Correlation Coefficient	0.392857	-0.81084	0.75	-0.714285714	-0.60714	-0.21428571	-0.928571	-0.357143
	Sig. (2-tailed)	0.383317	0.026916	0.052181	0.071343561	0.148231	0.64451158	0.0025195	0.4316114
	N	7	7	7	7	7	7	7	7
June	Correlation Coefficient	0.142857	-0.42857	0.464286	-0.428571429	-0.64286	-0.17857143	-0.75	-0.178571
	Sig. (2-tailed)	0.759945	0.337368	0.293934	0.337368311	0.119392	0.70165794	0.0521814	0.7016579
	N	7	7	7	7	7	7	7	7
July	Correlation Coefficient	0.25	-0.27028	0.074125	-0.464285714	-0.14286	-0.28571429	-0.738769	0.25
	Sig. (2-tailed)	0.588724	0.557731	0.874507	0.293934108	0.759945	0.53450923	0.0578585	0.5887244
	N	7	7	7	7	7	7	7	7
August	Correlation Coefficient	-0.28571	-0.41443	-0.32733	-0.428571429	-0.45047	-0.57142857	-0.75	0.6785714
	Sig. (2-tailed)	0.534509	0.355269	0.473597	0.337368311	0.310429	0.18020199	0.0521814	0.0937503
	N	7	7	7	7	7	7	7	7
September	Correlation Coefficient	0.107143	-0.09009	0.054056	-0.178571429	-0.21429	-0.85714286	-0.714286	-0.678571
	Sig. (2-tailed)	0.819151	0.847672	0.908365	0.701657943	0.644512	0.01369733	0.0713436	0.0937503
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	0.450469	-0.14286	0.428571	-0.392857143	-0.71429	-0.46428571	-0.821429	-0.5766
	Sig. (2-tailed)	0.310429	0.759945	0.337368	0.38331687	0.071344	0.29393411	0.0234488	0.1753818
	N	7	7	7	7	7	7	7	7
November	Correlation Coefficient	0.657143	-0.17393	0.314286	-0.6	-0.67857	-0.42857143	-0.942857	-0.657143
	Sig. (2-tailed)	0.156175	0.741734	0.544093	0.208	0.09375	0.33736831	0.0048047	0.1561749
	N	6	6	6	6	7	7	6	6
December	Correlation Coefficient	-0.14286	0.714286	-0.21429	0.107142857	-0.82143	-0.07142857	-0.642857	0.6071429
	Sig. (2-tailed)	0.759945	0.071344	0.644512	0.819150856	0.023449	0.87904819	0.1193924	0.1482312
	N	7	7	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

Appendix Table D.1.8: Summary of seasonal trends for station D-3, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	0.75	.	0.018019	0.28571429	-0.714286	-0.10714286	-0.75	-0.842041
	Sig. (2-tailed)	0.052181	.	0.969415	0.53450923	0.071344	0.819150856	0.0521814	0.01746
	N	7	7	7	7	7	7	7	7
February	Correlation Coefficient	0.702731	.	0.214286	-0.14285714	-0.678571	-0.42857143	-0.25	-0.571429
	Sig. (2-tailed)	0.078237	.	0.644512	0.7599453	0.09375	0.337368311	0.58872445	0.180202
	N	7	7	7	7	7	7	7	7
March	Correlation Coefficient	0.678571	.	-0.357143	-0.21428571	-0.75	-0.28571429	-0.5	-0.214286
	Sig. (2-tailed)	0.09375	.	0.431611	0.64451158	0.052181	0.534509229	0.25317	0.644512
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	0.535714	-0.612372	-0.142857	0	-0.321429	0.142857143	-0.8571429	-0.612372
	Sig. (2-tailed)	0.215217	0.143811	0.759945	1	0.482072	0.7599453	0.01369733	0.143811
	N	7	7	7	7	7	7	7	7
May	Correlation Coefficient	0.535714	-0.612372	-0.142857	0	-0.321429	0.142857143	-0.8571429	-0.612372
	Sig. (2-tailed)	0.215217	0.143811	0.759945	1	0.482072	0.7599453	0.01369733	0.143811
	N	7	7	7	7	7	7	7	7
June	Correlation Coefficient	0.607143	.	0.535714	0.28571429	-0.678571	0.428571429	-0.5357143	-0.178571
	Sig. (2-tailed)	0.148231	.	0.215217	0.53450923	0.09375	0.337368311	0.21521746	0.701658
	N	7	7	7	7	7	7	7	7
July	Correlation Coefficient	-0.1	0.666886	0.9	0.9	-0.3	0.666885929	-1	-0.872082
	Sig. (2-tailed)	0.872889	0.218894	0.037386	0.03738607	0.623838	0.218893981	0.000001	0.053854
	N	5	5	5	5	5	5	5	5
August	Correlation Coefficient	0.9	-0.353553	0	-0.10259784	-0.7	0	-0.4	-0.1
	Sig. (2-tailed)	0.037386	0.559404	1	0.86959792	0.18812	1	0.50463158	0.872889
	N	5	5	5	5	5	5	5	5
September	Correlation Coefficient					-0.7	0.359092423		
	Sig. (2-tailed)					0.18812	0.552814747		
	N					5	5		
October	Correlation Coefficient	0.714286	.	0.378394	0.42857143	-0.678571	0.540562478	-0.3928571	0.892857
	Sig. (2-tailed)	0.071344	.	0.402602	0.33736831	0.09375	0.210289253	0.38331687	0.006807
	N	7	7	7	7	7	7	7	7
November	Correlation Coefficient	0.857143	.	0.090094	0.0727393	-0.558581	0.285714286	-0.5225437	0.234244
	Sig. (2-tailed)	0.013697	.	0.847672	0.87684036	0.192453	0.534509229	0.22887788	0.613155
	N	7	7	7	7	7	7	7	7
December	Correlation Coefficient	0.321429	.	-0.090094	0.30631874	-0.75	0.392857143	0.28571429	0.785714
	Sig. (2-tailed)	0.482072	.	0.847672	0.50402701	0.052181	0.38331687	0.53450923	0.036238
	N	7	7	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

Appendix Table D.1.9: Summary of seasonal trends for station D-9, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.60714	-0.92857	-0.85714	-0.57142857	0.844357	-0.72074997	-0.78571	-0.85714
	Sig. (2-tailed)	0.148231	0.002519	0.013697	0.180201989	0.016849	0.067634995	0.036238	0.013697
	N	7	7	7	7	7	7	7	7
April/May	Correlation Coefficient	0.774806	-0.43245	-0.25226	0.607142857	-0.03706	0.926561646	0.5	0.222718
	Sig. (2-tailed)	0.040769	0.332527	0.585241	0.148231161	0.937124	0.002697476	0.25317	0.63121
	N	7	7	7	7	7	7	7	7
July	Correlation Coefficient	0.581914	-0.64286	-0.82143	-0.42857143	0.738769	-0.95499371	-0.39286	-0.32143
	Sig. (2-tailed)	0.170495	0.119392	0.023449	0.337368311	0.057858	0.000805535	0.383317	0.482072
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	0.846881	-0.85714	-0.39286	0.25	-0.21822	-0.46428571	0	-0.68471
	Sig. (2-tailed)	0.016197	0.013697	0.383317	0.588724448	0.638299	0.293934108	1	0.089666
	N	7	7	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where p<0.05.

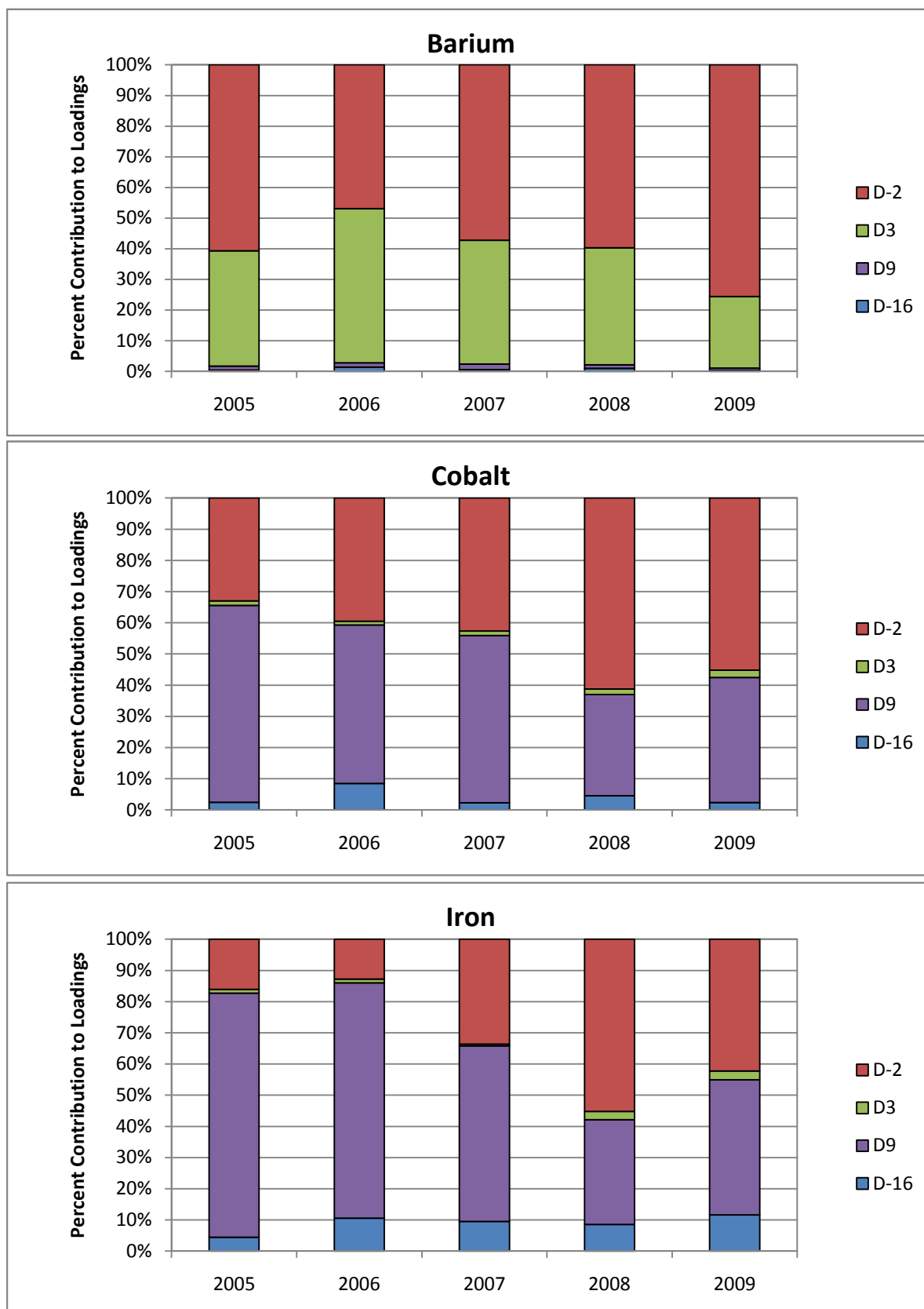
Appendix Table D.1.10: Summary of seasonal trends for station D-16, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate
January	Correlation Coefficient	-0.84688	-0.25	0.107143	-0.321428571	0.363696	-0.66669372	-0.75
	Sig. (2-tailed)	0.016197	0.588724	0.819151	0.482072038	0.422582	0.10192046	0.052181
	N	7	7	7	7	7	7	7
April/May	Correlation Coefficient	-0.16217	-0.89286	0.285714	-0.75	0.846881	-0.85468674	-0.28571
	Sig. (2-tailed)	0.7283	0.006807	0.534509	0.0521814	0.016197	0.014273916	0.534509
	N	7	7	7	7	7	7	7
July	Correlation Coefficient	-0.32143	-0.78571	0.357143	0.357142857	0.672838	-0.59461873	-0.42857
	Sig. (2-tailed)	0.482072	0.036238	0.431611	0.431611352	0.097649	0.159089994	0.337368
	N	7	7	7	7	7	7	7
October	Correlation Coefficient	0.25	-0.35714	0.392857	0.428571429	0.630062	-0.14285714	-0.10714
	Sig. (2-tailed)	0.588724	0.431611	0.383317	0.337368311	0.12936	0.7599453	0.819151
	N	7	7	7	7	7	7	7

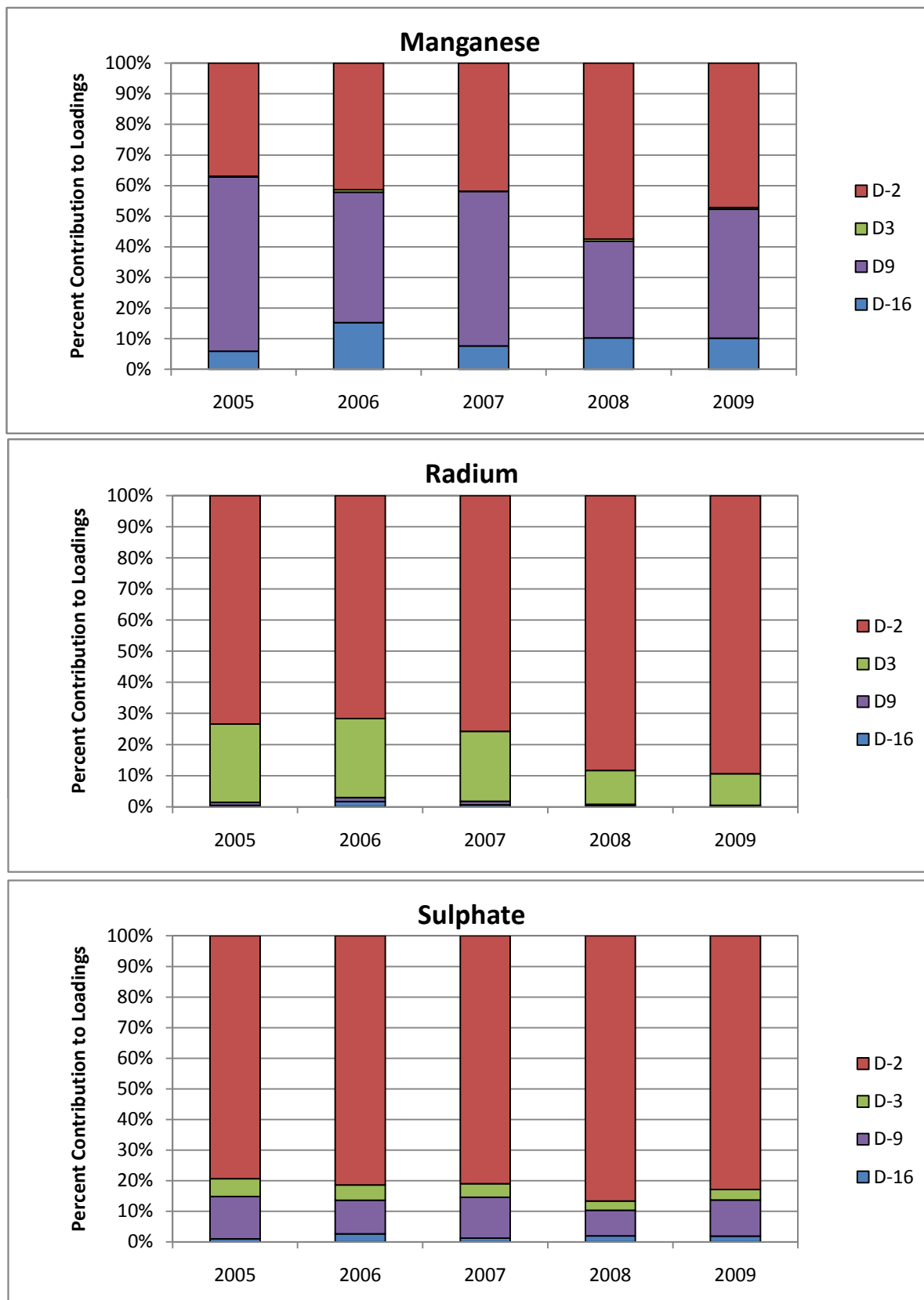
Note: p-values for $n < 10$ where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

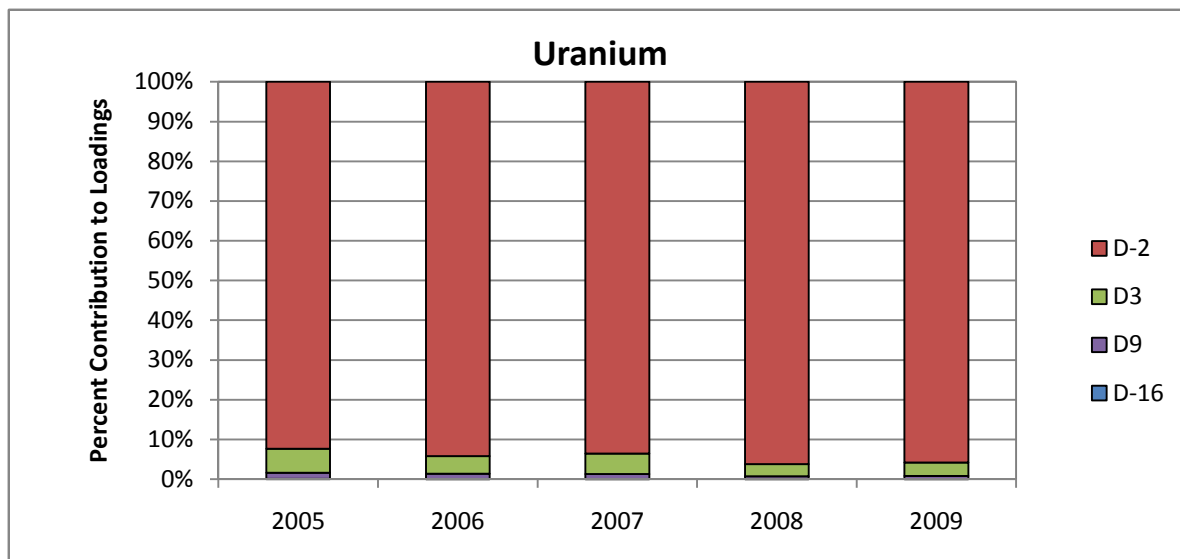
 Significant trend where $p < 0.05$.



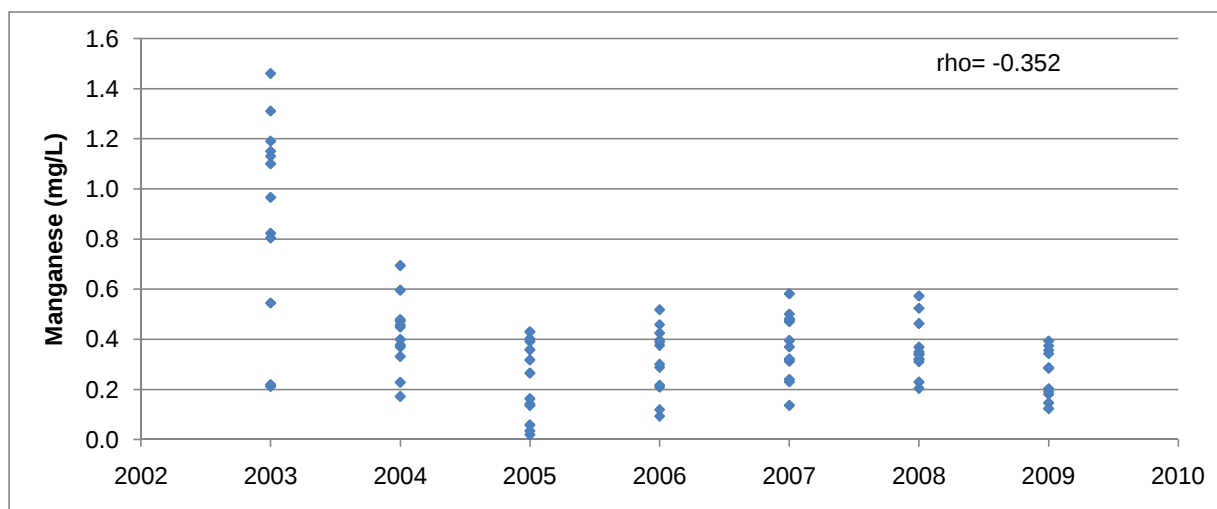
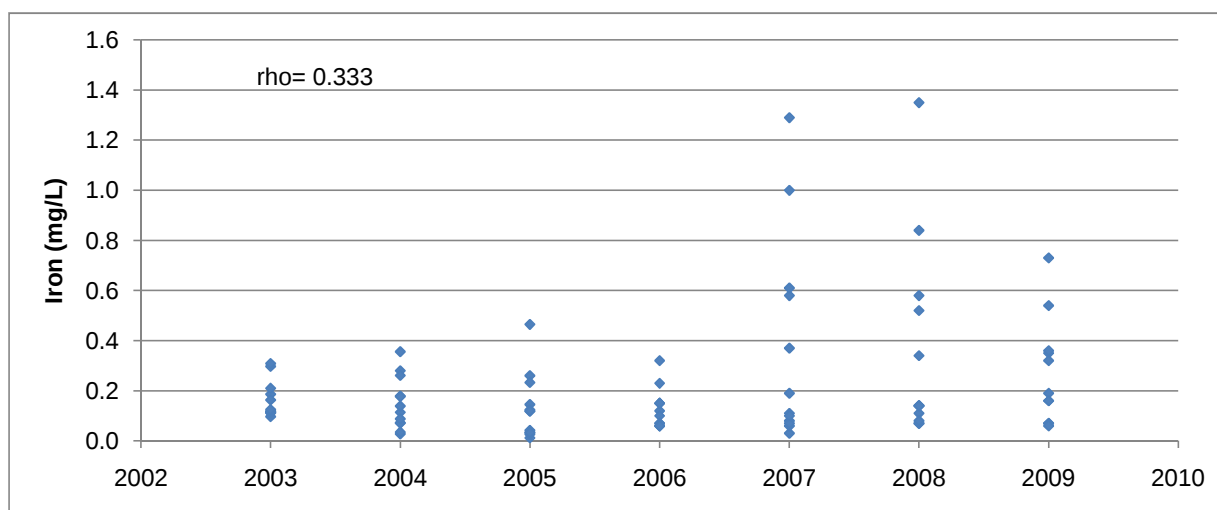
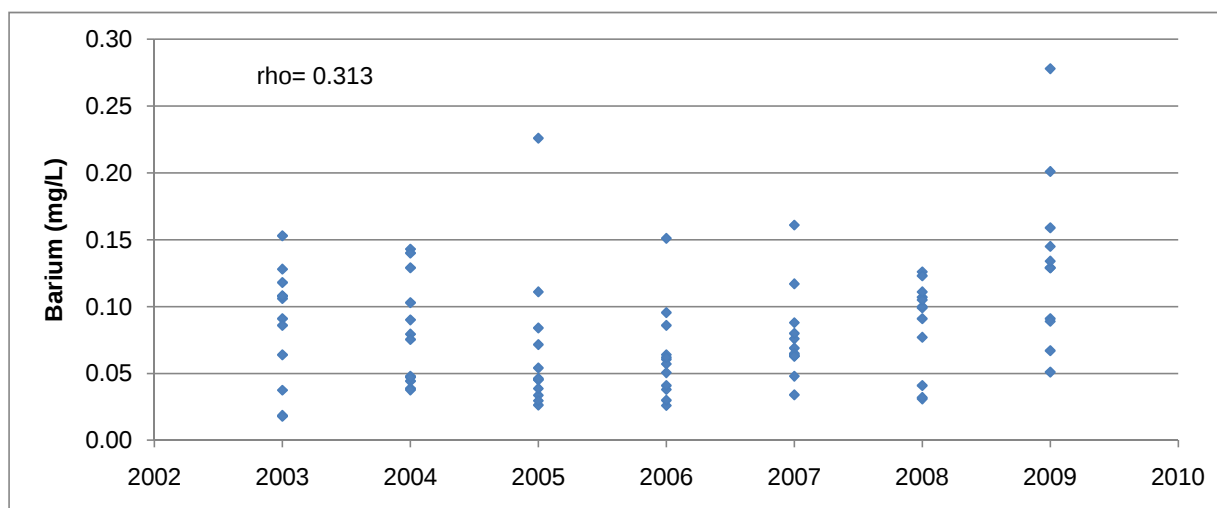
Appendix Figure D.1.1: Percent contribution to loads from Denison TMA discharge points.



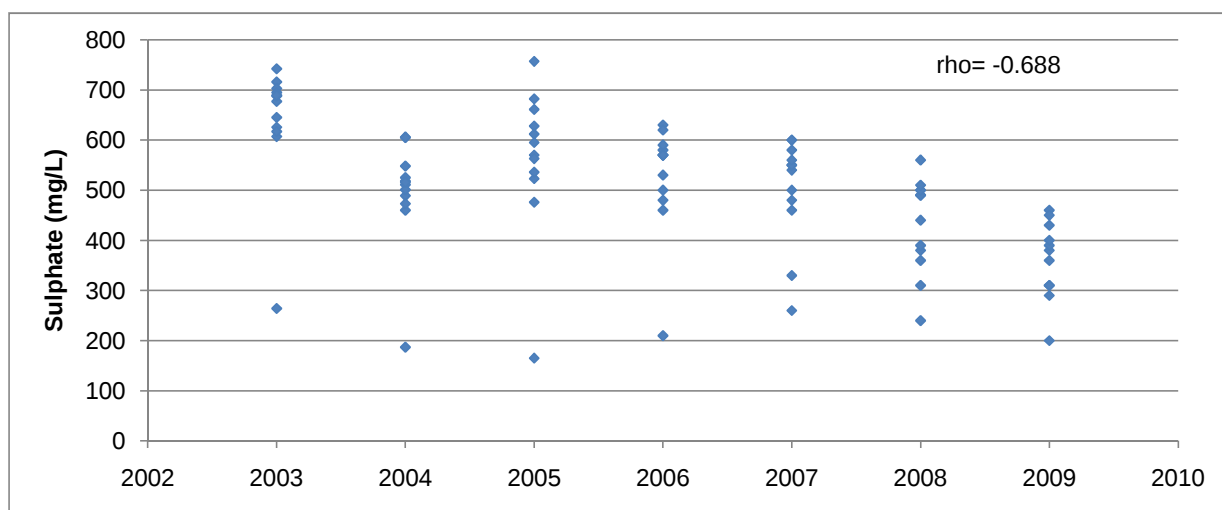
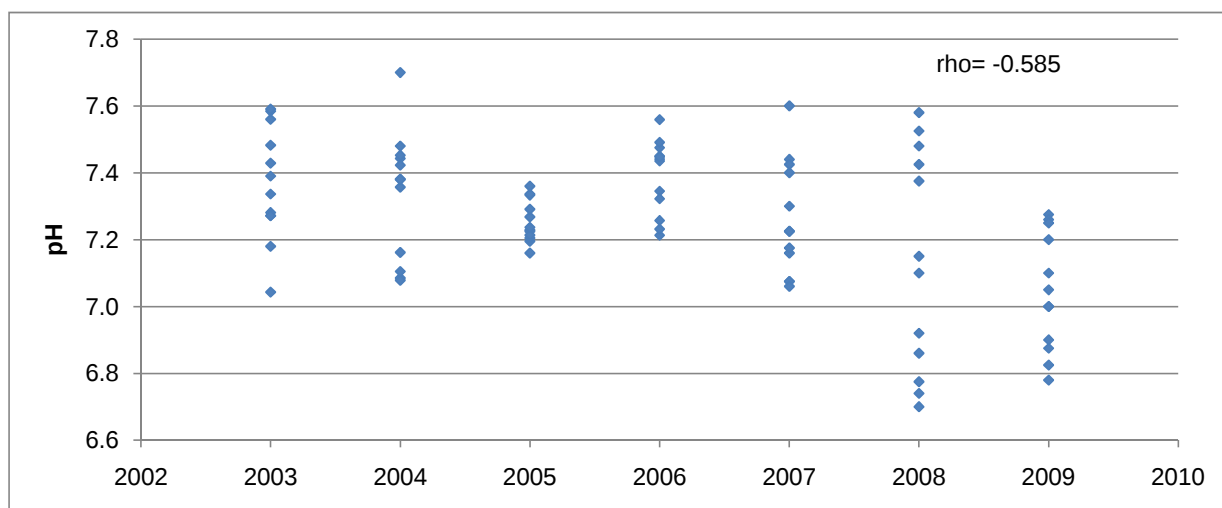
Appendix Figure D.1.1: Percent contribution to loads from Denison TMA discharge points.



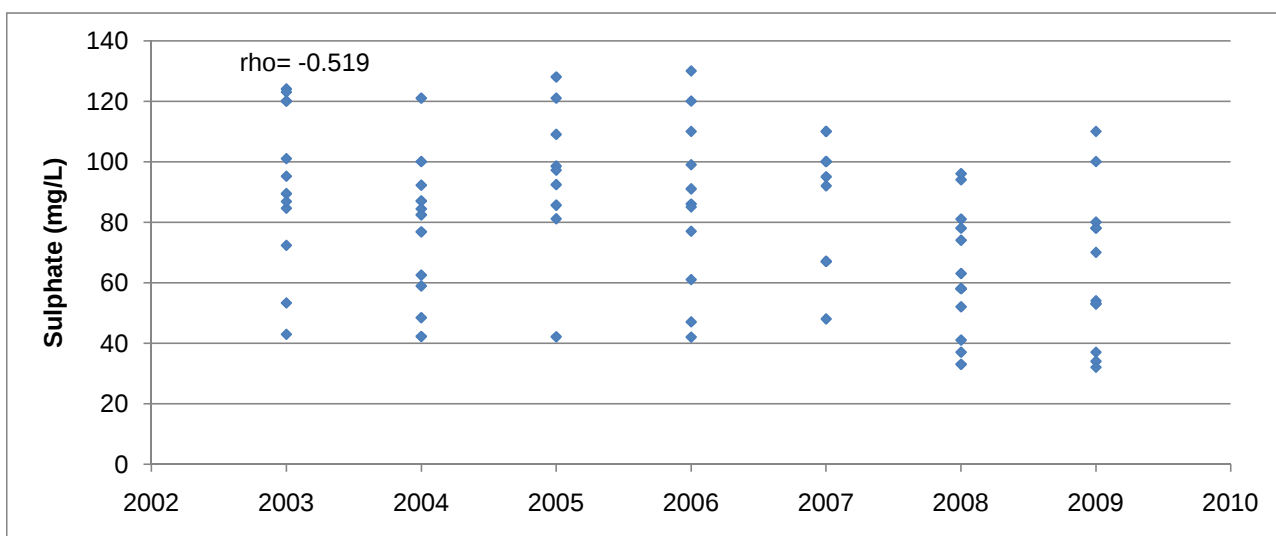
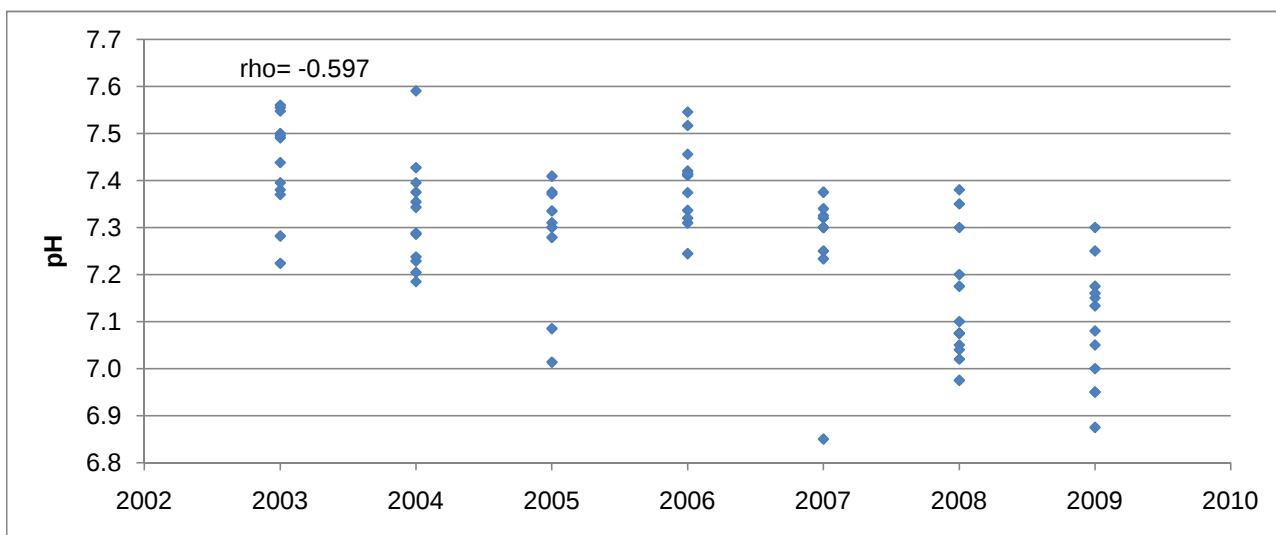
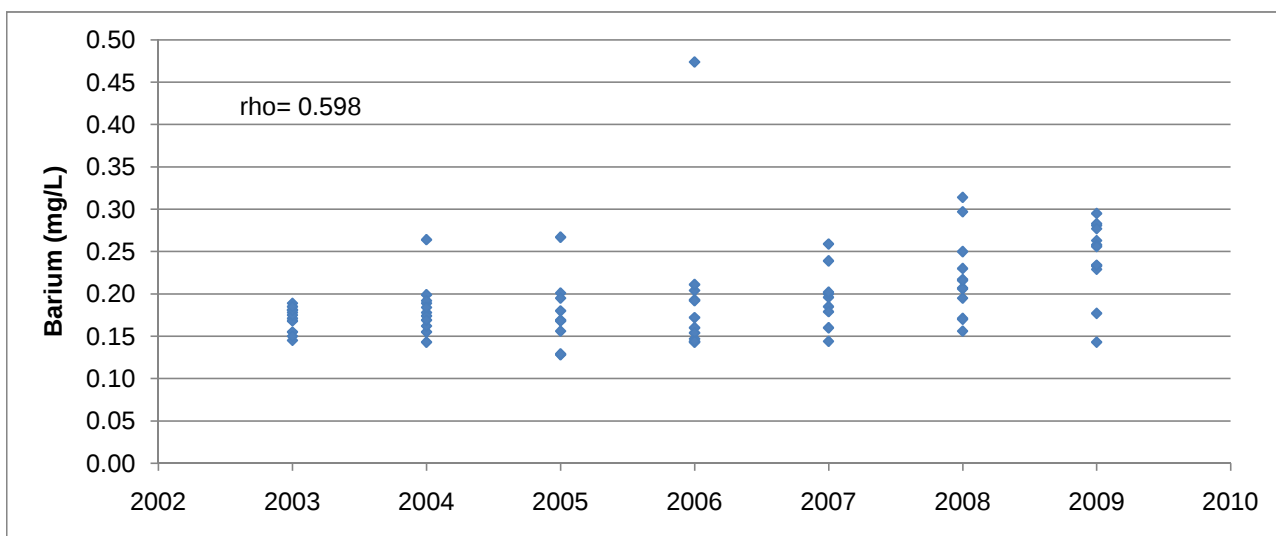
Appendix Figure D.1.1: Percent contribution to loads from Denison TMA discharge points.



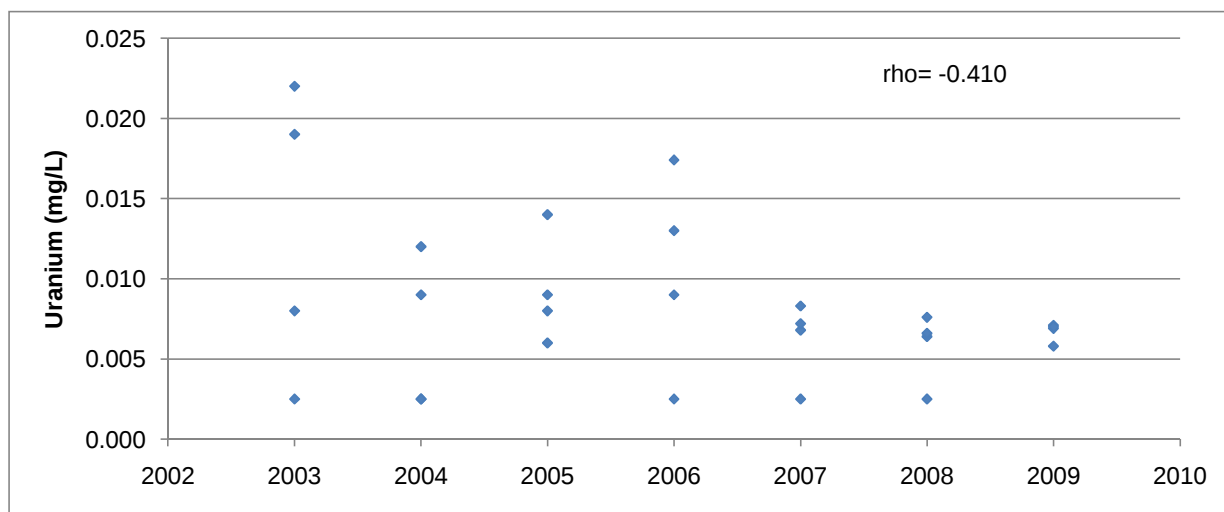
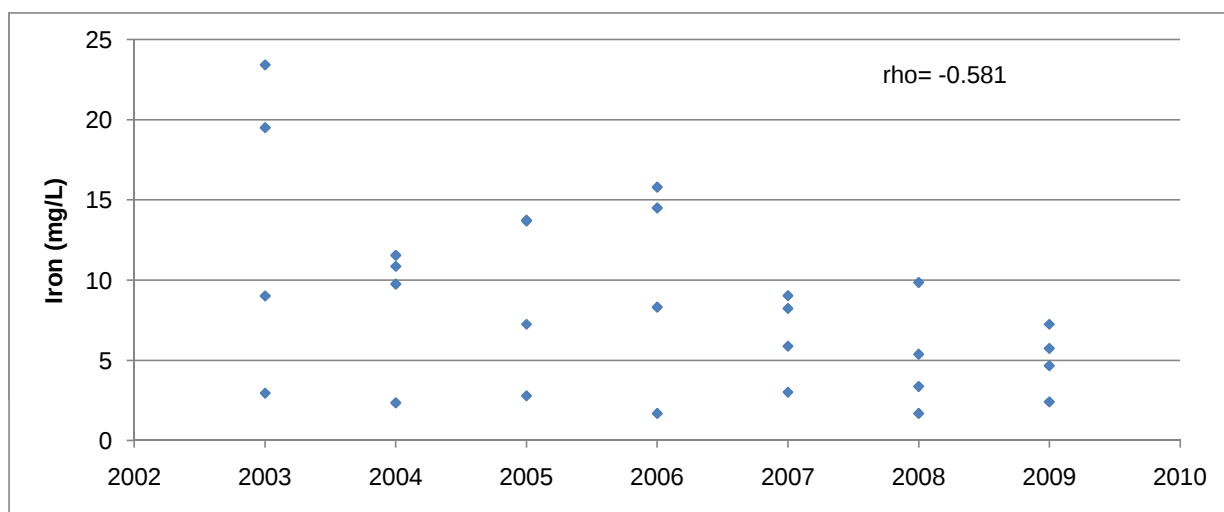
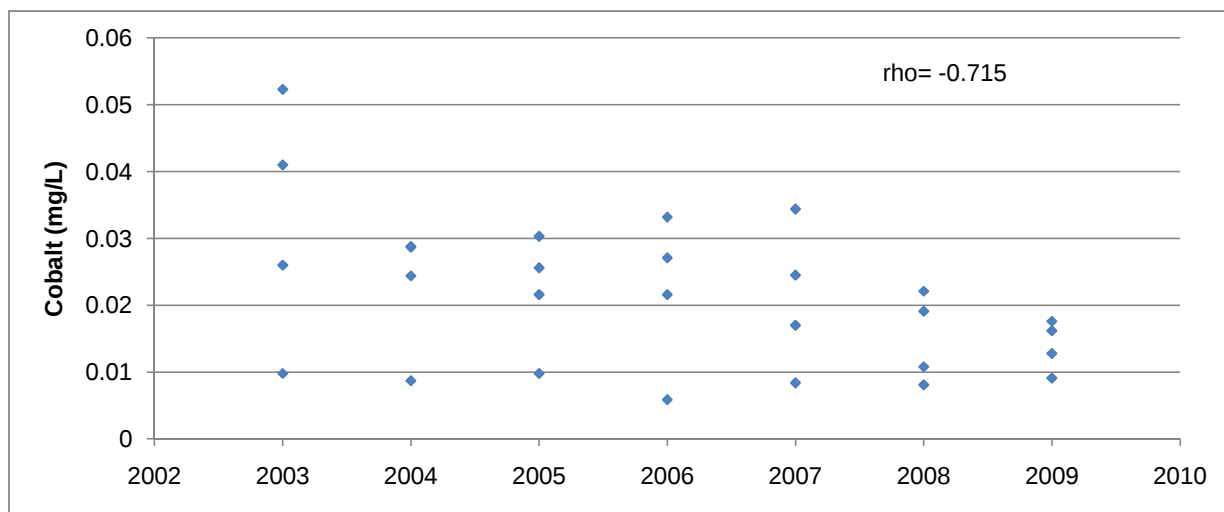
Appendix Figure D.1.2: Significant common (average) trends observed for barium, iron, manganese, pH and sulphate over all seasons at station D-2, 2003 to 2009.



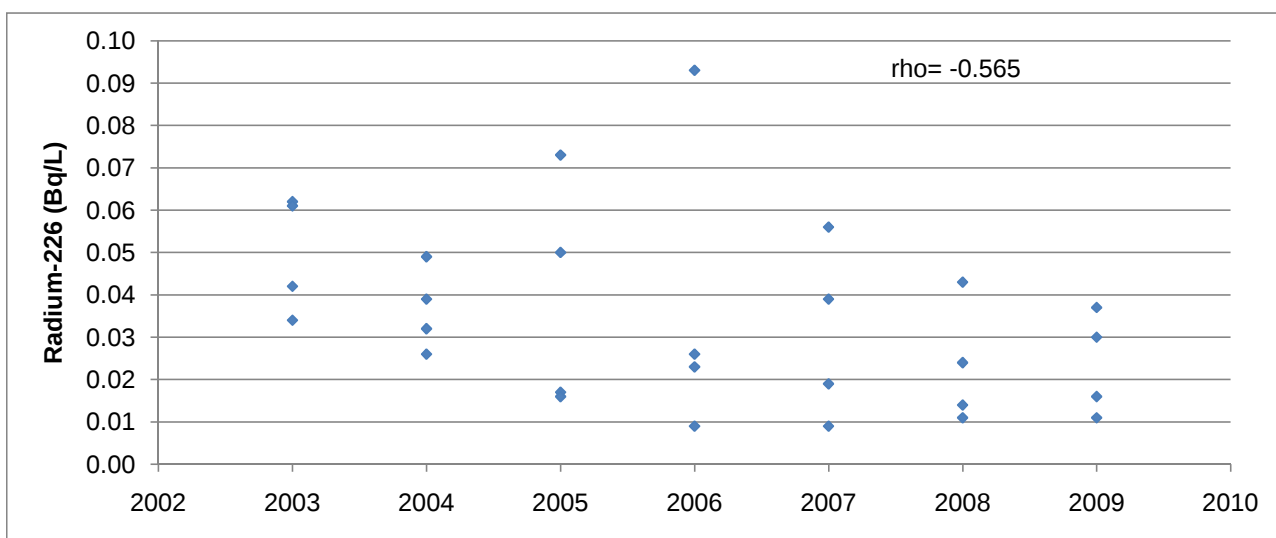
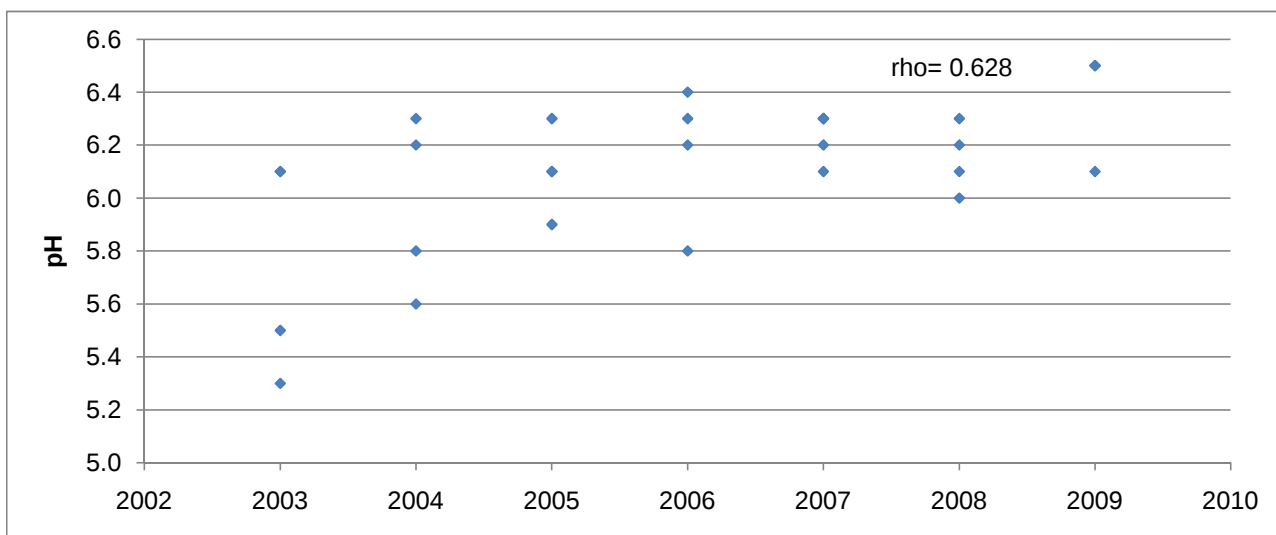
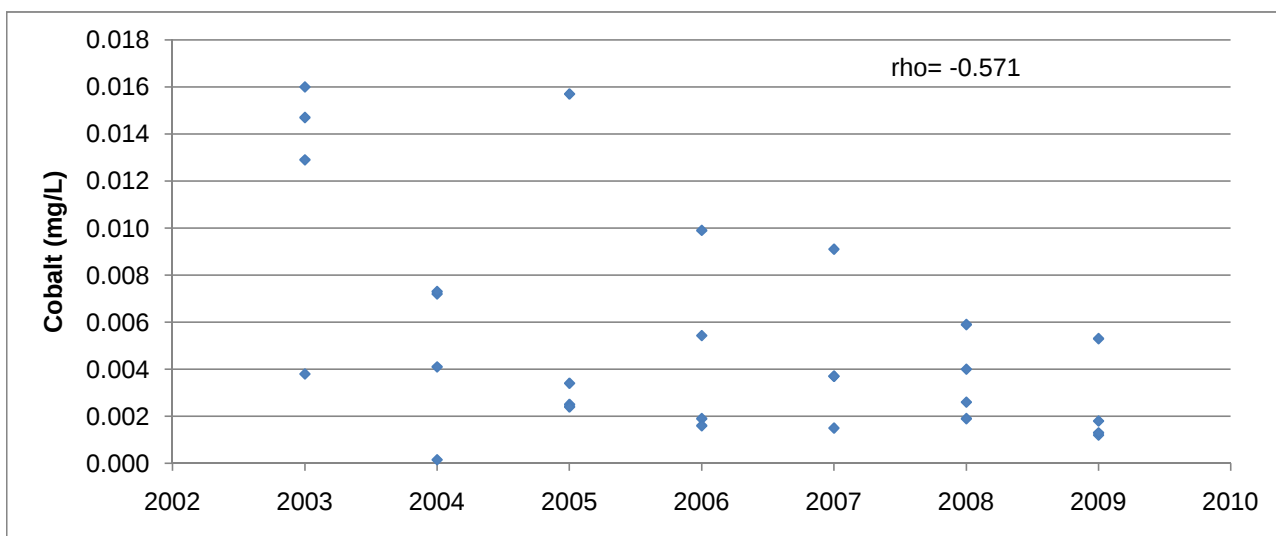
Appendix Figure D.1.2: Significant common (average) trends observed for barium, iron, manganese, pH and sulphate over all seasons at station D-2, 2003 to 2009.



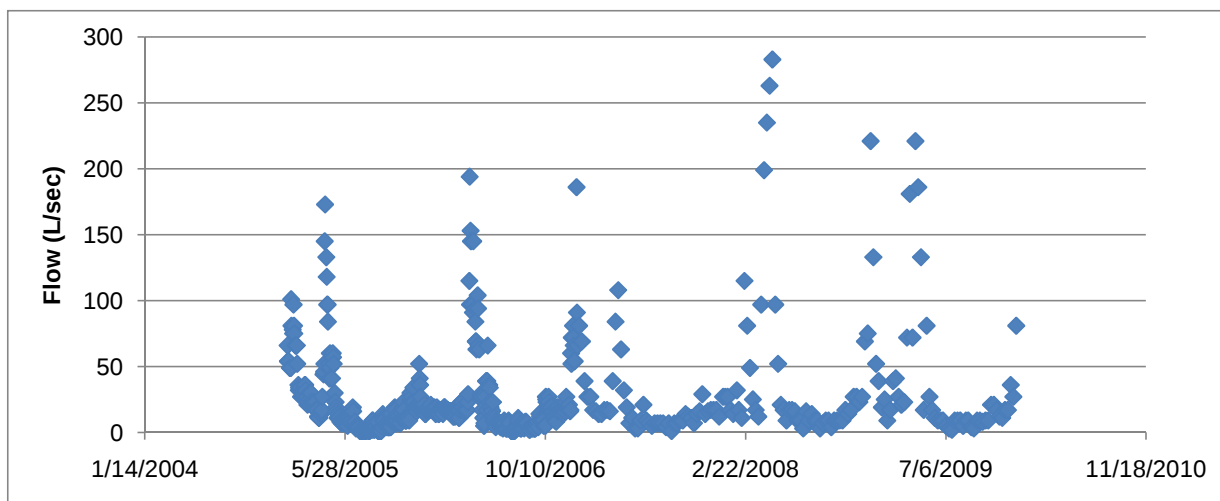
Appendix Figure D.1.3: Significant common (average) trends observed for barium, pH and sulphate over all seasons at station D-3, 2003 to 2009.



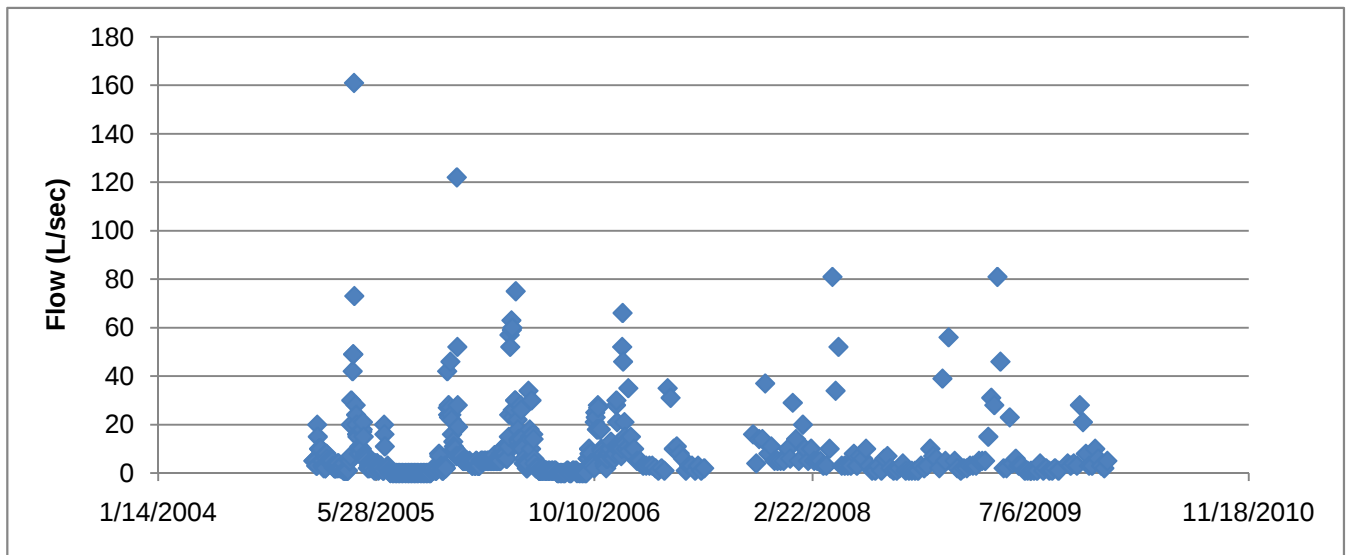
Appendix Figure D.1.4: Significant common (average) trends observed for cobalt, iron and uranium over all seasons at station D-9, 2003 to 2009.



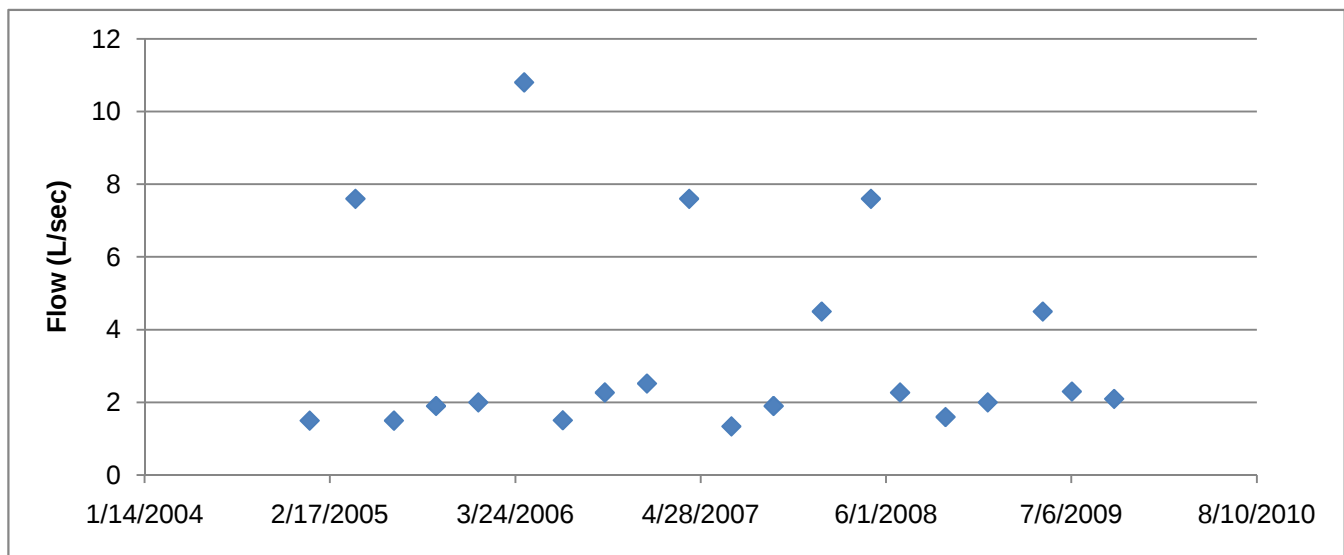
Appendix Figure D.1.5: Significant common (average) trends observed for cobalt, pH and radium-226 over all seasons at station D-16, 2003 to 2009.



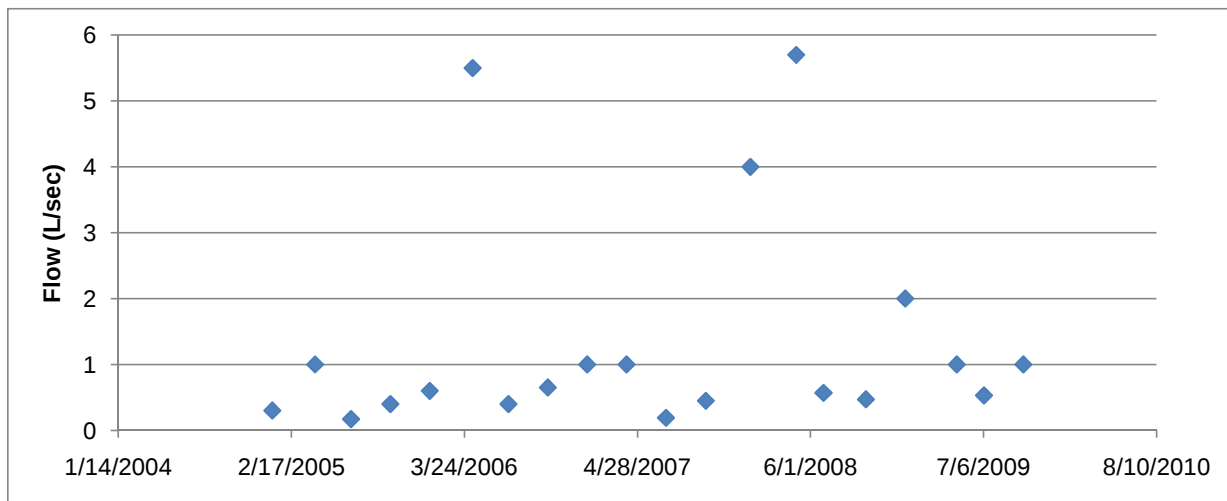
Appendix Figure D.1.6: Flows at station D-2 from 2005 to 2009.



Appendix Figure D.1.7: Flows at station D-3 from 2005 to 2009.



Appendix Figure D.1.8: Flows at station D-9 from 2005 to 2009.



Appendix Figure D.1.9: Flows at station D-16 from 2005 to 2009.

APPENDIX D.2

Quirke TMA

Appendix Table D.2.1: Water quality at station ECA-398 from 2005 to 2009.

Date	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	U (mg/L)
1/10/2005	0.0008	0.012	0.109	341.3	0.148	1.03	4	0.063	< 0.0003	441	0.489
2/14/2005	0.0013	0.013	0.115	315.6	0.175	1.04	4	0.12	< 0.0003	392	0.52
3/14/2005	< 0.0006	0.0118	0.111	333.5	0.156	1.22	4.1	0.074	< 0.0003	396	0.433
4/11/2005	0.00026	0.012	0.0738	233	0.174	0.585	4	0.087	0.0009	377	0.341
5/9/2005	0.00015	0.0207	0.115	342.5	0.177	0.925	3.9	0.044	0.0007	343	0.476
6/13/2005	0.00025	0.0134	0.0855	485	0.147	0.897	4	0.057	0.0003	414	0.545
11/16/2005	0.00013	0.023	0.173	457	0.288	1.41	3.8	0.11	0.0004	588	0.755
12/12/2005	0.00014	0.0117	0.0053	83.6	0.058	0.0724	6.4	0.031	0.0005	51.7	0.026
1/9/2006	< 0.0001	0.012	0.152	349.8	0.19	1.36	4.1	0.036	0.0023	360	0.498
2/13/2006	< 0.0001	0.012	0.127	349.5	0.2	1.25	4.2	0.021	0.001	390	0.457
3/13/2006	< 0.0001	0.012	0.122	373.7	0.2	1.32	4.1	0.022	0.0009	380	0.441
4/10/2006	< 0.0001	0.0142	0.115	308	0.22	0.728	4	0.042	0.001	210	0.374
5/8/2006	< 0.0001	0.0146	0.104	340.2	0.17	0.811	4.1	0.045	0.0009	240	0.41
6/12/2006	< 0.0001	0.0171	0.122	405.4	0.27	1	4.1	0.025	< 0.0004	280	0.464
11/13/2006	< 0.0001	0.016	0.151	395.1	0.24	1.28	4.1	0.044	< 0.0004	330	0.486
12/11/2006	< 0.0001	0.017	0.137	339.8	0.2	1.08	4.1	0.039	< 0.0004	310	0.484
1/8/2007		0.016	0.1170		0.20	0.831	4.1	0.043		300.0	0.4080
2/12/2007		0.017	0.1070		0.17	1.070	4.2	0.029		290.0	0.3870
3/12/2007		0.017	0.1250		0.18	1.220	4.3	0.027		330.0	0.4480
4/9/2007		0.016	0.1010		0.17	0.848	4.1	0.036		220.0	0.3650
5/3/2007		0.014	0.1030		0.16	0.898	4.0	0.062		250.0	0.3650
6/11/2007		0.019	0.1150		0.20	1.120	4.0	0.047		280.0	0.4190
10/9/2007		0.025	0.1230		0.28	1.290	3.9	0.092		350.0	0.5600
1/14/2008		0.020	0.1310		0.21	0.914	3.9	0.055		260.0	0.4540
4/14/2008		0.020	0.0960		0.23	0.640	4.0	0.055		210.0	0.3410
7/7/2008		0.023	0.1010		0.34	0.897	4.0	0.053		250.0	0.3970
11/20/2008		0.019	0.1110		0.28	1.480	4.1	0.044		290.0	0.3920
1/12/2009		0.016	0.0958		0.21	1.020	4.2	0.038		240.0	0.2890
4/13/2009		0.015	0.0872		0.18	0.744	4.0	0.088		170.0	0.2510
7/13/2009		0.026	0.0828		0.27	0.894	4.3	0.028		220.0	0.2940
10/13/2009		0.023	0.1060		0.39	1.310	4.0	0.040		290.0	0.3730
Number	16	31	31	16	31	31	31	31	16	31	31
Minimum	0.0001	0.0117	0.0053	83.6	0.058	0.0724	3.8	0.021	0.0003	51.7	0.026
Maximum	0.0013	0.026	0.173	485	0.39	1.48	6.4	0.12	0.0023	588	0.755
Mean	0.0003	0.017	0.1103	340.8	0.21	1.006	4.1	0.052	0.0007	304.9	0.4175
Median	0.0001	0.016	0.1110	341.9	0.20	1.020	4.1	0.044	0.0005	290.0	0.4190
10th Perc.	0.0001	0.012	0.0855	270.5	0.16	0.728	3.9	0.027	0.0003	210.0	0.2940

Appendix Table D.2.2: Water quality at station Q-22 from 2005 to 2009.

Date	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	U (mg/L)
1/10/2005	< 0.0006	0.012	0.0045	78.1	0.062	0.076	6.6	0.03	0.0003	46.5	0.044
4/11/2005	< 0.00006	0.0063	0.0023	36.2	0.05	0.0288	6.1	0.027	< 0.0003	23.7	0.026
7/11/2005	0.00025	0.0168	0.0169	261.5	0.175	0.425	6	0.061	< 0.0003	151	0.111
10/11/2005	0.00011	0.0174	0.0124	191.9	0.145	0.439	6	0.052	< 0.0003	109	0.069
1/9/2006	< 0.0001	0.012	0.0048	75.2	0.06	0.0782	6.7	0.029	0.0008	44	0.0325
4/10/2006	< 0.0001	0.0113	0.00685	74.6	0.06	0.0617	6.4	0.025	0.0008	39	0.0465
7/17/2006	< 0.0001	0.029	0.0235	293.5	0.38	0.585	6	0.066	< 0.0004	160	0.103
10/10/2006	< 0.0001	0.019	0.015	184.3	0.19	0.376	6.2	0.05	< 0.0004	100	0.0695
1/8/2007		0.012	0.0036		0.06	0.045	6.9	0.019		34.0	0.0274
4/9/2007		0.011	0.0036		0.04	0.048	7.0	0.018		31.0	0.0298
7/9/2007		0.042	0.0204		0.22	0.540	5.7	0.081		180.0	0.0899
10/9/2007		0.021	0.0055		0.15	0.154	6.1	0.062		71.0	0.0634
1/14/2008		0.010	0.0026		0.05	0.028	6.8	0.018		24.0	0.0225
4/14/2008		0.009	0.0036		0.04	0.036	6.5	0.014		25.0	0.0282
7/7/2008		0.019	0.0057		0.17	0.108	6.4	0.036		54.0	0.0396
10/8/2008		0.027	0.0187		0.48	0.637	6.2	0.061		130.0	0.0656
1/12/2009		0.011	0.0032		0.08	0.063	6.5	0.015		31.0	0.0235
4/13/2009		0.012	0.0044		0.06	0.055	6.8	0.024		29.0	0.0269
7/13/2009		0.021	0.0103		0.10	0.252	6.5	0.038		93.0	0.0458
10/13/2009		0.016	0.0054		0.19	0.157	6.6	0.033		50.0	0.0410
Number	8	20	20	8	20	20	20	20	8	20	20
Minimum	0.00006	0.0063	0.0023	36.2	0.04	0.028	5.7	0.014	0.0003	23.7	0.0225
Maximum	0.0006	0.042	0.0235	293.5	0.48	0.637	7	0.081	0.0008	180	0.111
Mean	0.00018	0.017	0.0087	149.4	0.14	0.210	6.4	0.038	0.0005	71.3	0.0503
Median	0.00010	0.014	0.0055	131.2	0.09	0.093	6.5	0.032	0.0004	48.3	0.0425
10th Perc.	0.000088	0.010	0.0031	63.1	0.05	0.035	6.0	0.018	0.0003	24.9	0.0258

Appendix Table D.2.3: Water quality at station Q-23 from 2005 to 2009.

Date	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	U (mg/L)
1/20/2005	< 0.0006	0.0277	0.0006	25.2	0.349	0.108	5.8	0.013	< 0.0003	8.08	< 0.005
4/21/2005	0.00012	0.0186	0.0005	18.2	0.199	0.0482	5.9	0.007	0.0004	4.86	< 0.005
10/20/2005	< 0.00006	0.0223	0.0005	22.8	0.375	0.0631	6	< 0.005	< 0.0003	4.66	< 0.005
1/19/2006	< 0.0001	0.036	0.001	30.9	0.56	0.116	5.8	0.005	< 0.0004	6.6	< 0.0005
4/20/2006	< 0.0001	0.0218	< 0.0005	18.3	0.15	0.0302	5.8	< 0.005	< 0.0004	4.4	< 0.0005
8/28/2006	< 0.0001	0.033	0.0015	31.5	1.07	0.194	5.9	< 0.005	< 0.0004	2.4	< 0.0005
10/19/2006	< 0.0001	0.026	0.0008	16	0.18	0.043	5.5	< 0.005	< 0.0004	5.4	< 0.0005
1/17/2007		0.027	0.0006		0.33	0.031	5.8	< 0.005		5.2	< 0.0005
4/19/2007		0.022	< 0.0005		0.21	0.032	6.1	0.008		4.8	< 0.0005
7/31/2007		0.028	0.0016		1.10	0.183	5.9	< 0.005		2.3	< 0.0005
10/17/2007		0.026	0.0006		0.44	0.046	5.8	0.005		3.9	< 0.0005
1/17/2008		0.025	0.0007		0.36	0.059	5.7	< 0.005		5.6	< 0.0005
4/22/2008		0.017	0.0006		0.12	0.031	5.6	< 0.005		4.0	< 0.0005
7/10/2008		0.034	0.0022		1.40	0.186	5.7	< 0.005		2.1	< 0.0005
10/8/2008		0.029	0.0009		0.89	0.096	6.1	< 0.005		1.6	< 0.0005
2/5/2009		0.027	0.0010		0.79	0.095	6.2	< 0.005		4.7	< 0.0005
5/5/2009		0.021	0.0007		0.19	0.025	5.8	< 0.005		4.6	< 0.0005
7/22/2009		0.025	0.0009		0.89	0.099	5.7	< 0.005		1.8	< 0.0005
10/21/2009		0.020	< 0.0005		0.33	0.023	5.6	< 0.005		7.9	< 0.0005
Number	7	19	19	7	19	19	19	19	7	19	19
Minimum	0.00006	0.017	0.0005	16	0.12	0.023	5.5	0.005	0.0003	1.6	0.0005
Maximum	0.0006	0.036	0.0022	31.5	1.4	0.194	6.2	0.013	0.0004	8.08	0.005
Mean	0.00017	0.026	0.0009	23.3	0.523	0.079	5.8	0.006	0.0004	4.47	0.0012
Median	0.00010	0.026	0.0007	22.8	0.360	0.059	5.8	0.005	0.0004	4.66	0.0005
10th Perc.	0.00008	0.020	0.0005	17.3	0.174	0.029	5.6	0.005	0.0003	2.04	0.0005

Appendix Table D.2.4: Water quality at station Q-27 from 2005 to 2009.

Date	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	U (mg/L)
1/23/2003	< 0.0006	0.0901	0.0271	241.5	43.05	3.58	6.2	0.009	< 0.0003	172	< 0.005
4/24/2003	< 0.0006	0.0716	0.0493	332.4	14.87	2.99	5.2	0.018	< 0.0003	321	0.007
7/24/2003	< 0.0006	0.0549	0.011	212.8	0.593	0.918	5.9	0.009	0.0004	78	< 0.005
10/22/2003	< 0.0006	0.103	0.0391	364.3	29	3.69	6	0.029	< 0.0003	233	< 0.005
1/22/2004	< 0.0006	0.0766	0.0206	110.6	27.82	1.63	6.1	0.021	< 0.0003	65.1	0.006
4/22/2004	0.0013	0.0702	0.0425	334.2	14.97	2.82	5.3	0.016	< 0.0003	309	< 0.005
7/22/2004	< 0.0006	0.0613	0.0208	338.6	22.78	2.12	5.9	0.011	< 0.0003	166	< 0.005
10/20/2004	0.0014	0.0726	0.016	335.5	10.44	2.03	5.7	0.01	< 0.0003	229	< 0.005
1/20/2005	0.0012	0.0682	0.0368	312.3	37.69	2.82	5.7	0.03	< 0.0003	267	0.01
4/21/2005	0.00032	0.0764	0.0527	491	21.99	3.6	6.9	0.012	< 0.0003	367	< 0.005
10/20/2005	0.00068	0.0884	0.0186	445.3	18.55	2.98	5.7	0.019	0.0007	345	< 0.005
1/19/2006	< 0.0001	0.077	0.0265	232.7	28.9	2.86	5.2	0.009	< 0.0004	190	0.0031
4/20/2006	< 0.0001	0.0841	0.0556	483	23.8	4.01	5.4	0.018	< 0.0004	330	0.00411
7/20/2006	< 0.0001	0.081	0.0152	267.3	20.1	1.63	6.1	0.012	< 0.0004	120	0.0012
10/19/2006	< 0.0001	0.119	0.0481	489	27.2	3.39	6.3	0.02	< 0.0004	330	0.0018
1/17/2007		0.079	0.0413		25.70	3.250	5.9	0.012		260.0	0.0027
4/19/2007		0.076	0.0526		22.00	3.230	5.5	0.009		320.0	0.0034
10/17/2007		0.209	0.0402		21.00	4.350	5.7	0.032		370.0	0.0017
1/17/2008		0.105	0.0449		21.30	3.270	5.5	0.011		340.0	0.0019
4/22/2008		0.130	0.0329		11.70	2.280	5.4	0.008		210.0	0.0013
8/14/2008		0.110	0.0330		22.70	2.640	5.8	0.014		260.0	0.0018
11/20/2008		0.095	0.0168		16.50	2.280	6.0	0.010		180.0	0.0016
5/5/2009		0.090	0.0439		18.30	3.240	5.4	0.008		370.0	0.0025
11/19/2009		0.130	0.0306		22.80	3.030	5.8	0.021		270.0	0.0016
Number	15	24	24	15	24	24	24	24	15	24	24
Minimum	0.0001	0.0549	0.011	110.6	0.593	0.918	5.2	0.008	0.0003	65.1	0.0012
Maximum	0.0014	0.209	0.0556	491	43.05	4.35	6.9	0.032	0.0007	370	0.01
Mean	0.00059	0.092	0.0340	332.7	21.82	2.860	5.8	0.015	0.0004	254.3	0.0038
Median	0.00060	0.083	0.0349	334.2	22.00	2.985	5.8	0.012	0.0003	263.5	0.0038
10th Perc.	0.00010	0.069	0.0162	220.8	12.65	1.750	5.3	0.009	0.0003	133.8	0.0016

Appendix Table D.2.5: Water quality at station Q-28 from 2005 to 2009.

Date	Acidity (mg/L)	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
1/4/2005		0.0025	0.065	0.02	1064	0.01	1.24	2.32	0.0134	0.0059	7.3	0.22	< 0.0003	1279	3	0.021	0.005
1/10/2005					1139						7.2	0.22			3		
1/17/2005					1233						7.4	0.14			3		
1/24/2005					1332						8.2	0.17			3		
1/31/2005					1212						8.1	0.16			4		
2/7/2005		0.0016	0.0686	0.021	1097	0.02	1.14	2.24	0.014	0.0069	7.9	0.19	< 0.0003	1227	3	0.025	0.003
2/14/2005					1271						8.1	0.16			2		
2/21/2005					1168						8.2	0.077			1		
2/28/2005					1126						8.2	0.08			1		
3/7/2005		0.002	0.0741	0.0193	1586	< 0.001	0.715	3.17	0.0153	0.0046	8.1	0.11	< 0.0003	1321	2	0.027	0.003
3/14/2005					1138						8.4	0.11			1		
3/21/2005					1466						8.3	0.063			1		
3/28/2005					1263						8	0.11			2		
4/4/2005		0.00146	0.0673	0.0155	1111	< 0.001	0.739	1.81	0.0108	0.0016	7.3	0.05	0.0009	1253	3	0.024	0.002
4/11/2005					942						7.4	0.043			2		
4/18/2005					1164						7.6	0.039			1		
4/25/2005					979						7.6	0.021			< 1		
5/2/2005		0.00058	0.0775	0.0135	919	< 0.001	0.215	1.69	0.0097	< 0.0006	7.4	0.019	0.0008	832	< 1	0.022	0.002
5/9/2005					1325						7.4	0.031			< 1		
5/16/2005					949						7.4	0.049			1		
5/24/2005					1302						7.4	0.029			< 1		
5/30/2005					1305						7.4	0.033			< 1		
6/6/2005		0.0008	0.0731	0.0065	1465	< 0.001	0.235	1.16	0.0096	0.0018	7.5	0.069	0.0003	1009	< 1	0.022	0.001
6/13/2005					1627						7.6	0.095			1		
6/20/2005					1431						7.7	0.1			1		
6/27/2005					1687						7.5	0.06			1		
7/4/2005		0.00145	0.0664	0.0033	1594	0.015	0.154	0.722	0.0054	< 0.0006	7.7	0.091	0.0004	1214	1	0.021	0.006
7/11/2005					1765						7.7	0.089			1		
7/18/2005					1795						7.6	0.061			2		
7/25/2005					1850						7.5	0.028			1		
8/2/2005		0.0007	0.0611	0.0029	1793	< 0.001	0.189	0.661	0.0041	< 0.0006	7.6	0.06	0.0006	1258	1	0.032	0.005
8/8/2005					1843						7.6	0.036			2		
8/15/2005					1689						7.7	0.041			1		
8/22/2005					1589						7.7	0.03			1		
8/29/2005					1751						7.7	0.033			1		
9/6/2005		0.00151	0.0516	0.0023	1771	< 0.001	0.26	0.538	0.0031	< 0.0006	7.7	0.035	0.0008	1438	< 1	0.049	0.01
9/12/2005					1774						7.9	0.038			1		
9/19/2005					1757						7.7	0.029			1		
9/26/2005					1651						7.6	0.053			< 1		
10/3/2005		0.00139	0.0528	0.0022	1575	< 0.001	0.238	0.449	0.0035	< 0.0006	7.7	0.031	0.0009	1596	1	0.036	0.011
10/11/2005					1470						7.7	0.067			< 1		
10/17/2005					1345						7.4	0.091			1		
10/24/2005					1244						7.4	0.063			1		
10/31/2005					1382						7.4	0.051			1		
11/7/2005	6	0.00055	0.0645	0.008	1310	< 0.001	0.234	1.47	0.0079	< 0.0006	7.5	0.072	< 0.0003	1273	1	0.032	0.004
11/14/2005					1117						7.4	0.061			1		
11/21/2005					1135						7.6	0.078			1		
11/28/2005					1209						8	0.24			4		
12/5/2005	6	0.0016	0.0743	0.0174	1206	0.002	0.868	2.49	0.0136	< 0.0006	7.3	0.24	0.0011	1329	3	0.025	0.004
12/12/2005					1167						7.4	0.2			3		
12/19/2005					1167						7.7	0.15			4		
12/28/2005					1162						8.3	0.13			3		
1/3/2006					1165						8.3	0.08			< 2		
1/10/2006	< 0.0001	0.142	0.0187		1095	0.0012	0.97	2.45	0.014	0.0041	8.2	0.11	0.0011	1200	4	0.0163	0.002
1/16/2006					1149						8	0.064			2		
1/23/2006					1133						8.2	0.086			5		
1/30/2006					1342						8	0.078			2		
2/6/2006	< 0.0001	0.128	0.0193		1094	0.001	0.8	2.15	0.017	0.004	8.2	0.085	0.0019	1200	3	0.0179	0.004
2/13/2006					1111						8.2	0.078			3		
2/20/2006					1144						8.2	0.071			5		
2/27/2006					1128						8.2	0.068			4		
3/6/2006	< 0.0001	0.094	0.0186		1102	0.004	0.77	2.05	0.014	0.0055	8.2	0.067	< 0.0004	1100	2	0.0183	0.006
3/13/2006					1198						8.2	0.087			5		
3/20/2006					1156						8	0.052			< 2		
3/27/2006					1145						8.2	0.074			3		
4/3/2006	< 0.0001	0.0698	0.0196		1008	0.0019	0.94	2.27	0.0135	0.00183	7.4	0.047	0.0009	990	5	0.0201	0.0071
4/10/2006					1055						7.5	0.048			2		
4/17/2006					955						7.5	0.039			2		
4/24/2006					1032						7.5	0.053			1		
5/1/2006	< 0.0001	0.0886	0.0194		1065	0.0009	0.24	1.81	0.0114	< 0.0005	7.5	0.046	< 0.0004	740	1	0.0154	0.0035
5/8/2006					982						7.5	0.048			< 1		
5/15/2006					998						7.6	0.057			1		
5/23/2006					1027						7.6	0.082			1		
5/29/2006					1055						7.6	0.13			1		
6/5/2006	< 0.0001	0.0953	0.00547		1504	0.0011	0.22	1.04	0.0072	< 0.0005	7.8	0.12	< 0.0004	910	1	0.0148	0.0043
6/12/2006					1334						7.7	0.066			1		
6/19/2006					1572						7.6	0.14			1		
6/26/2006					1517						7.6	0.079			< 1		
7/4/2006	< 0.0001	0.0491	0.00512		1629	0.0013	0.19	1.13	0.0059	< 0.0005	7.5	0.043	< 0.0004	990	< 1	0.018	0.0025
7/10/2006					1621						7.7	0.044			1		
7/17/2006					1711						7.5	0.046			1		
7/24/2006					1741						7.5	0.041			1		
7/31/2006					1756						7.5	0.032			1		
8/8/2006	< 0.0001	0.041	0.0071		1721	0.0007	0.19	1.61	0.0095	< 0.0005	7.7	0.089	< 0.0004	1100	< 1	0.0216	0.0015
8/14/2006					1781						7.3	0.093			1		
8/21/2006					1698						7.5	0.13			2		
8/28/2006					1721						7.5	0.068			3		
9/5/2006	< 0.0001	0.029	0.0047		1780	0.0005	0.32	1.32	0.011	< 0.0005	7.5	0.06	< 0.0004	1300	1	0.0227	0.004
9/12/2006					1820						7.6	0.062			3		
9/18/2006					1748						7.7	0.077			1		
9/25/2006					1438						7.5	0.058			2		
10/2/2006	< 0.0001	0.031	0.0041		1411	0.0007	0.44	0.778	0.005	< 0.0005	7.6	0.044	< 0.0004	1100	1	0.0357	0.008
10/10/2006					1370						7.5	0.037			1		

Appendix Table D.2.5: Water quality at station Q-28 from 2005 to 2009.

Date	Acidity (mg/L)	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
10/16/2006					1264						7.4	0.028			1		
10/23/2006					1203						7.4	0.031			2		
10/30/2006					1152						7.4	0.028			1		
11/6/2006		< 0.0001	0.035	0.0092	1285	0.0007	0.29	1.57	0.009	< 0.0005	7.4	0.032	< 0.0004	1100	1	0.0486	0.001
11/13/2006					1336						7.4	0.034			1		
11/20/2006					1370						7.3	0.039			< 1		
11/27/2006					1242						7.7	0.064			< 1		
12/4/2006		< 0.0001	0.049	0.0128	1145	0.0009	0.49	1.5	0.01	0.0006	7.7	0.086	< 0.0004	1100	< 1	0.0331	0.005
12/11/2006					1184						8.2	0.1			1		
12/18/2006					1124						7.1	0.21			4		
12/27/2006					1183						7.2	0.32			2		
1/2/2007			0.093	0.0260			0.96	2.320			7.1	0.180		1200.0		0.0303	
1/8/2007											8.0	0.092					
1/15/2007											8.2	0.068					
1/22/2007											8.2	0.059					
1/29/2007											8.0	0.100					
2/5/2007											8.1	0.140					
2/12/2007			0.101	0.0226			0.76	2.290			8.3	0.130		1100.0		0.0303	
2/19/2007											8.3	0.120					
2/26/2007											8.2	0.130					
3/5/2007											8.3	0.100					
3/12/2007			0.096	0.0282			0.60	2.510			8.3	0.066		1200.0		0.0356	
3/19/2007											8.0	0.074					
3/26/2007											8.1	0.088					
4/2/2007											8.1	0.089					
4/9/2007			0.064	0.0210			0.60	2.310			7.3	0.087		940.0		0.0383	
4/16/2007											7.8	0.120					
4/23/2007											7.3	0.089					
4/30/2007											7.4	0.120					
5/7/2007											7.5	0.120					
5/14/2007			0.084	0.0063			0.17	1.110			7.3	0.075		780.0		0.0208	
5/22/2007											7.4	0.085					
5/28/2007											7.4	0.082					
6/4/2007											7.5	0.076					
6/11/2007			0.057	0.0032			0.19	0.552			7.5	0.061		930.0		0.0291	
6/18/2007											7.6	0.058					
6/25/2007											7.6	0.060					
7/3/2007											7.7	0.068					
7/9/2007			0.067	0.0031			0.26	0.415			7.5	0.090		1100.0		0.0388	
7/16/2007											7.6	0.089					
7/23/2007											7.7	0.084					
7/30/2007											7.7	0.099					
8/7/2007											7.5	0.087					
8/13/2007			0.058	0.0028			0.33	0.444			7.8	0.088		1300.0		0.0356	
8/20/2007											7.6	0.090					
8/27/2007											7.5	0.098					
9/4/2007											7.5	0.090					
9/10/2007			0.065	0.0031			0.38	0.516			7.7	0.100		1200.0		0.0327	
9/17/2007											7.5	0.100					
9/24/2007											7.4	0.110					
10/1/2007											7.5	0.120					
10/9/2007			0.060	0.0036			0.34	0.521			7.4	0.130		1100.0		0.0302	
10/15/2007											7.5	0.093					
10/22/2007											7.4	0.110					
10/29/2007											7.9	0.180					
11/5/2007											7.2	0.160					
11/12/2007			0.068	0.0119			0.36	1.910			7.4	0.180		1200.0		0.0242	
11/19/2007											7.6	0.140					
11/26/2007											8.0	0.130					
12/3/2007											7.7	0.150					
12/10/2007			0.097	0.0191			0.93	2.390			8.0	0.140		1200.0		0.0219	
12/17/2007											8.2	0.140					
12/27/2007											7.4	0.140					
1/2/2008											8.3	0.160					
1/7/2008											8.2	0.180					
1/14/2008			0.099	0.0228			1.34	2.320			7.4	0.180		1200.0		0.0243	
1/21/2008											7.9	0.100					
1/29/2008											7.2	0.120					
2/4/2008											7.2	0.160					
2/11/2008			0.095	0.0257			1.51	2.110			7.6	0.140		1000.0		0.0163	
2/19/2008											8.2	0.160					
2/25/2008											8.1	0.089					
3/3/2008											8.2	0.140					
3/10/2008			0.048	0.0244			1.24	2.240			8.2	0.110		980.0		0.0153	
3/17/2008											8.3	0.130					
3/24/2008											8.4	0.120					
3/31/2008											7.8	0.130					
4/7/2008											7.3	0.160					
4/14/2008			0.105	0.0227			1.25	2.180			7.4	0.078		900.0		0.0227	
4/21/2008											7.3	0.068					
4/28/2008											7.5	0.110					
5/5/2008											7.6	0.072					
5/12/2008			0.154	0.0071			0.22	1.090			7.5	0.053		560.0		0.0114	
5/20/2008											7.5	0.065					
5/26/2008											7.6	0.076					
6/2/2008											7.4	0.064					
6/9/2008			0.080	0.0067			0.24	1.220			7.4	0.060		880.0		0.0107	
6/16/2008											7.6	0.069					
6/23/2008											7.4	0.096					
7/2/2008											7.6	0.075					
7/7/2008											7.5	0.090					
7/14/2008			0.085	0.0052			0.26	0.986			7.6	0.094		990.0		0.0151	
7/21/2008											7.5	0.096					

Appendix Table D.2.5: Water quality at station Q-28 from 2005 to 2009.

Date	Acidity (mg/L)	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
7/28/2008											7.8	0.110					
8/5/2008											7.7	0.085					
8/11/2008			0.079	0.0053			0.38	0.957			7.3	0.084		910.0		0.0169	
8/18/2008											7.6	0.031					
8/25/2008											7.2	0.087					
9/2/2008											7.5	0.056					
9/8/2008			0.078	0.0069			0.27	1.300			7.5	0.110		1000.0		0.0142	
9/15/2008											7.2	0.110					
9/22/2008											8.0	0.110					
9/29/2008											7.7	0.110					
10/6/2008											7.7	0.093					
10/14/2008			0.077	0.0054			0.48	1.090			7.8	0.130		1100.0		0.0210	
10/20/2008											7.5	0.076					
10/27/2008											7.3	0.110					
11/3/2008											7.3	0.100					
11/10/2008			0.072	0.0069			0.31	1.220			7.5	0.080		1000.0		0.0220	
11/17/2008											7.7	0.110					
11/24/2008											7.7	0.180					
12/1/2008											8.4	0.130					
12/8/2008			0.071	0.0143			0.66	2.130			8.4	0.120		1100.0		0.0168	
12/15/2008											8.1	0.100					
12/22/2008											7.2	0.120					
12/29/2008											6.8	0.150					
1/5/2009											8.2	0.120					
1/12/2009			0.216	0.0220			1.09	2.940			8.2	0.150		1000.0		0.0188	
1/19/2009											8.4	0.086					
1/26/2009											8.3	0.190					
2/2/2009											8.2	0.160					
2/9/2009			0.101	0.0178			0.86	1.820			8.2	0.095		1100.0		0.0138	
2/17/2009											8.4	0.170					
2/23/2009											8.4	0.110					
3/2/2009											8.4	0.140					
3/9/2009			0.122	0.0212			1.06	2.210			7.9	0.120		1100.0		0.0180	
3/16/2009											8.3	0.110					
3/23/2009											8.2	0.090					
3/31/2009											8.4	0.093					
4/6/2009											8.2	0.078					
4/13/2009			0.094	0.0137			0.77	1.860			8.4	0.081		840.0		0.0160	
4/20/2009											7.1	0.073					
4/27/2009											7.1	0.055					
5/4/2009											7.2	0.060					
5/11/2009			0.135	0.0083			0.25	1.140			7.5	0.091		630.0		0.0133	
5/19/2009											7.5	0.063					
5/25/2009											7.5	0.110					
6/1/2009											7.8	0.120					
6/8/2009			0.104	0.0044			0.16	1.060			7.4	0.140		890.0		0.0114	
6/15/2009											7.6	0.170					
6/22/2009											7.5	0.120					
6/29/2009											7.5	0.084					
7/6/2009											7.4	0.097					
7/13/2009			0.085	0.0031			0.37	0.507			7.5	0.088		980.0		0.0171	
7/20/2009											7.5	0.095					
7/27/2009											7.4	0.073					
8/4/2009											7.5	0.110					
8/10/2009			0.078	0.0039			0.38	0.587			7.4	0.100		920.0		0.0167	
8/17/2009											7.5	0.120					
8/24/2009											7.5	0.120					
8/31/2009											7.5	0.150					
9/8/2009											7.5	0.120					
9/15/2009			0.078	0.0035			0.37	0.745			7.5	0.130		1100.0		0.0172	
9/21/2009											7.0	0.150					
9/29/2009											7.6	0.150					
10/5/2009											7.7	0.150					
10/14/2009			0.090	0.0064			0.34	1.080			7.6	0.120		1000.0		0.0176	
10/19/2009											7.0	0.100					
10/26/2009											7.4	0.120					
11/2/2009											7.4	0.089					
11/9/2009			0.090	0.0112			0.66	1.730			7.4	0.075		890.0		0.0195	
11/16/2009											7.7	0.036					
11/23/2009											7.7	0.090					
11/30/2009											7.7	0.210					
12/7/2009											7.7	0.160					
12/14/2009			0.103	0.0138			1.07	1.960			7.7	0.220		1000.0		0.0133	
12/21/2009											8.0	0.220					
12/29/2009											8.5	0.110					
Number	2	24	60	60	104	24	60	60	24	24	261	261	24	60	104	60	24
Minimum	6	0.0001	0.029	0.0022	919	0.0005	0.154	0.415	0.0031	0.0005	6.8	0.019	0.0003	560	1	0.0107	0.001
Maximum	6	0.0025	0.216	0.0282	1850	0.02	1.51	3.17	0.017	0.0069	8.5	0.32	0.0019	1596	5	0.049	0.011
Mean	6	0.0007	0.082	0.0118	1345	0.0029	0.56	1.536	0.0099	0.0019	7.7	0.098	0.000604	1069.7	2	0.0231	0.004
Median	6	0.0003	0.078	0.0088	1268	0.0010	0.38	1.535	0.0099	0.0006	7.6	0.090	0.0004	1100	1	0.0210	0.004
10th Perc.	6	0.0001	0.049	0.0031	1055	0.0007	0.19	0.536	0.0044	0.0005	7.3	0.041	0.0003	876	1	0.0142	0.002

Appendix Table D.2.6: Summary of Annual Plant Operations and Discharge at Quirke, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	365	365	365	366	365
Maximum Daily Plant Flow (L/s @ Q-05)	138	165	155	139	161
Minimum Daily Plant Flow (L/s @ Q-05)	31	20	42	53	50
Monthly Average Daily Plant Flow (L/s @ Q-05)	83	87	73	97	98
Total Volume Treated (ML)	2617	2749	2306	3075	3077
Annual Average Treatment Rate (L/s)	-	-	73	97	98
Barium Chloride Consumption					
Total (kg/yr)	3215	2185	1225	2203	1920
Monthly Average (mg/L)	1.23	0.79	0.53	0.72	0.62
Lime Consumption					
Dry (tonne/yr)	36	47	45.7	42.2	37.2
Average (g/L)	0.014	0.017	0.020	0.014	0.012
BASIN NEUTRALIZATION					
Lime Consumption					
Cell 16S total dry tonnes/yr	107	46	84.87	54.14	54.17
Cell 16N total dry tonnes/yr	0	48	47.28	88.79	67.27
Cell 17 total dry tonnes/yr	7.0	5.0	6.40	5.07	3.61
Site total including ETP Operations (tonnes)	151	145	184.28	190.20	162.25
*EFFLUENT					
Discharge Days	365	365	365	366	365
Maximum Daily Discharge Flow (L/s @ Q-28)	138	164	153	139	155
Minimum Daily Discharge Flow (L/s @ Q-28)	31	28	42	53	52
Monthly Average Daily Discharge Flow (L/s @ Q-28)	83	86	73	98	98
Total Annual Volume Discharged (ML)	2617	2715	2301	3108	3078
Annual Average Discharge Rate (L/s)	-	-	73	98	98

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.2.7: Mean annual discharge and seepage loadings from Quirke TMA, 2005 - 2009.

Station	Drainage Type	Mean Annual Discharge (m ³)		Sulphate	Radium	Uranium	Barium	Cobalt	Iron	Manganese
				(kg/yr)	(MBq/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
Q-23	Seepage from Dam J	1,472,731	Mean	6,684	5.93	1.0	38	1.2	754	116
			S.D.	1,387	3.10	1.5	3.8	0.3	203	22
Q-27	Swamp Downstream of Dam K	3,154	Mean	916	0.05	0.01	0.3	0.1	71	10
			S.D.	132	0.01	0.00	0.1	0.0	10	1.1
D-4	Dunlop Lake Outlet	46,644,865	Mean	250,343	117	12	648	11	1,646	539
			S.D.	20,235	0.0	5	35	2.1	806	154
D-5	Serpent River d/s of Denison	50,496,276	Mean	1,253,233	4,557	112	4,659	12	2,959	1,465
			S.D.	332,793	1,013	20	1,023	1.5	288	60
Q-28	Controlled Discharge	2,762,554	Mean	2,924,343	294	60	238	38	1,748	4,692
			S.D.	244,660	58	9.1	72	5.0	474	519
ECA-398	Site Drainage	49,811	Mean	12,070	2.47	16.3	0.7	4.4	9.2	38
			S.D.	5,857	1.47	5.2	0.2	1.0	1.8	5.5
Q-22	Site Drainage	281,459	Mean	9,617	6.88	9.0	2.9	1.2	18	18
			S.D.	3,452	3.58	4.1	1.1	0.5	7.4	5.2
All Quirke Sources				2,953,630	309	87	279	44	2,600	4,874
Q-09	Serpent River u/s of Quirke Lake	67,185,723	Mean	5,684,136	5,718	312	5,909	37		
			S.D.	926,920	866	66	931	5		

MBq/yr = Million Bequerels per year

Appendix Table D.2.8: Summary of seasonal trends for station ECA-398, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Sulphate	Radium-226	Uranium
January	Correlation Coefficient	0.673633	-0.53571	0.198206	-0.75	0.532312	-1	-0.396412484	-0.928571
	Sig. (2-tailed)	0.097104	0.215217	0.670085	0.0521814	0.218709	0.000001	0.37863471	0.0025195
	N	7	7	7	7	7	7	7	7
February	Correlation Coefficient	0.410391	-0.7	-0.7	-0.5	0.790569	-0.9	-0.153896753	-1
	Sig. (2-tailed)	0.492536	0.18812	0.18812	0.391002219	0.111367	0.0373861	0.804828817	0.000001
	N	5	5	5	5	5	5	5	5
March	Correlation Coefficient	0.205196	-0.46169	-0.2	-0.615587011	0.359092	-1	-0.5	-0.6
	Sig. (2-tailed)	0.740582	0.433766	0.74706	0.26899777	0.552815	0.000001	0.391002219	0.284757
	N	5	5	5	5	5	5	5	5
April	Correlation Coefficient	0.75	-0.64286	0.214286	-0.464285714	0.534522	-0.8288625	-0.214285714	-0.846881
	Sig. (2-tailed)	0.052181	0.119392	0.644512	0.293934108	0.216437	0.0211735	0.644511581	0.0161971
	N	7	7	7	7	7	7	7	7
May	Correlation Coefficient	-0.2	-0.4	-0.97468	0.3	0.782624	-0.5	-0.3	-1
	Sig. (2-tailed)	0.74706	0.504632	0.004818	0.623837665	0.117614	0.3910022	0.623837665	0.000001
	N	5	5	5	5	5	5	5	5
June/July	Correlation Coefficient	0.857143	-0.60714	0.594619	-0.270281239	0.318105	-0.8829187	-0.75	-1
	Sig. (2-tailed)	0.013697	0.148231	0.15909	0.557730749	0.486872	0.0084503	0.0521814	0.000001
	N	7	7	7	7	7	7	7	7
October/November	Correlation Coefficient	0.504525	-0.96429	0.630656	-0.357142857	0.224544	-0.8108437	-0.540562478	-0.964286
	Sig. (2-tailed)	0.248203	0.000454	0.128888	0.431611352	0.628339	0.0269163	0.210289253	0.0004541
	N	7	7	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

Appendix Table D.2.9: Summary of seasonal trends for station Q-22, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.70419	-0.92857	-0.45047	-0.85714286	0.414431	-0.96428571	-0.964286	-0.964286
	Sig. (2-tailed)	0.07735	0.002519	0.310429	0.013697327	0.355269	0.000454149	0.0004541	0.0004541
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	-0.42857	-0.37839	-0.65465	-0.39285714	0.727393	-0.78571429	-0.464286	-0.5
	Sig. (2-tailed)	0.337368	0.402602	0.110567	0.38331687	0.063935	0.036238463	0.2939341	0.25317
	N	7	7	7	7	7	7	7	7
July	Correlation Coefficient	0.214286	-0.64286	-0.28571	-0.35714286	0.741249	0.035714286	-0.14415	-0.75
	Sig. (2-tailed)	0.644512	0.119392	0.534509	0.431611352	0.056577	0.939408205	0.7578179	0.0521814
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	0.392857	-0.14286	0.162169	0.285714286	0.309142	0.142857143	0.2142857	-0.392857
	Sig. (2-tailed)	0.383317	0.759945	0.7283	0.534509229	0.499899	0.7599453	0.6445116	0.3833169
	N	7	7	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

Appendix Table D.2.10: Summary of seasonal trends for station Q-23, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate
January/February	Correlation Coefficient	-0.396412484	0.527359901	0.142857143	-0.214285714	-0.185312329	-0.926561646	-0.75
	Sig. (2-tailed)	0.37863471	0.223836601	0.7599453	0.644511581	0.690777796	<0.05	0.0521814
	N	7	7	7	7	7	7	7
April/May	Correlation Coefficient	-0.642857143	-0.163663418	0.321428571	-0.535714286	0.363696484		-0.678571429
	Sig. (2-tailed)	0.119392373	0.725862474	0.482072038	0.215217456	0.422581508		0.093750254
	N	7	7	7	7	7		7
July/August	Correlation Coefficient	0.085714286	-0.405839725	-0.2	-0.885714286	0.478091444		-0.942857143
	Sig. (2-tailed)	0.87174344	0.424662508	0.704	0.018845481	0.337501857		0.004804665
	N	6	6	6	6	6		6
October	Correlation Coefficient	0.054056248	0.407687124	0.035714286	0.142857143	-0.48650623		0.107142857
	Sig. (2-tailed)	0.908365283	0.363942484	0.939408205	0.7599453	0.268248562		0.819150856
	N	7	7	7	7	7		7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

Appendix Table D.2.11: Summary of seasonal trends for station Q-27, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	0.371429	0.714286	-0.82857	0.142857143	-0.71429	0	0.7714286	-0.9
	Sig. (2-tailed)	0.468478	0.110787	0.041563	0.787172012	0.110787	1	0.0723965	0.037386
	N	6	6	6	6	6	6	6	5
April/May	Correlation Coefficient	0.821429	-0.21429	0.107143	0.071428571	0.44475	-0.836501913	0.1428571	-0.9
	Sig. (2-tailed)	0.023449	0.644512	0.819151	0.879048193	0.317372	0.01897126	0.7599453	0.037386
	N	7	7	7	7	7	7	7	5
October/November	Correlation Coefficient	0.535714	0.071429	-0.10714	0	0.09356	0.036037499	0.0714286	
	Sig. (2-tailed)	0.215217	0.879048	0.819151	1	0.841862	0.938860561	0.8790482	
	N	7	7	7	7	7	7	7	

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

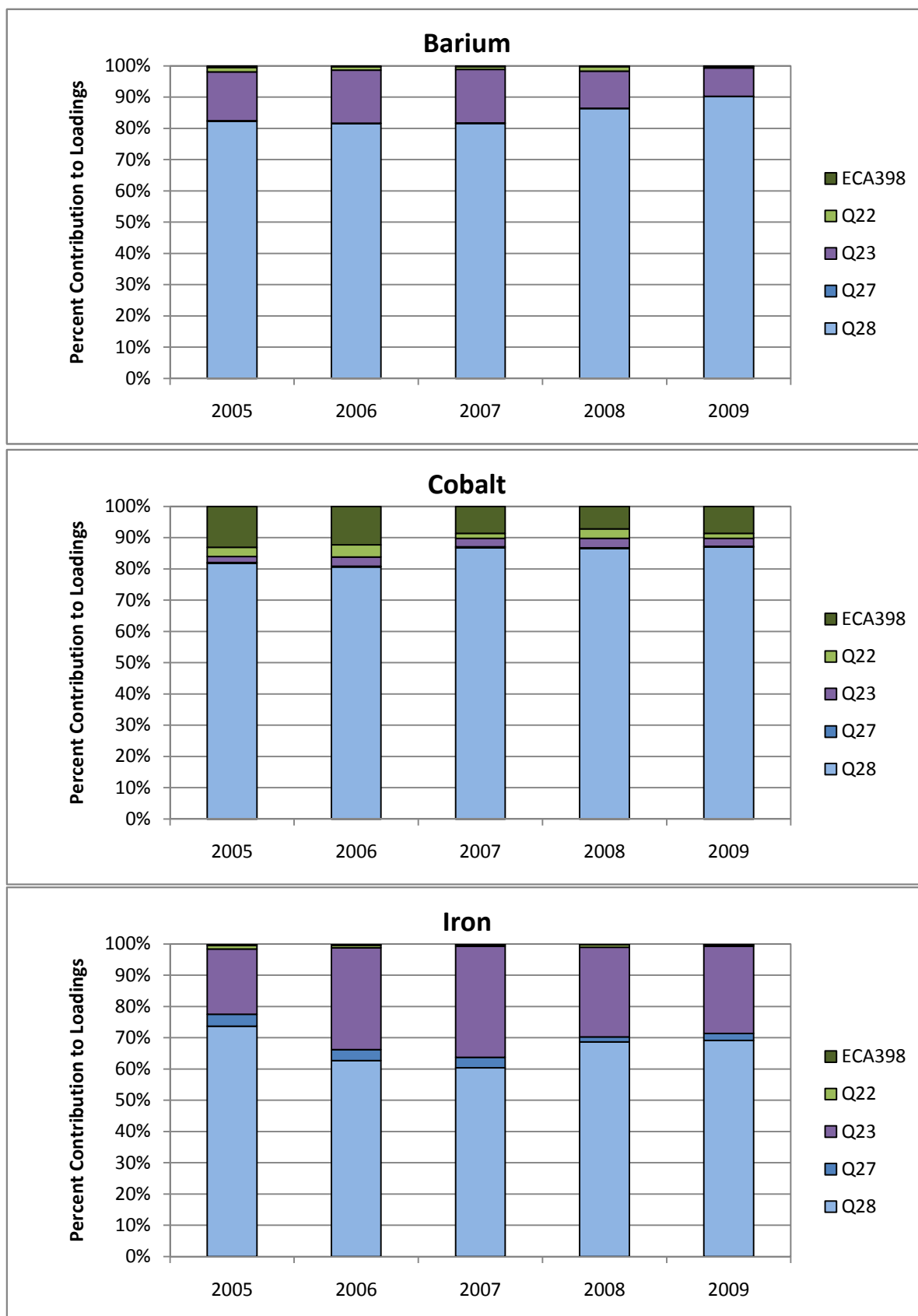
Appendix Table D.2.12: Summary of seasonal trends for station Q-28, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	0.142857	-0.42857	0.571429	0.037062466	0.178571	-0.57142857	-0.592999	-0.5
	Sig. (2-tailed)	0.759945	0.337368	0.180202	0.937124009	0.701658	0.180201989	0.1605219	0.25317
	N	7	7	7	7	7	7	7	7
February	Correlation Coefficient	0.43245	-0.35714	0.428571	-0.785714286	0.357143	0.107142857	-0.828862	-0.892857
	Sig. (2-tailed)	0.332527	0.431611	0.337368	0.036238463	0.431611	0.819150856	0.0211735	0.0068072
	N	7	7	7	7	7	7	7	7
March	Correlation Coefficient	0.428571	-0.21429	0.392857	-0.642857143	0.75	-0.39285714	-0.846881	-0.738769
	Sig. (2-tailed)	0.337368	0.644512	0.383317	0.119392373	0.052181	0.38331687	0.0161971	0.0578585
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	0.321429	-0.60714	-0.07143	-0.607142857	-0.05455	0.357142857	-0.964286	-0.702731
	Sig. (2-tailed)	0.482072	0.148231	0.879048	0.148231161	0.907523	0.431611352	0.0004541	0.0782375
	N	7	7	7	7	7	7	7	7
May	Correlation Coefficient	0.892857	-0.75	0.142857	-0.75	-0.03604	0.714285714	-0.714286	-0.571429
	Sig. (2-tailed)	0.006807	0.052181	0.759945	0.0521814	0.938861	0.071343561	0.0713436	0.180202
	N	7	7	7	7	7	7	7	7
June	Correlation Coefficient	0.535714	-0.37839	-0.25	-0.090093746	0.054056	0.107142857	-0.392857	-0.571429
	Sig. (2-tailed)	0.215217	0.402602	0.588724	0.84767208	0.908365	0.819150856	0.3833169	0.180202
	N	7	7	7	7	7	7	7	7
July	Correlation Coefficient	0.738769	-0.72075	0.666694	-0.678571429	0.071429	-0.35714286	-0.900937	-0.540562
	Sig. (2-tailed)	0.057858	0.067635	0.10192	0.093750254	0.879048	0.431611352	0.0056206	0.2102893
	N	7	7	7	7	7	7	7	7
August	Correlation Coefficient	0.428571	-0.53571	0.666694	-0.678571429	0	0.25	-0.5	-0.392857
	Sig. (2-tailed)	0.337368	0.215217	0.10192	0.093750254	1	0.588724448	0.25317	0.3833169
	N	7	7	7	7	7	7	7	7
September	Correlation Coefficient	0.738769	-0.10714	0.321429	-0.071428571	-0.52254	0.714285714	-0.928571	-0.5
	Sig. (2-tailed)	0.057858	0.819151	0.482072	0.879048193	0.228878	0.071343561	0.0025195	0.25317
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	0.678571	-0.14286	0.792825	-0.357142857	0	0.535714286	-0.815374	-0.428571
	Sig. (2-tailed)	0.09375	0.759945	0.033444	0.431611352	1	0.215217456	0.0253992	0.3373683
	N	7	7	7	7	7	7	7	7
November	Correlation Coefficient	0.75	-0.21429	0.535714	-0.285714286	0.558581	0.5	-0.714286	-0.678571
	Sig. (2-tailed)	0.052181	0.644512	0.215217	0.534509229	0.192453	0.253169995	0.0713436	0.0937503
	N	7	7	7	7	7	7	7	7
December	Correlation Coefficient	0.178571	-0.35714	0.5	-0.144149994	-0.07143	-0.78571429	-0.252262	-0.5
	Sig. (2-tailed)	0.701658	0.431611	0.25317	0.757817936	0.879048	0.036238463	0.5852411	0.25317
	N	7	7	7	7	7	7	7	7

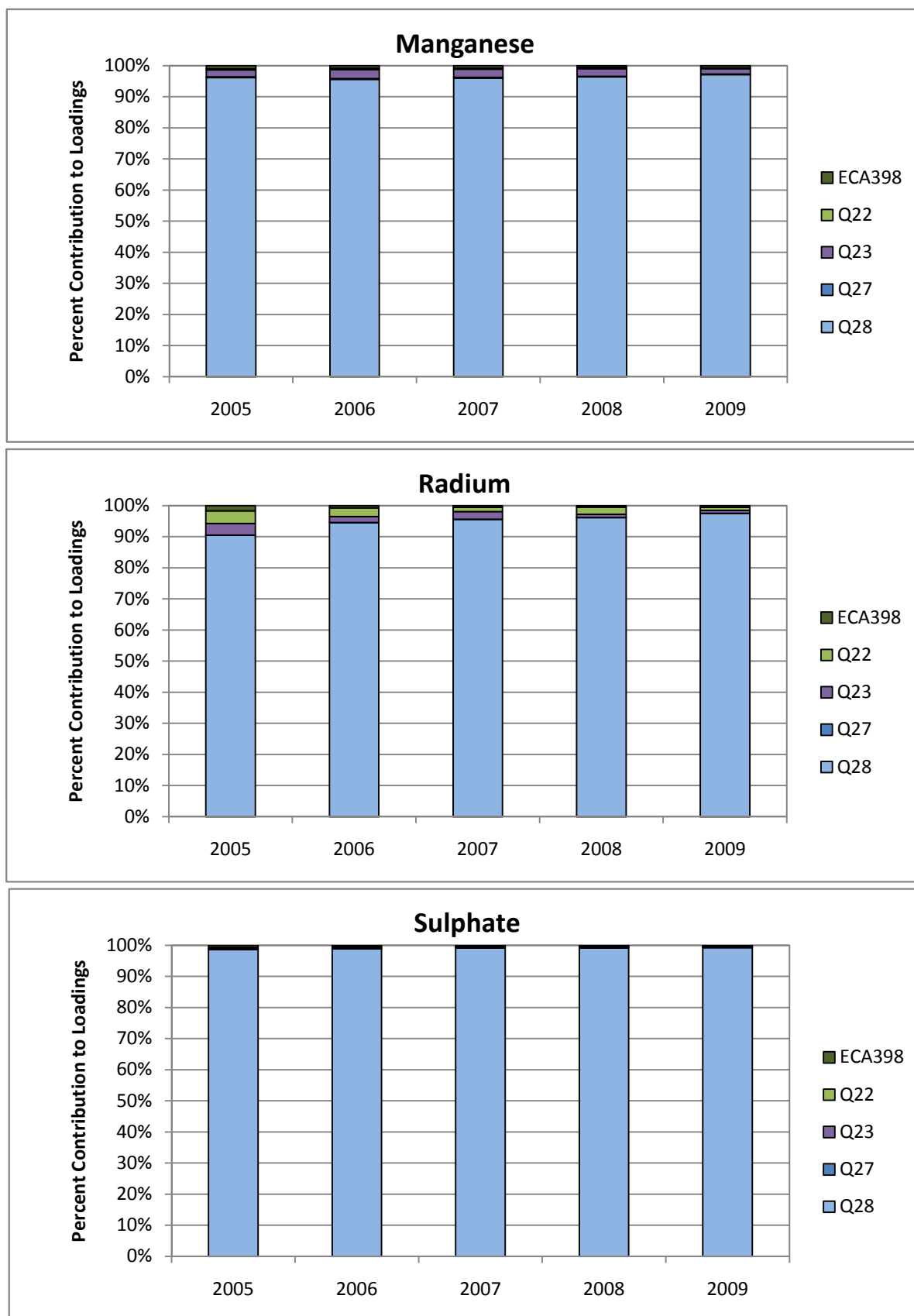
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

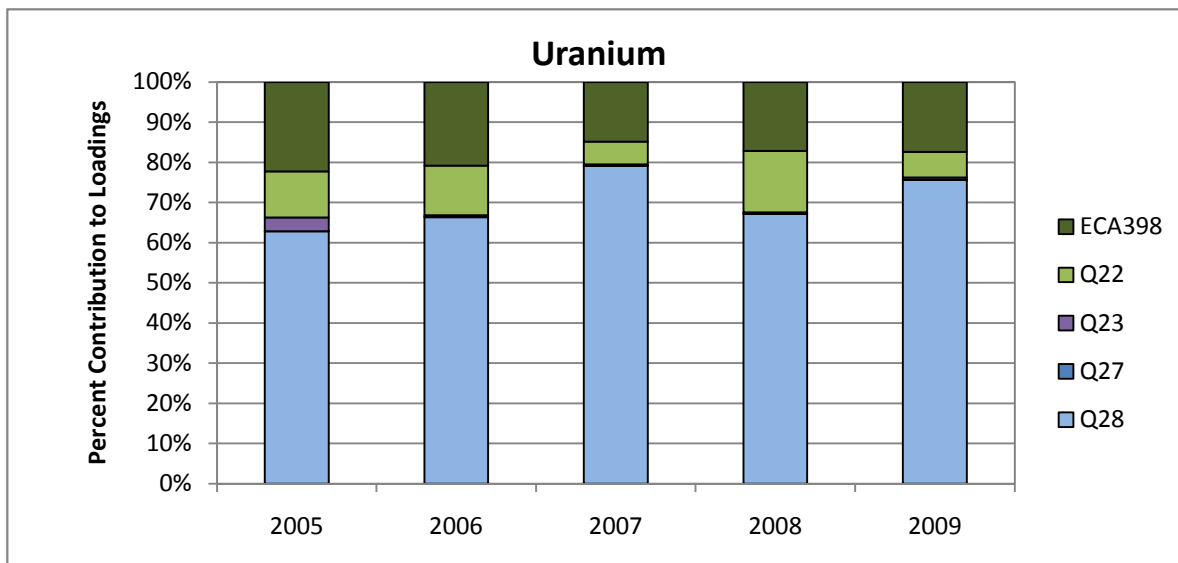
Significant trend where p<0.05.



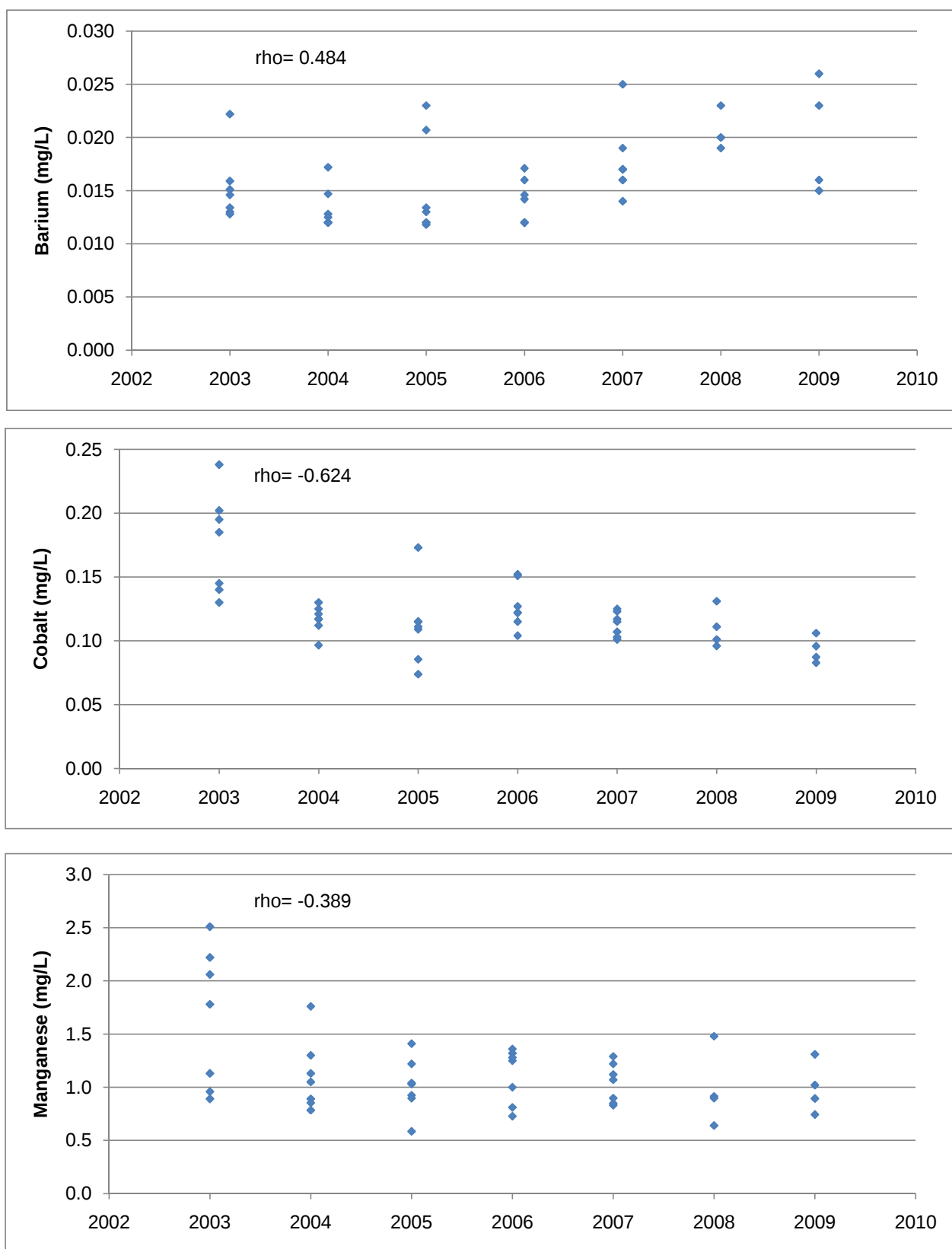
Appendix Figure D.2.1: Percent contribution to loads from Quirke TMA discharge points.



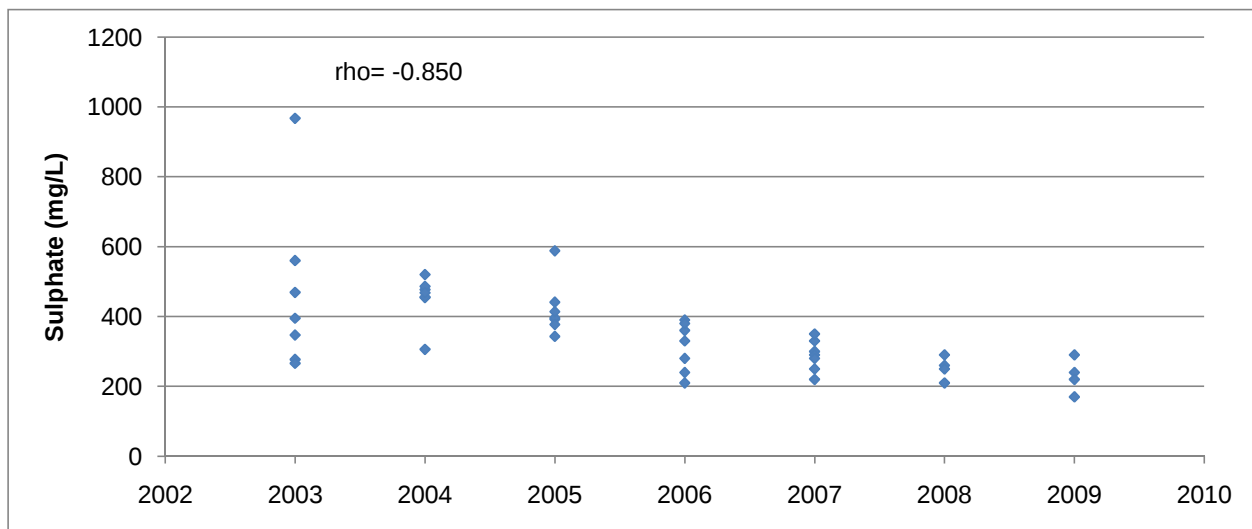
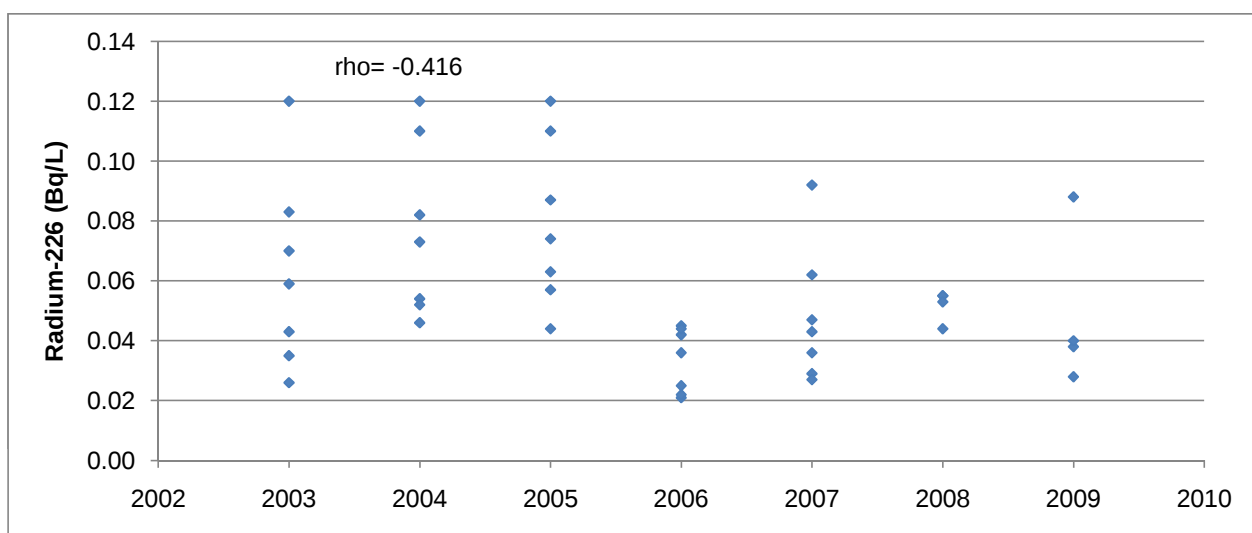
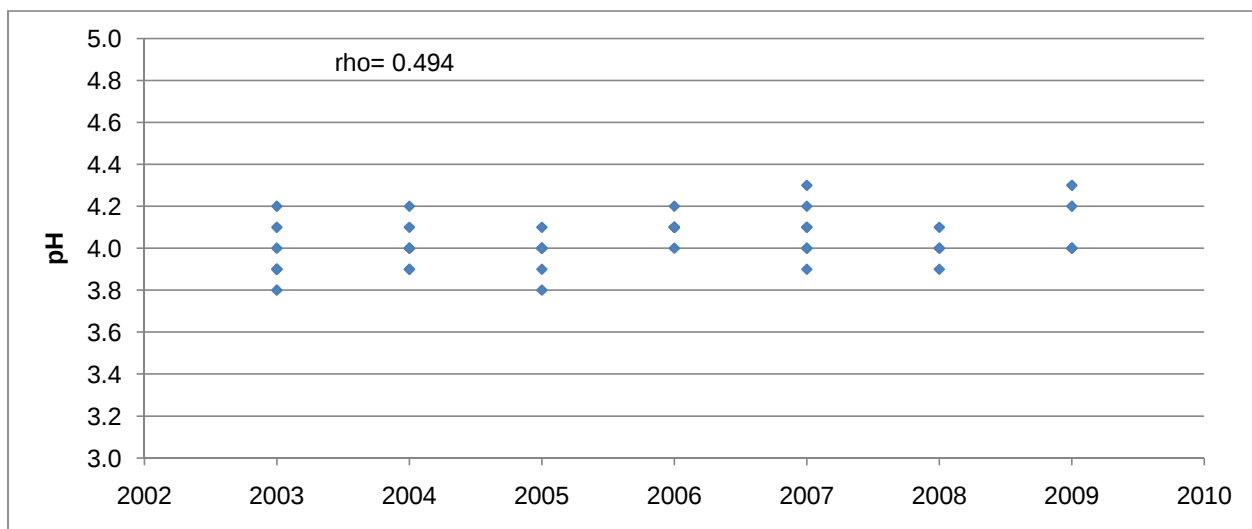
Appendix Figure D.2.1: Percent contribution to loads from Quirke TMA discharge points.



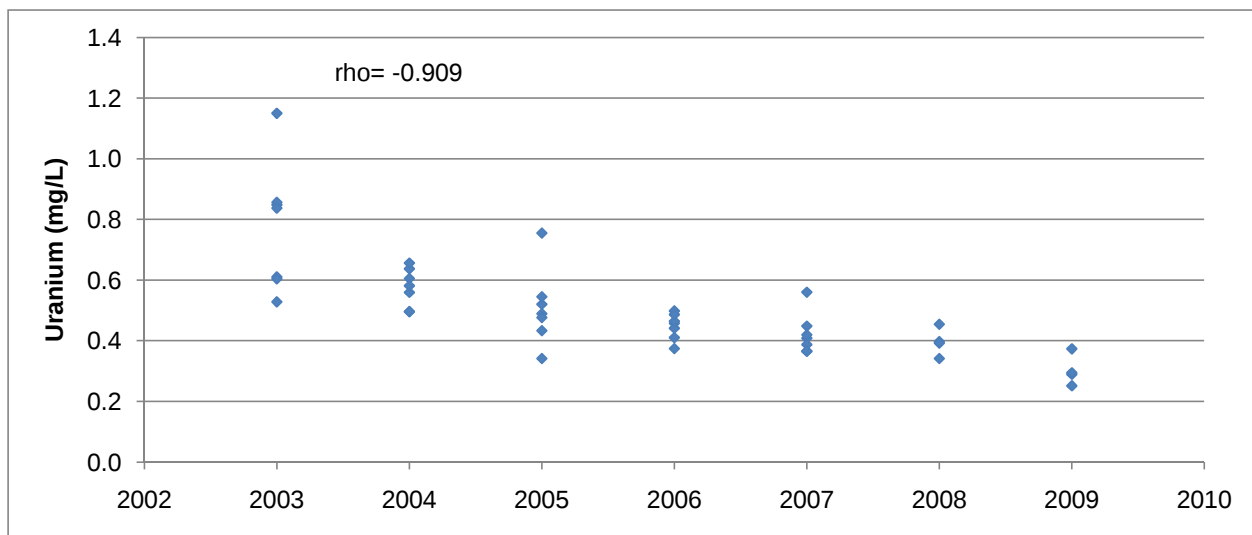
Appendix Figure D.2.1: Percent contribution to loads from Quirke TMA discharge points.



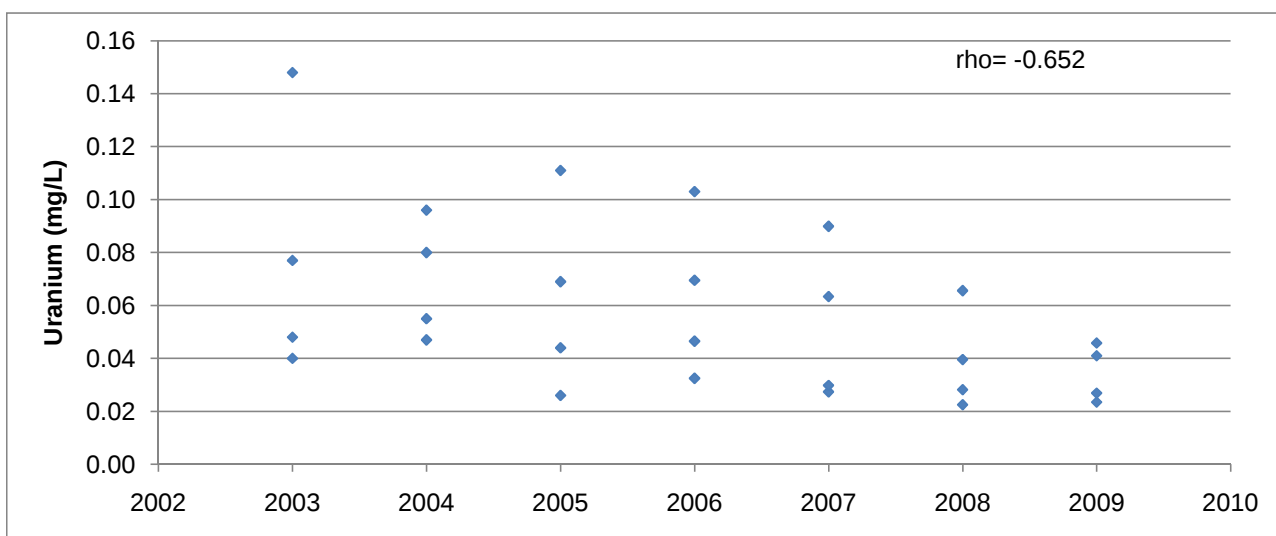
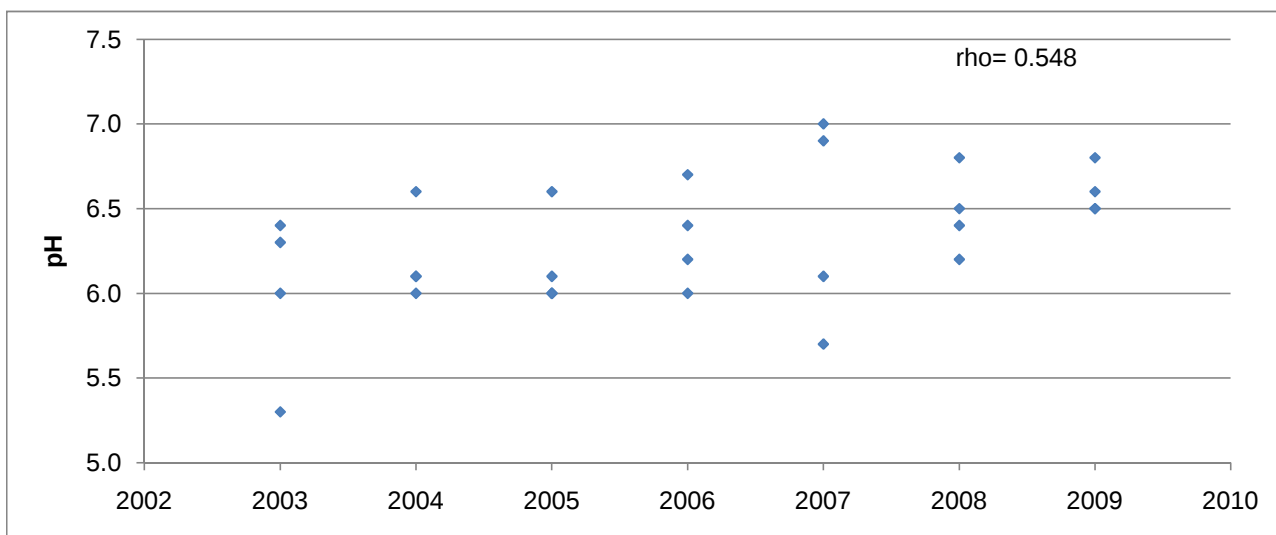
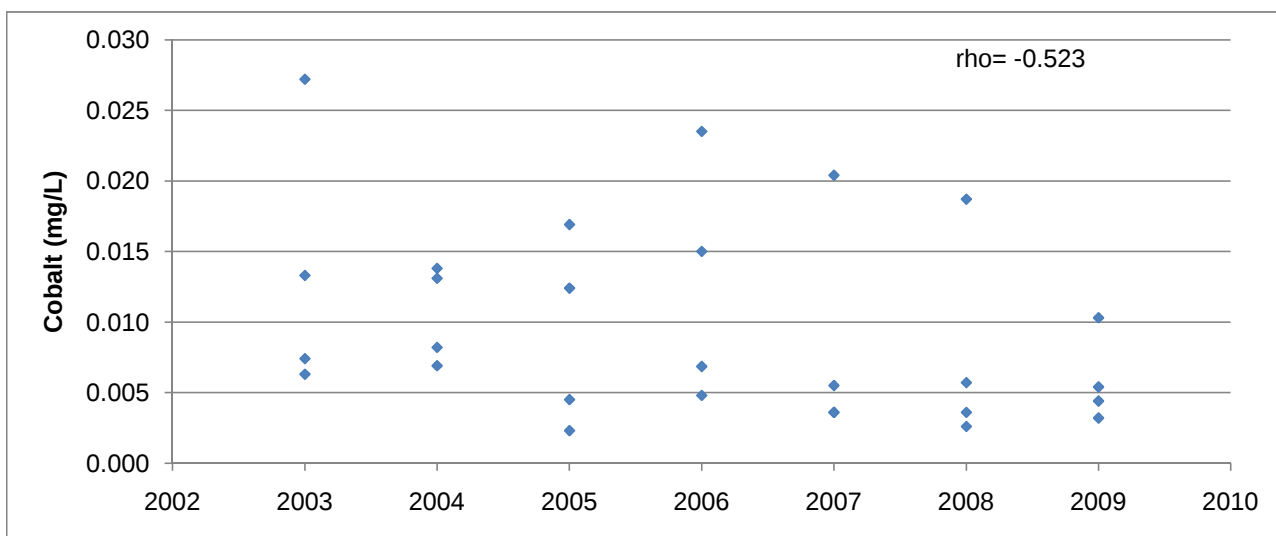
Appendix Figure D.2.2: Significant common (average) trends observed for barium, cobalt, manganese, pH, radium-226, sulphate and uranium over all seasons at station ECA-398, 2003 to 2009.



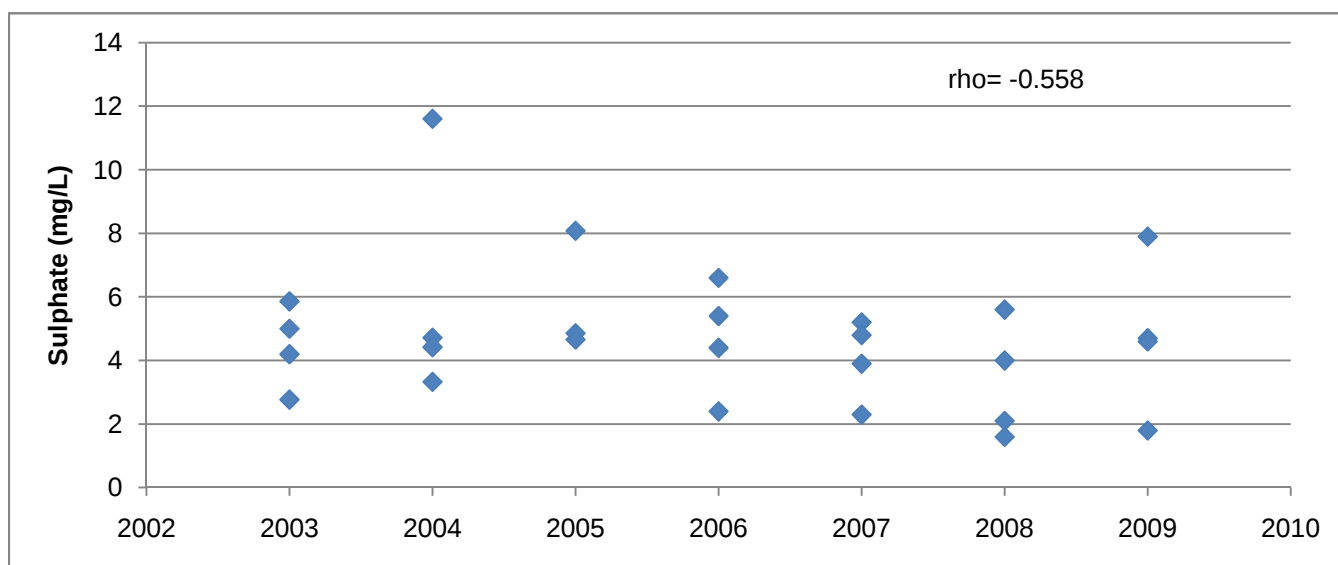
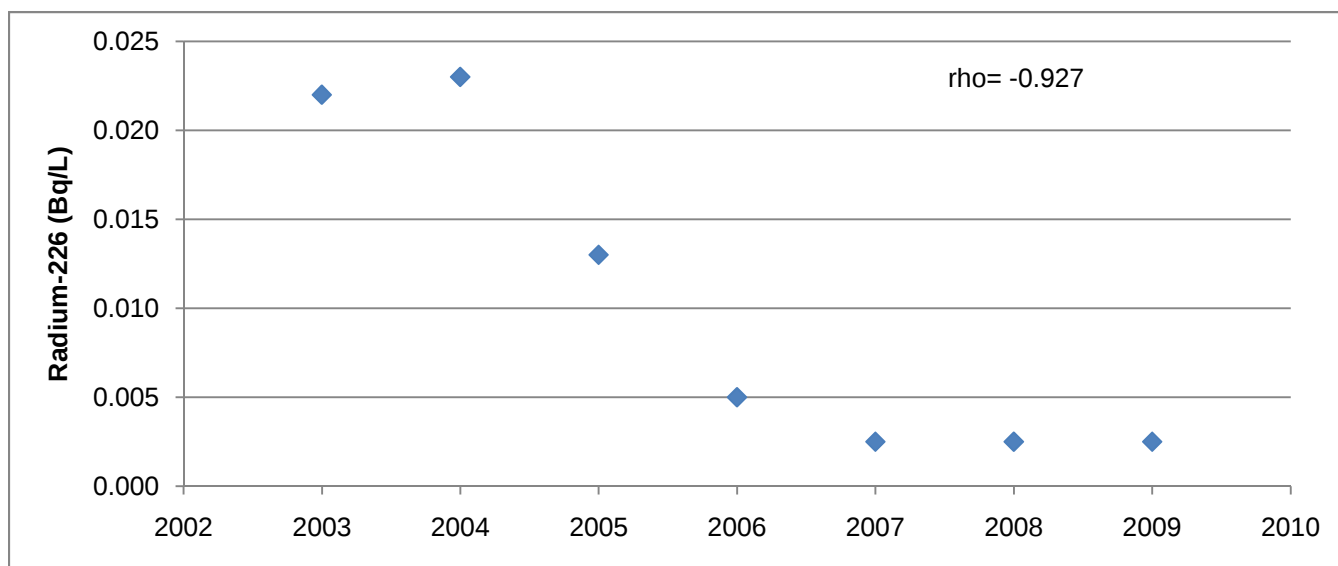
Appendix Figure D.2.2: Significant common (average) trends observed for barium, cobalt, manganese, pH, radium-226, sulphate and uranium over all seasons at station ECA-398, 2003 to 2009.



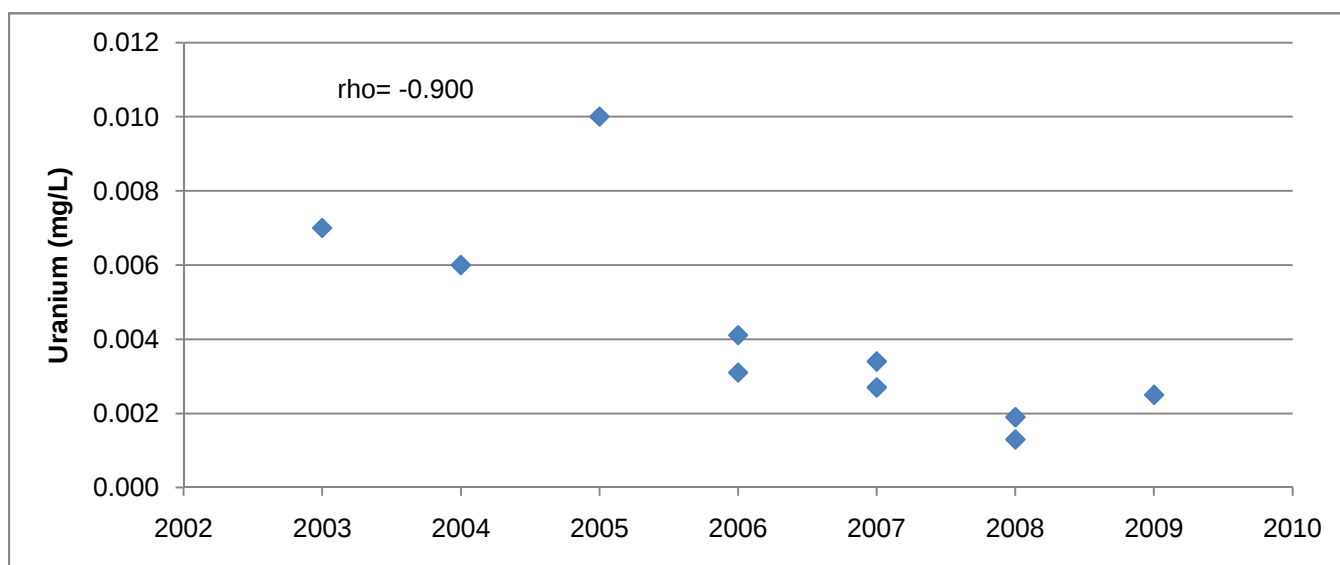
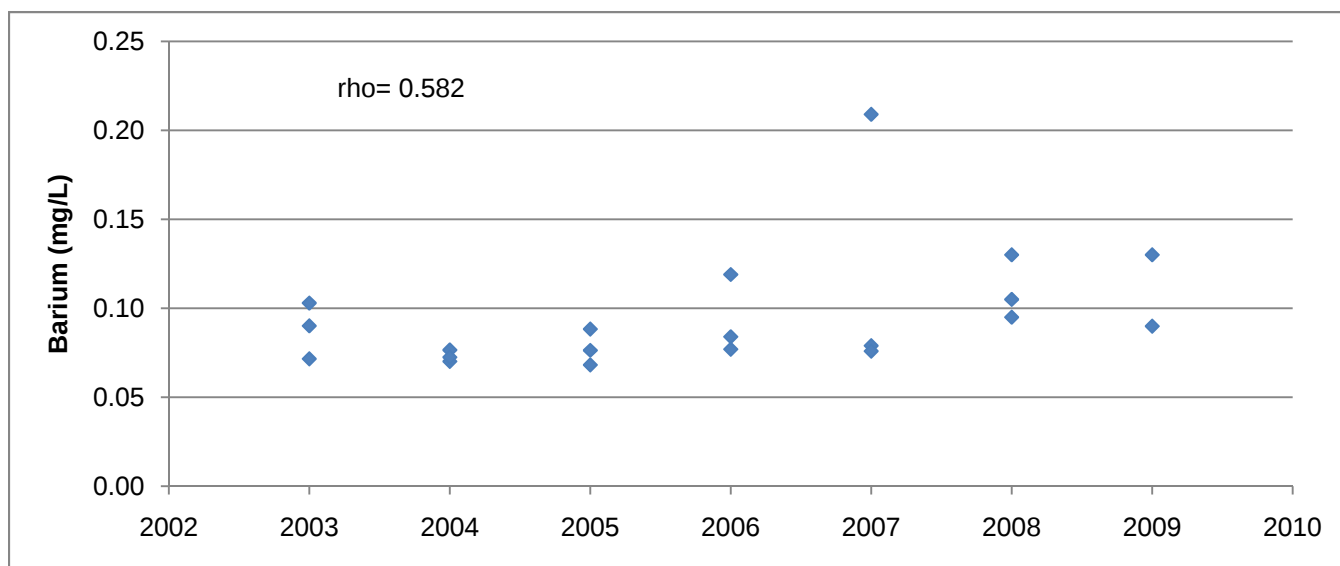
Appendix Figure D.2.2: Significant common (average) trends observed for barium, cobalt, manganese, pH, radium-226, sulphate and uranium over all seasons at station ECA-398, 2003 to 2009.



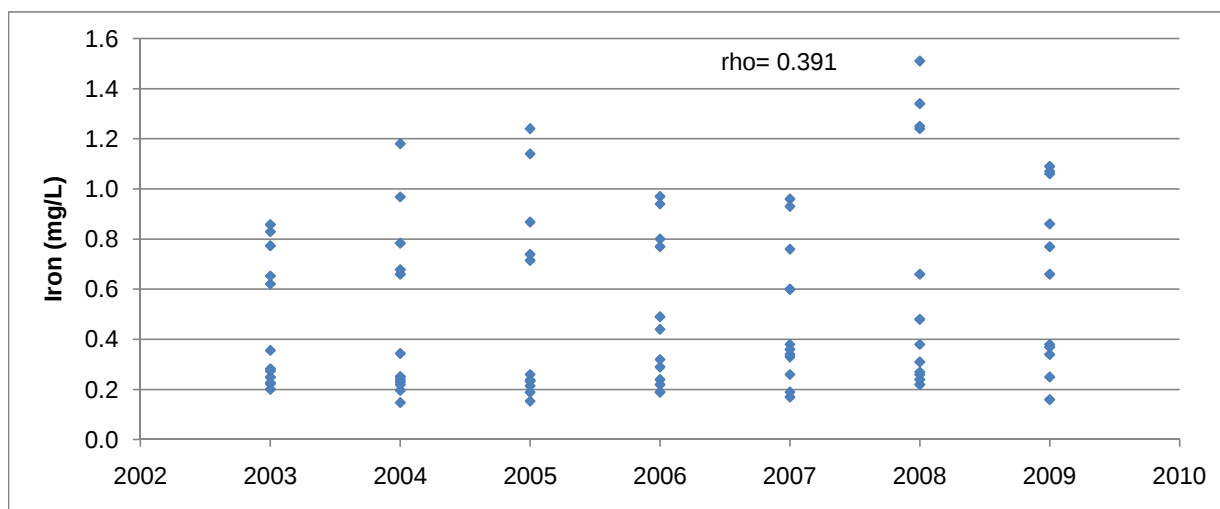
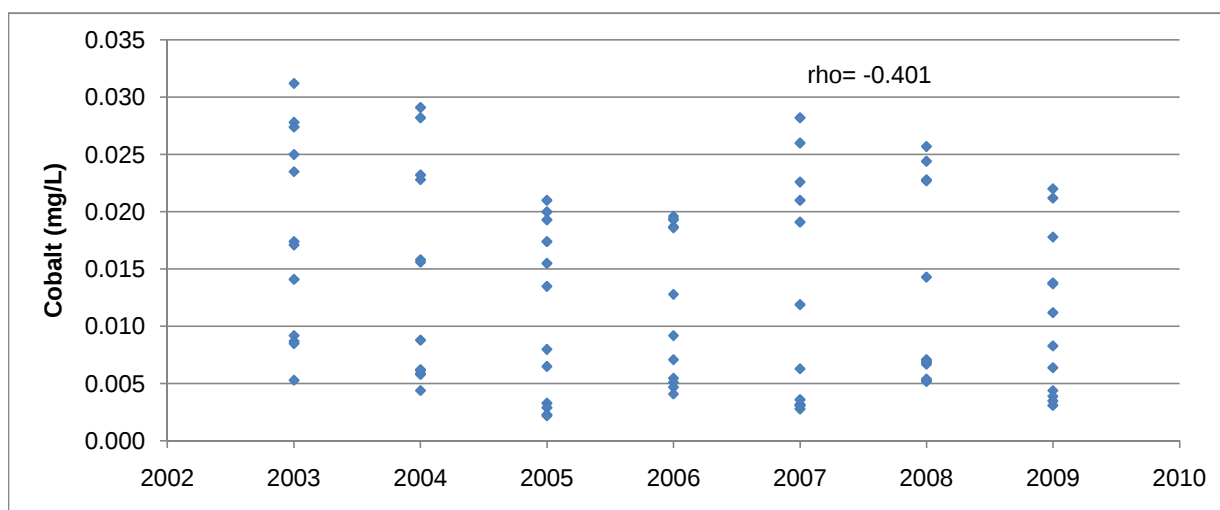
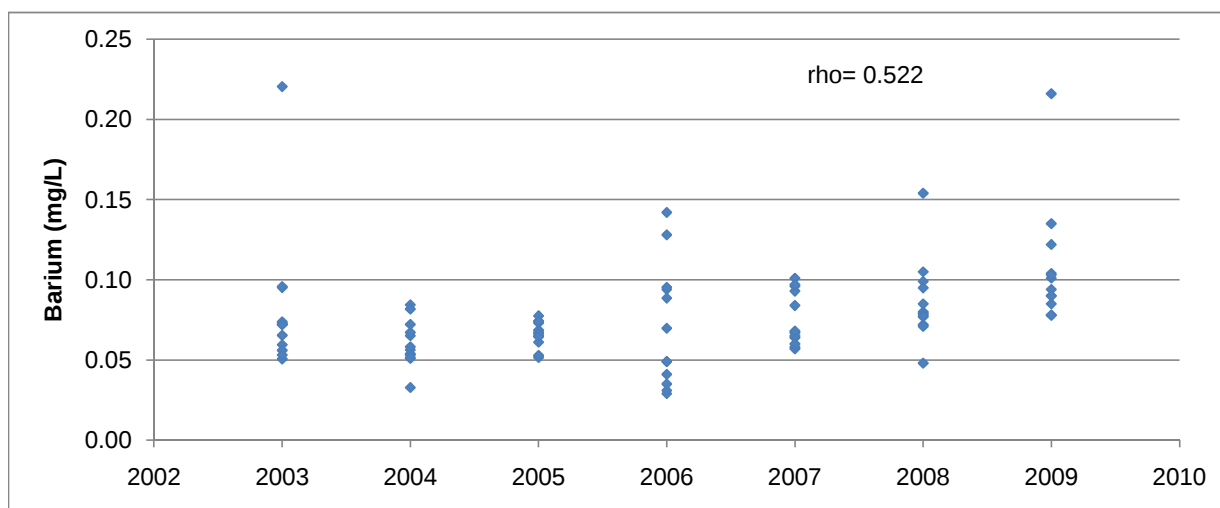
Appendix Figure D.2.3: Significant common (average) trends observed for cobalt, pH, and uranium over all seasons at station Q-22, 2003 to 2009.



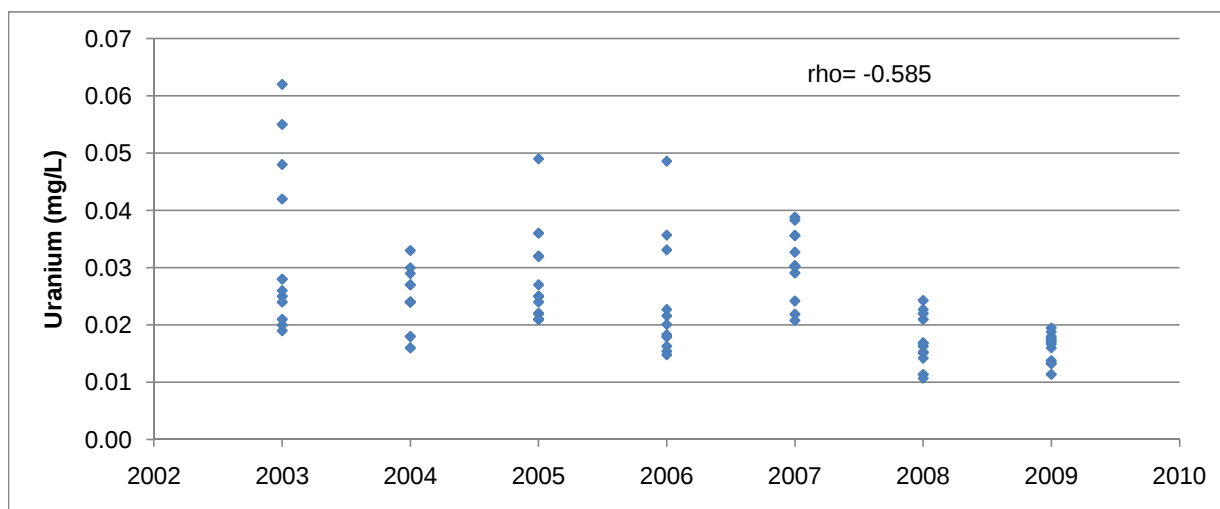
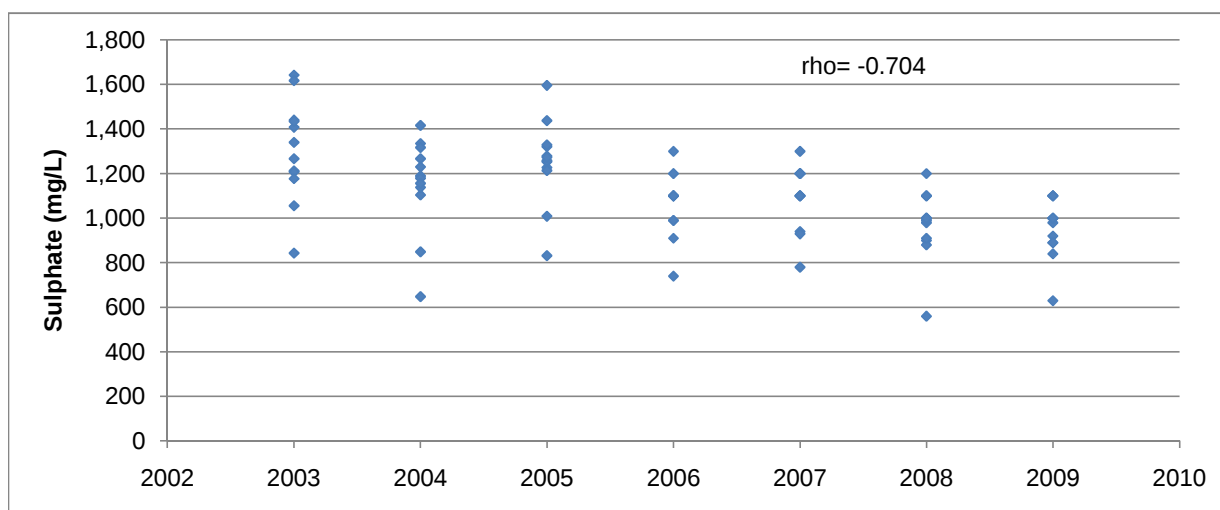
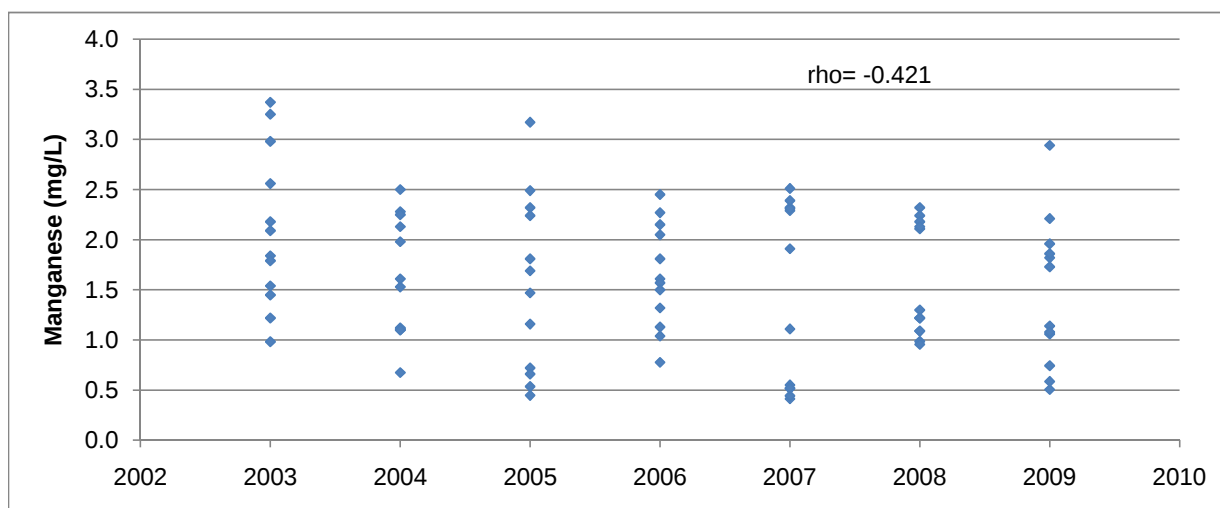
Appendix Figure D.2.4: Significant common (average) trends observed for radium-226 and sulphate over all seasons at station Q-23, 2003 to 2009.



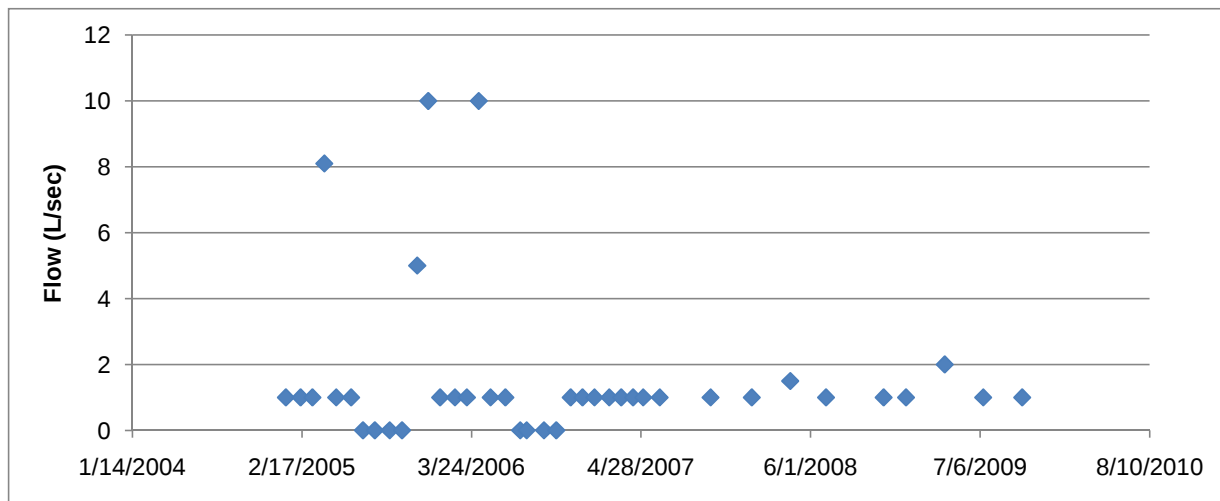
Appendix Figure D.2.5: Significant common (average) trends observed for barium and uranium over all seasons at station Q-27, 2003 to 2009.

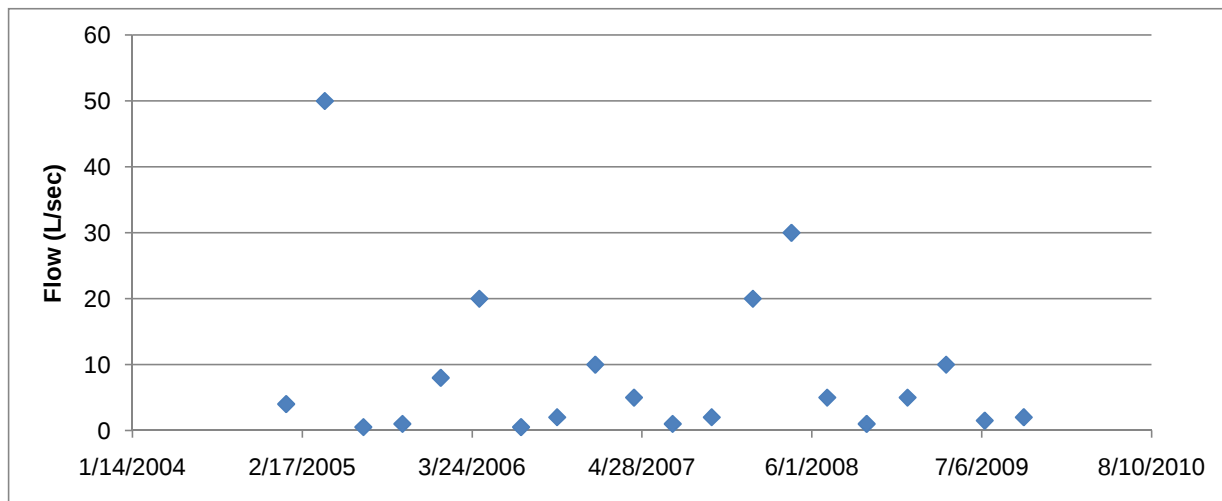


Appendix Figure D.2.6: Significant common (average) trends observed for barium, cobalt, iron, manganese, sulphate and uranium over all seasons at station Q-28, 2003 to 2009.

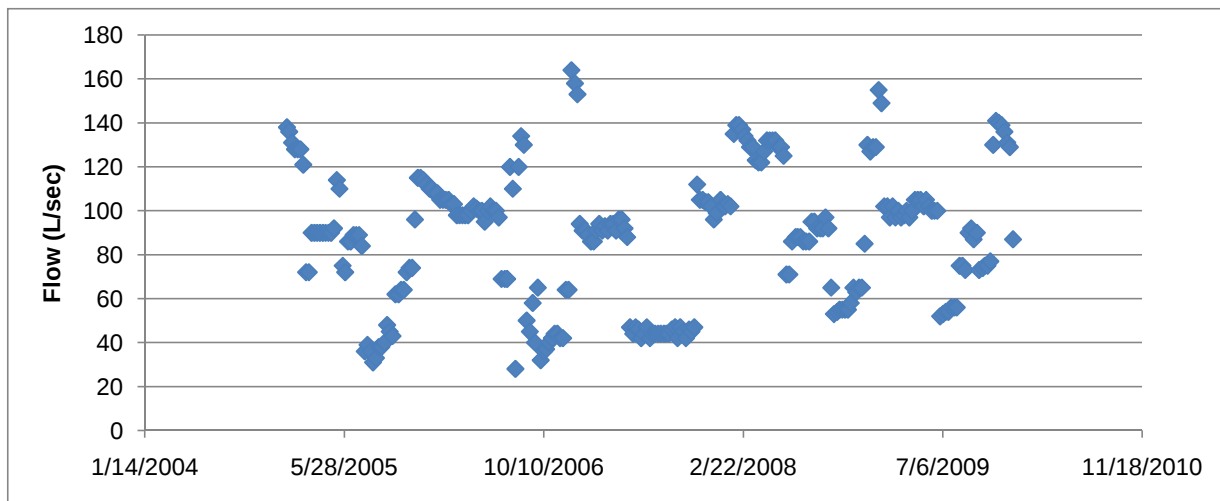


Appendix Figure D.2.6: Significant common (average) trends observed for barium, cobalt, iron, manganese, sulphate and uranium over all seasons at station Q-28, 2003 to 2009.





Appendix Figure D.2.8: Flows at station Q-22 from 2005 to 2009.



Appendix Figure D.2.9: Flows at station Q-28 from 2005 to 2009.

APPENDIX D.3

Panel TMA

Appendix Table D.3.1: Water quality at station P-02 from 2005 to 2009.

Date	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	U (mg/L)
1/24/2005	0.0016	0.0303	0.0008	662	0.151	0.0551	6.2	0.046	< 0.0003	748	0.006
4/25/2005	0.00164	0.0229	0.0005	657	0.154	0.037	6.2	0.093	0.0006	575	< 0.005
7/25/2005	0.00108	0.0246	0.0072	1168	0.732	5.74	6.2	0.08	0.002	726	< 0.005
11/28/2005	0.00082	0.0207	0.0016	723	2.89	0.237	6.5	0.053	< 0.0003	746	0.008
1/23/2006	< 0.0001	0.021	0.0013	689	0.94	0.142	6.3	0.025	0.0018	750	0.0032
4/25/2006	< 0.0001	0.0225	< 0.0005	640	0.04	0.00937	6.4	0.038	0.002	430	0.00053
7/25/2006	< 0.0001	0.021	0.0007	1057	0.72	0.06	6.9	0.039	< 0.0004	660	0.0016
10/24/2006	< 0.0001	0.023	0.0014	670	0.98	0.184	6.6	0.031	0.0006	570	0.0033
1/22/2007		0.020	0.0012		0.52	0.091	6.5	0.023		630.0	0.0028
4/23/2007		0.021	0.0015		0.77	0.160	6.5	0.040		530.0	0.0026
7/23/2007		0.021	< 0.0005		0.15	0.047	6.3	0.056		460.0	0.0007
10/22/2007		0.022	0.0007		0.34	0.096	6.1	0.036		520.0	0.0024
1/24/2008		0.021	0.0008		0.70	0.095	6.3	0.028		580.0	0.0033
5/8/2008		0.022	< 0.0005		0.10	0.038	6.4	0.052		350.0	0.0009
7/15/2008		0.025	0.0006		0.60	0.091	6.4	0.112		490.0	0.0020
10/16/2008		0.026	0.0006		0.31	0.062	6.5	0.023		490.0	0.0033
1/12/2009		0.023	0.0009		0.75	0.111	6.3	0.033		490.0	0.0039
4/27/2009		0.016	0.0006		0.41	0.068	6.4	0.029		250.0	0.0013
7/27/2009		0.023	< 0.0005		0.10	0.023	6.8	0.046		360.0	0.0009
10/26/2009		0.022	0.0008		0.44	0.099	6.8	0.027		370.0	0.0038
Number	8	20	20	8	20	20	20	20	8	20	20
Minimum	0.0001	0.016	0.0005	640	0.04	0.00937	6.1	0.023	0.0003	250	0.00053
Maximum	0.00164	0.0303	0.0072	1168	2.89	5.74	6.9	0.112	0.002	750	0.008
Mean	0.0007	0.022	0.0012	783	0.59	0.372	6.4	0.046	0.0010	536.3	0.00303
Median	0.0005	0.022	0.0008	680	0.48	0.091	6.4	0.039	0.0006	525.0	0.00300
10th Perc.	0.0001	0.021	0.0005	652	0.10	0.036	6.2	0.025	0.0003	359.0	0.00088

Appendix Table D.3.2: Water quality at station P-03 from 2005 to 2009.

Date	Ag (mg/L)	Ba (mg/L)	Co (mg/L)	Conductivity (µmho/cm)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	Se (mg/L)	SO4 (mg/L)	U (mg/L)
1/24/2005	< 0.0006	0.0537	0.0014	69.5	1.76	0.25	6.3	0.63	0.0003	10.4	< 0.005
4/25/2005	0.0001	0.0415	0.0006	59	6.93	0.151	6.6	0.91	0.0008	6.93	< 0.005
7/25/2005	0.00012	0.0239	< 0.0003	82.3	1.65	0.0109	7.2	0.48	< 0.0003	5.13	< 0.005
10/24/2005	0.00007	0.019	< 0.0003	75.4	0.258	0.0026	7.1	0.38	0.0006	6.31	< 0.005
1/23/2006	< 0.0001	0.046	< 0.0005	74.7	0.99	0.107	6.6	0.64	0.0014	10	< 0.0005
4/25/2006	< 0.0001	0.0404	< 0.0005	68.4	4.24	0.0833	6.9	0.76	0.0012	6.8	< 0.0005
7/25/2006	< 0.0001	0.026	< 0.0005	88.3	1.05	0.005	7.3	0.46	< 0.0004	5	< 0.0005
10/24/2006	< 0.0001	0.025	< 0.0005	58.9	0.37	0.004	7.3	0.47	< 0.0004	6.2	< 0.0005
1/22/2007		0.029	< 0.0005		0.64	0.042	6.5	0.354		8.3	< 0.0005
4/23/2007		0.039	< 0.0005		2.01	0.066	6.9	0.740		6.1	< 0.0005
7/23/2007		0.025	< 0.0005		0.77	0.007	7.0	0.400		5.0	< 0.0005
10/22/2007		0.035	< 0.0005		0.34	0.004	6.6	0.540		6.3	< 0.0005
1/24/2008		0.036	0.0006		0.92	0.107	6.4	0.610		8.6	< 0.0005
5/8/2008		0.026	< 0.0005		2.21	0.016	6.8	0.470		9.5	< 0.0005
7/15/2008		0.023	< 0.0005		1.38	0.008	7.5	0.369		5.8	< 0.0005
4/27/2009		0.018	0.0006		1.64	0.063	6.2	0.290		16.0	< 0.0005
7/27/2009		0.029	< 0.0005		0.87	0.007	6.9	0.490		18.0	< 0.0005
10/26/2009		0.030	< 0.0005		0.32	0.005	6.8	0.430		13.0	< 0.0005
Number	8	18	18	8	18	18	18	18	8	18	18
Minimum	0.00007	0.018	0.0003	58.9	0.258	0.0026	6.2	0.29	0.0003	5	0.0005
Maximum	0.0006	0.0537	0.0014	88.3	6.93	0.25	7.5	0.91	0.0014	18	0.005
Mean	0.00016	0.0314	0.0005	72.1	1.57	0.052	6.8	0.524	0.0007	8.52	0.0015
Median	0.0001	0.0290	0.0005	72.1	1.02	0.013	6.9	0.475	0.0005	6.87	0.0005
10th Perc.	0.00009	0.0218	0.0004	59.0	0.33	0.004	6.4	0.365	0.0003	5.09	0.0005

Appendix Table D.3.3: Water quality at station P-05 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/24/2005	0.018	0.0007	0.526	0.0486	6	0.005	11.4	< 0.005
4/25/2005	0.0119	< 0.0003	0.173	0.0237	6.3	0.006	30	< 0.005
7/25/2005	0.0179	0.001	1.25	0.181	6.4	< 0.005	50.9	< 0.005
10/24/2005	0.0237	0.0004	0.093	0.0388	6.2	0.01	112	< 0.005
1/23/2006	0.015	0.0009	0.76	0.165	6.3	0.005	58	< 0.0005
4/25/2006	0.0105	< 0.0005	0.19	0.0204	6.3	< 0.005	16	< 0.0005
7/25/2006	0.01	0.0006	0.42	0.072	6.5	< 0.005	63	< 0.0005
10/24/2006	0.009	< 0.0005	0.2	0.022	6.1	< 0.005	19	< 0.0005
1/22/2007	0.014	0.0006	0.32	0.121	6.4	< 0.005	30.0	< 0.0005
4/23/2007	0.013	0.0012	0.23	0.081	6.1	0.006	23.0	< 0.0005
7/23/2007	0.035	0.0026	0.52	0.211	6.0	0.008	77.0	< 0.0005
10/22/2007	0.022	0.0019	0.53	0.106	5.2	0.009	35.0	< 0.0005
1/24/2008	0.011	0.0008	0.25	0.061	5.8	< 0.005	30.0	< 0.0005
5/8/2008	0.010	0.0005	0.21	0.042	6.0	< 0.005	18.0	< 0.0005
7/15/2008	0.014	0.0008	1.09	0.068	6.0	< 0.005	18.0	< 0.0005
10/16/2008	0.020	0.0008	0.51	0.090	6.5	0.006	46.0	< 0.0005
1/12/2009	0.009	0.0005	0.47	0.036	6.2	< 0.005	18.0	< 0.0005
4/27/2009	0.006	< 0.0005	0.31	0.018	6.1	< 0.005	6.3	< 0.0005
7/27/2009	0.008	< 0.0005	0.46	0.023	6.5	< 0.005	15.0	< 0.0005
10/26/2009	0.014	0.0007	0.34	0.057	5.8	< 0.005	22.0	< 0.0005
Number	20	20	20	20	20	20	20	20
Minimum	0.006	0.0003	0.093	0.018	5.2	0.005	6.3	0.0005
Maximum	0.035	0.0026	1.25	0.211	6.5	0.01	112	0.005
Mean	0.015	0.0008	0.44	0.074	6.1	0.006	34.9	0.0014
Median	0.014	0.0007	0.38	0.059	6.2	0.005	26.5	0.0005
10th Perc.	0.009	0.0005	0.19	0.022	5.8	0.005	14.6	0.0005

Appendix Table D.3.4: Water quality at station P-11 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/27/2003	0.0138	0.0008	1.47	0.127	6.8	0.055	13.6	< 0.005
4/28/2003	0.0092	< 0.0003	0.271	0.0317	6.6	0.037	7.18	< 0.005
7/28/2003	0.0082	< 0.0003	0.905	0.0407	6.8	0.075	14.4	< 0.005
10/27/2003	0.01	0.0003	0.324	0.022	6.9	0.067	13	< 0.005
1/26/2004	0.0148	0.0008	0.661	0.0947	6.7	0.074	12	< 0.005
4/26/2004	0.0092	< 0.0003	0.162	0.0142	6.8	0.042	11.5	< 0.005
7/26/2004	0.0106	< 0.0003	0.706	0.0381	6.8	0.046	9.19	< 0.005
10/25/2004	0.0103	0.0008	0.353	0.032	6.8	0.07	14.4	< 0.005
1/24/2005	0.0146	0.0008	0.449	0.0368	6	0.046	11.5	0.006
4/25/2005	0.0104	< 0.0003	0.31	0.0176	6.8	0.052	8.52	< 0.005
10/24/2005	0.0135	0.0019	0.338	0.025	6.3	0.12	30	< 0.005
1/23/2006	0.012	0.0007	0.34	0.0402	7.1	0.057	13	0.0008
4/25/2006	0.0111	< 0.0005	0.16	0.0112	6.9	0.04	8.3	0.00096
8/21/2006	0.026	< 0.0005	0.1	0.015	6.9	0.12	36	0.0005
10/24/2006	0.012	0.0007	0.3	0.016	6.7	0.062	13	0.0016
1/22/2007	0.012	0.0006	0.21	0.026	6.8	0.047	11.0	0.0010
4/23/2007	0.011	< 0.0005	0.14	0.009	6.7	0.050	8.1	0.0010
7/23/2007	0.011	< 0.0005	0.34	0.013	7.0	0.050	5.9	0.0010
10/22/2007	0.017	0.0014	0.63	0.024	6.5	0.100	19.0	0.0038
1/24/2008	0.010	< 0.0005	0.22	0.016	6.3	< 0.005	9.1	0.0011
5/8/2008	0.011	< 0.0005	0.16	0.013	6.6	0.038	9.5	0.0010
7/15/2008	0.012	< 0.0005	0.57	0.027	6.9	0.041	8.5	0.0010
10/16/2008	0.013	0.0007	0.90	0.029	7.1	0.047	8.0	0.0012
1/12/2009	0.009	< 0.0005	0.40	0.029	6.7	0.040	7.9	0.0010
4/27/2009	0.009	< 0.0005	0.24	0.013	6.2	0.031	5.8	0.0012
7/27/2009	0.008	< 0.0005	0.57	0.020	7.0	0.039	4.0	0.0008
10/26/2009	0.010	< 0.0005	0.38	0.025	6.8	0.046	8.1	0.0014
Number	27	27	27	27	27	27	27	27
Minimum	0.008	0.0003	0.1	0.009	6	0.005	4	0.0005
Maximum	0.026	0.0019	1.47	0.127	7.1	0.12	36	0.006
Mean	0.012	0.0006	0.43	0.030	6.7	0.055	11.87	0.0028
Median	0.011	0.0005	0.34	0.025	6.8	0.047	9.50	0.0014
10th Perc.	0.009	0.0003	0.16	0.013	6.3	0.038	6.67	0.0009

Appendix Table D.3.5: Water quality at station P-14 from 2005 to 2009.

Date	pH ^a	TSS (mg/L)	SO4 (mg/L)	Ra (Bq/L)	U (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	Zn (mg/L)
1/13/2005	7.7	2	262	0.33	0.01	0.239	0.0006	0.003	0.234	0.0355	0.0014	0.0009	0.004
1/20/2005	7.4	2		0.33									
1/27/2005	7.4	2		0.17									
2/3/2005	7.5	2		0.23									
2/10/2005	7.5	3	267	0.32	0.009	0.375	0.0006	0.006	0.238	0.0423	0.0016	0.0006	0.004
2/17/2005	7.6	2		0.24									
5/5/2005	7.3	< 1		0.12									
5/12/2005	7.5	1		0.13									
5/19/2005	7.7	< 1	233	0.092	0.009	0.31	0.0009	< 0.001	0.207	0.0754	0.0023	0.0008	0.006
10/20/2005	7.4	< 1		0.1									
10/27/2005	7.5	1	303	0.25	0.011	0.247	< 0.0003	< 0.001	0.043	0.0118	0.0009	< 0.0006	0.002
11/3/2005	7.9	2		0.19									
11/10/2005	7.4	2	243	0.23	< 0.005	0.291	< 0.0003	< 0.001	0.081	0.0176	0.0017	0.0007	0.004
11/17/2005	7.4	2		0.17									
3/23/2006	7	< 2	260	0.046	0.0109	0.072	< 0.0005	0.0014	0.13	0.0317	0.003	< 0.0005	0.004
3/30/2006	7.6	1		0.061									
4/6/2006	7.7	1	230	0.061	0.00795	0.179	0.0007	0.0019	0.23	0.0602	0.0024	0.00078	0.005
4/13/2006	7.5	2		0.097									
4/20/2006	7.5	2		0.046									
4/27/2006	7.3	1		0.014									
5/4/2006	7.4	2	180	0.04	0.00748	0.286	0.0012	0.0013	0.27	0.0756	0.0024	0.00251	0.0056
5/11/2006	7.5	1		0.035									
5/18/2006	7.2	2		0.033									
5/25/2006	7.3	1		0.055									
6/1/2006	7.3	1		0.061									
6/8/2006	7.7	1	210	0.21	0.0058	0.309	0.00056	0.001	0.06	0.0473	< 0.002	< 0.0005	0.0045
10/19/2006	7.3	2		0.067									
10/26/2006	7.3	2	210	0.11	0.0094	0.289	< 0.0005	0.0014	0.09	0.016	< 0.002	0.0009	0.002
11/2/2006	7.3	2		0.18									
11/9/2006	7.4	2	220	0.2	0.0058	0.25	< 0.0005	0.0006	0.12	0.016	< 0.002	0.0013	0.001
11/16/2006	7.3	1		0.14									
11/23/2006	7.3	1		0.1									
3/8/2007	7.0		220.0	0.019	0.0057	0.100	< 0.0005		0.09	0.020			
3/15/2007	7.5			0.081									
3/22/2007	7.1			0.079									
3/29/2007	7.2			0.210									
4/5/2007	7.3			0.099									
4/12/2007	7.2			0.077									
4/19/2007	7.5		210.0	0.100	0.0070	0.236	< 0.0005		0.17	0.044			
4/26/2007	7.6			0.079									
5/3/2007	7.5			0.058									
5/10/2007	7.6		200.0	0.062	0.0060	0.246	0.0009		0.21	0.062			
11/15/2007	7.5			0.063									
11/22/2007	7.5		220.0	0.098	0.0074	0.358	0.0005		0.15	0.019			
11/29/2007	7.4			0.120									
12/6/2007	7.5		210.0	0.100	0.0051	0.313	0.0005		0.14	0.021			
2/21/2008	7.3		210.0	0.054	0.0057	0.361	0.0007		0.15	0.043			
2/28/2008	7.4			0.057									
3/6/2008	7.6		230.0	0.220	0.0056	0.501	0.0005		0.14	0.038			
3/13/2008	7.7			0.098									
3/20/2008	7.3			0.350									
3/27/2008	7.3			0.130									
4/3/2008	7.4		220.0	0.035	0.0067	0.332	0.0005		0.16	0.097			
4/10/2008	7.6			0.070									
4/17/2008	7.5			0.032									
4/24/2008	7.3			0.091									
5/1/2008	7.6		170.0	0.210	0.0072	0.454	0.0014		0.32	0.146			
5/8/2008	7.6			0.100									
5/15/2008	7.6			0.130									
5/22/2008	7.8		190.0	0.130	0.0074	0.214	0.0013		0.33	0.124			
6/26/2008	7.6			0.066									
7/3/2008	7.5		190.0	0.094	0.0070	0.513	< 0.0005		0.07	0.021			
7/10/2008	7.6			0.069									
8/7/2008	7.6		170.0	0.042	0.0093	0.330	< 0.0005		0.03	0.017			
8/14/2008	7.4			0.097									
10/9/2008	7.5		190.0	0.074	0.0133	0.264	< 0.0005		0.03	0.009			
10/16/2008	8.0		190.0	0.075	0.0061	0.502	< 0.0005		0.05	0.016			
10/23/2008	7.3			0.066									
10/30/2008	7.1			0.059									
2/5/2009	7.5			0.056									
2/12/2009	7.4		190.0	0.150	0.0041	0.640	< 0.0005		0.09	0.028			
2/19/2009	7.7			0.086									
2/26/2009	7.9			0.260									
3/26/2009	7.8		200.0	0.040	0.0057	0.536	< 0.0005		0.10	0.054			
4/2/2009	7.6			0.091									

Appendix Table D.3.5: Water quality at station P-14 from 2005 to 2009.

Date	pH ^a	TSS (mg/L)	SO4 (mg/L)	Ra (Bq/L)	U (mg/L)	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	Zn (mg/L)
4/8/2009	7.2		190.0	0.069	0.0048	0.637	< 0.0005		0.12	0.068			
4/16/2009	7.4			0.140									
4/23/2009	7.4			0.190									
4/30/2009	7.4			0.240									
5/7/2009	7.5		151.0	0.170	0.0057	0.469	0.0012		0.30	0.156			
5/14/2009	7.5			0.099									
5/21/2009	7.7			0.100									
5/28/2009	7.8			0.100									
6/4/2009	7.7		160.0	0.120	0.0054	0.514	< 0.0005		0.19	0.085			
11/5/2009	7.6		170.0	0.100	0.0162	0.431	< 0.0005		0.03	0.010			
11/12/2009	8.0			0.055									
11/19/2009	7.5			0.088									
11/26/2009	7.7			0.210									
12/3/2009	7.4			0.200									
12/10/2009	7.7		180.0	0.100	0.0043	0.557	< 0.0005		0.07	0.020			
Number	149	32	32	90	32	32	32	11	32	32	11	11	11
Minimum	7	1	151	0.014	0.0041	0.072	0.0003	0.0006	0.03	0.009	0.0009	0.0005	0.001
Maximum	8	3	303	0.35	0.0162	0.64	0.0014	0.006	0.33	0.156	0.003	0.00251	0.006
Mean	7.5	2	209	0.119	0.0074	0.355	0.0006	0.0018	0.15	0.048	0.002	0.0009	0.004
Median	7.5	2	210	0.099	0.0069	0.322	0.0005	0.0013	0.14	0.037	0.002	0.0008	0.004
10th Perc.	7.3	1	170	0.046	0.0050	0.216	0.0005	0.0010	0.04	0.016	0.001	0.0005	0.002

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.3.6: Summary of Annual Plant Operations and Discharge at Panel, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	108	126	104	161	146
Maximum Daily Plant Flow (L/s @ P-13)	110	108	106	150	150
Minimum Daily Plant Flow (L/s @ P-13)	0	0	0	0	0
Monthly Average Daily Plant Flow (L/s @ P-13)	101	70	76	103	101
Total Volume Treated (ML)	944	766	684	1432	1285
Annual Average Treatment Rate (L/s)			76	103	102
Barium Chloride Consumption					
Total (kg/yr)	2332	2352	1354	2740	3190
Monthly Average (mg/L)	2.5	3.1	1.98	1.91	2.48
Caustic Soda Consumption					
total kg/year	3524	2485	0.00	0.00	0.00
monthly average mg/litre	3.7	3.2	0.00	0.00	0.00
Lime Consumption					
Dry (tonne/yr)	0.0	0.0	1.60	4.60	3.12
Average (g/L)	0.0	0.0	0.002	0.003	0.002
*EFFLUENT					
Discharge Days	105	125	102	159	143
Maximum Daily Discharge Flow (L/s @ P-14)	105	106	102	143	142
Minimum Daily Discharge Flow (L/s @ P-14)	0	0	0	0	0
Monthly Average Daily Discharge Flow (L/s @ P-14)	101	67	75	100	101
Total Annual Volume Discharged (ML)	916	721	664	1369	1268
Annual Average Discharge Rate (L/s)	29	23	75	100	103

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.3.7: Mean annual discharge and seepage loadings from Panel TMA, 2005 - 2009.

Station	Drainage Type	Mean Annual Discharge (m³)		Sulphate	Radium	Uranium	Barium	Cobalt	Iron	Manganese
				(kg/yr)	(MBq/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
Q-09	Quirke Lake Inlet	67,185,723	Mean	5,684,136	5,718	312	5,909	37		
			S.D.	926,920	866	66	931	4.7		
P-14	Controlled Discharge	2,106,605	Mean	212,889	126	7.9	370	0.5	152	51
			S.D.	53,487	52	2.6	239	0.2	45	29
P-02	Seepage from Dam B	63,072	Mean	33,822	2.9	0.2	1.41	0.1	37	23
			S.D.	7,898	0.95	0.1	0.1	0.1	15	40
P-03	Pond C Discharge	337,435	Mean	2,986	174	0.2	10.5	0.1	520	17
			S.D.	1,299	27	0.3	1.31	0.0	236.4	11
P-05	Seepage from Dam E	253,234	Mean	8,845	1.1	0.2	3.70	0.2	112	19
			S.D.	3,467	0.44	0.25	1.22	0.1	16.2	9
P-11	Site Drainage	687,485	Mean	7,043	36	1.2	7.8	0.3	249	14
			S.D.	3,644	24	0.8	5.0	0.2	216	13
All Panel Sources				265,586	340	10	393	1.2	1,070	125
SR-01	Outlet of Quirke Lake	136,511,119	Mean	7,792,055	4205	218	5,477	31		
			S.D.	1,335,662	665	55	231	6		

MBq/yr = Million Bequerels per year

Appendix Table D.3.8: Summary of seasonal trends for station P-02, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.61264	-0.12613	0.035714	0.035714286	0.039406	-0.57142857	-0.857143	-0.463817
	Sig. (2-tailed)	0.143589	0.787572	0.939408	0.939408205	0.933155	0.18020199	0.0136973	0.3541643
	N	7	7	7	7	7	7	7	6
April/May	Correlation Coefficient	-0.25	-0.46849	-0.03571	-0.321428571	0.692345	-0.42857143	-0.75	
	Sig. (2-tailed)	0.588724	0.288997	0.939408	0.482072038	0.084724	0.33736831	0.0521814	
	N	7	7	7	7	7	7	7	
July	Correlation Coefficient	0.185312	-0.69102	-0.25	-0.75	0.600099	-0.17857143	-0.928571	
	Sig. (2-tailed)	0.690778	0.08557	0.588724	0.0521814	0.154291	0.70165794	0.0025195	
	N	7	7	7	7	7	7	7	
October/November	Correlation Coefficient	0.216225	-0.17857	0.178571	-0.178571429	0.370625	-0.35714286	-0.964286	-0.205196
	Sig. (2-tailed)	0.641446	0.701658	0.701658	0.701657943	0.413116	0.43161135	0.0004541	0.7405819
	N	7	7	7	7	7	7	7	5

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where p<0.05.

Appendix Table D.3.9: Summary of seasonal trends for station P-03, 2003 to 2009.

Season	Spearman rho	Barium	Iron	Manganese	pH	Radium-226	Sulphate
January	Correlation Coefficient	-0.54286	-0.88571	-0.37685117	-0.65714	0.14285714	-0.88571
	Sig. (2-tailed)	0.265703	0.018845	0.46148284	0.156175	0.78717201	0.018845
	N	6	6	6	6	6	6
April/May	Correlation Coefficient	-0.42857	-0.82143	-0.85714286	-0.10911	-0.42857143	0.321429
	Sig. (2-tailed)	0.337368	0.023449	0.013697327	0.815871	0.33736831	0.482072
	N	7	7	7	7	7	7
July	Correlation Coefficient	0.75	-0.03571	-0.05455447	-0.53571	0.36037499	0.018019
	Sig. (2-tailed)	0.052181	0.939408	0.907523209	0.215217	0.42714881	0.969415
	N	7	7	7	7	7	7
October	Correlation Coefficient	0.771429	0.714286	0.794461347	-0.77143	0.77142857	-0.08571
	Sig. (2-tailed)	0.072397	0.110787	0.0590276	0.072397	0.0723965	0.871743
	N	6	6	6	6	6	6

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

Appendix Table D.3.10: Summary of seasonal trends for station P-05, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate
January	Correlation Coefficient	-0.991031209	-0.785714	-0.857143	-0.75	-0.218218	-0.95431352	-0.126131
	Sig. (2-tailed)	1.45613E-05	0.036238	0.013697	0.0521814	0.638299	0.00083601	0.787572
	N	7	7	7	7	7	7	7
April/May	Correlation Coefficient	0	-0.205832	0.107143	-0.321428571	-0.377964		-0.035714
	Sig. (2-tailed)	1	0.657923	0.819151	0.482072038	0.40318		0.939408
	N	7	7	7	7	7		7
July	Correlation Coefficient	-0.071428571	0.259437	0.392857	-0.035714286	-0.256978		-0.285714
	Sig. (2-tailed)	0.879048193	0.574237	0.383317	0.939408205	0.578001		0.534509
	N	7	7	7	7	7		7
October	Correlation Coefficient	0.071428571	0.748705	0.535714	0.607142857	-0.571429	-0.1111874	-0.321429
	Sig. (2-tailed)	0.879048193	0.05282	0.215217	0.148231161	0.180202	0.81240702	0.482072
	N	7	7	7	7	7	7	7

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where p<0.05.

Appendix Table D.3.11: Summary of seasonal trends for station P-11, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.88292	-0.95431	-0.75	-0.85714286	-0.16366	-0.71428571	-0.8928571	-0.205196
	Sig. (2-tailed)	0.00845	0.000836	0.052181	0.013697327	0.725862	0.071343561	0.0068072	ns
	N	7	7	7	7	7	7	7	5
April/May	Correlation Coefficient	0.109109		-0.43245	-0.66669372	-0.43644	-0.28571429	-0.25	
	Sig. (2-tailed)	0.815871		0.332527	0.10192046	0.327582	0.534509229	0.5887244	
	N	7		7	7	7	7	7	
July/August	Correlation Coefficient	-0.02857		-0.46382	-0.54285714	0.83666	-0.71428571	-0.7714286	
	Sig. (2-tailed)	0.957155		0.354164	0.265702624	0.037841	0.110787172	0.0723965	
	N	6		6	6	6	6	6	
October	Correlation Coefficient	0.180187	-0.14548	0.642857	0.144149994	0.054056	-0.57142857	-0.4865062	
	Sig. (2-tailed)	0.699046	0.755633	0.119392	0.757817936	0.908365	0.180201989	0.2682486	
	N	7	7	7	7	7	7	7	

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where p<0.05.

Appendix Table D.3.12: Summary of seasonal trends for station P-14, 2003 to 2009.

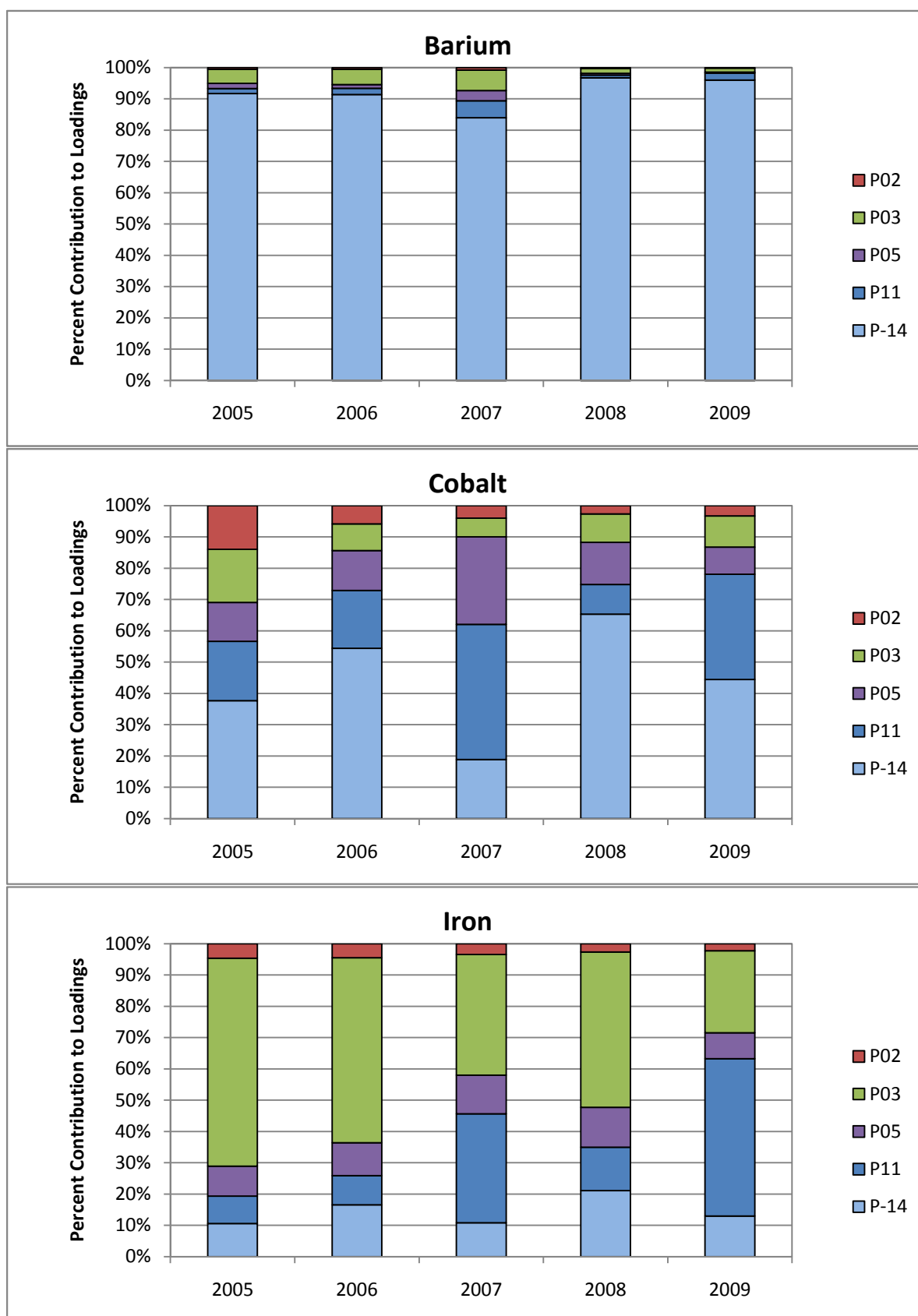
Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
February/March	Correlation Coefficient	0.7	-0.44721	-0.5	0.3	-0.35714	-0.77142857	-0.9	-0.71818
	Sig. (2-tailed)	0.18812	0.450185	0.391002	0.623837665	0.431611	0.072396501	0.037386	0.171795
	N	5	5	5	5	7	6	5	5
April	Correlation Coefficient	0.714286	-0.61791	-0.65714	0.485714286	-0.31887	-0.48571429	-0.94286	-0.94286
	Sig. (2-tailed)	0.110787	0.191094	0.156175	0.328723032	0.537901	0.328723032	0.004805	0.004805
	N	6	6	6	6	6	6	6	6
May	Correlation Coefficient	0.5	-0.07485	0.178571	0.535714286	0.035714	-0.42857143	-0.90094	-0.96429
	Sig. (2-tailed)	0.25317	0.87329	0.701658	0.215217456	0.939408	0.337368311	0.005621	0.000454
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	0.9		0	0.410391341	-0.8	-1	-0.7	-0.71818
	Sig. (2-tailed)	0.037386		1	0.492535782	0.104088	0.000001	0.18812	0.171795
	N	5		5	5	5	5	5	5
November	Correlation Coefficient	0.6	-0.44721	-0.6	-0.7	-0.14286	-0.9	-0.97468	0.4
	Sig. (2-tailed)	0.284757	0.450185	0.284757	0.188120404	0.787172	0.037386073	0.004818	0.504632
	N	5	5	5	5	6	5	5	5

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

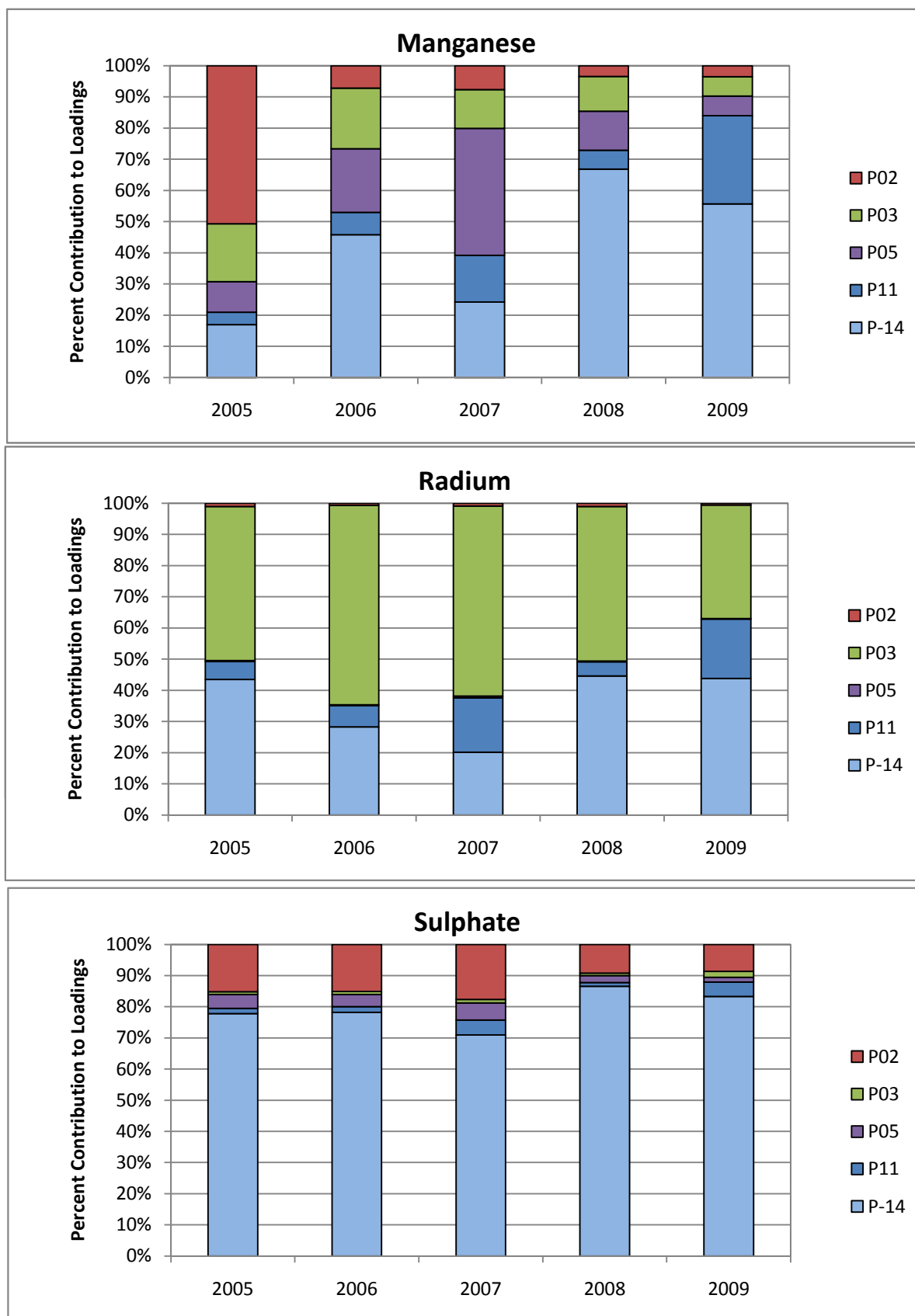
Correlation Coefficient (Zar 1984).

ns denotes not significant.

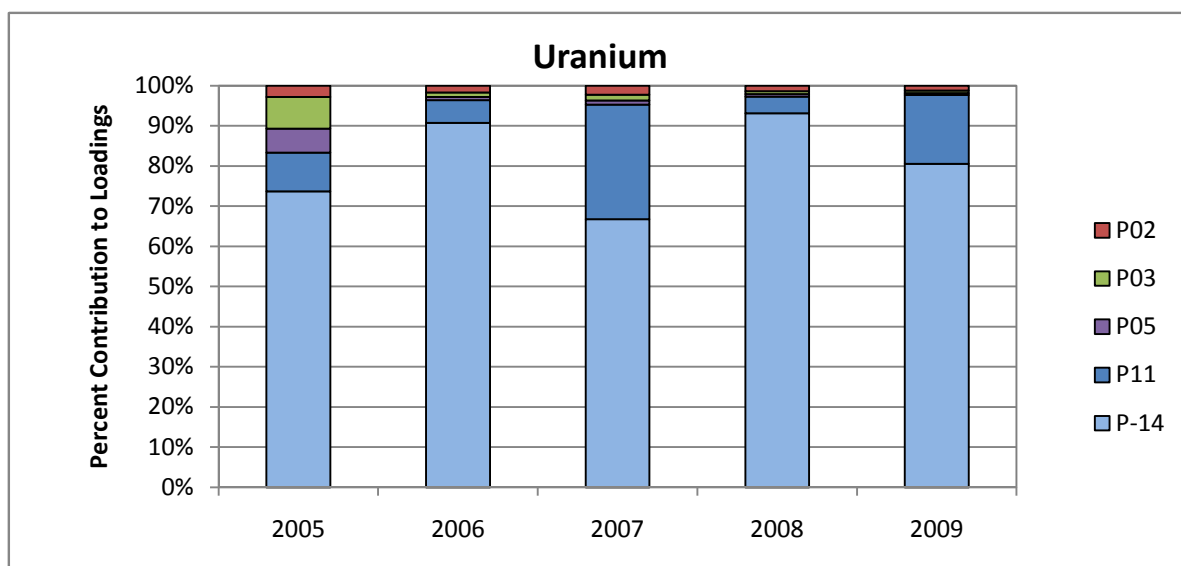
 Significant trend where p<0.05.



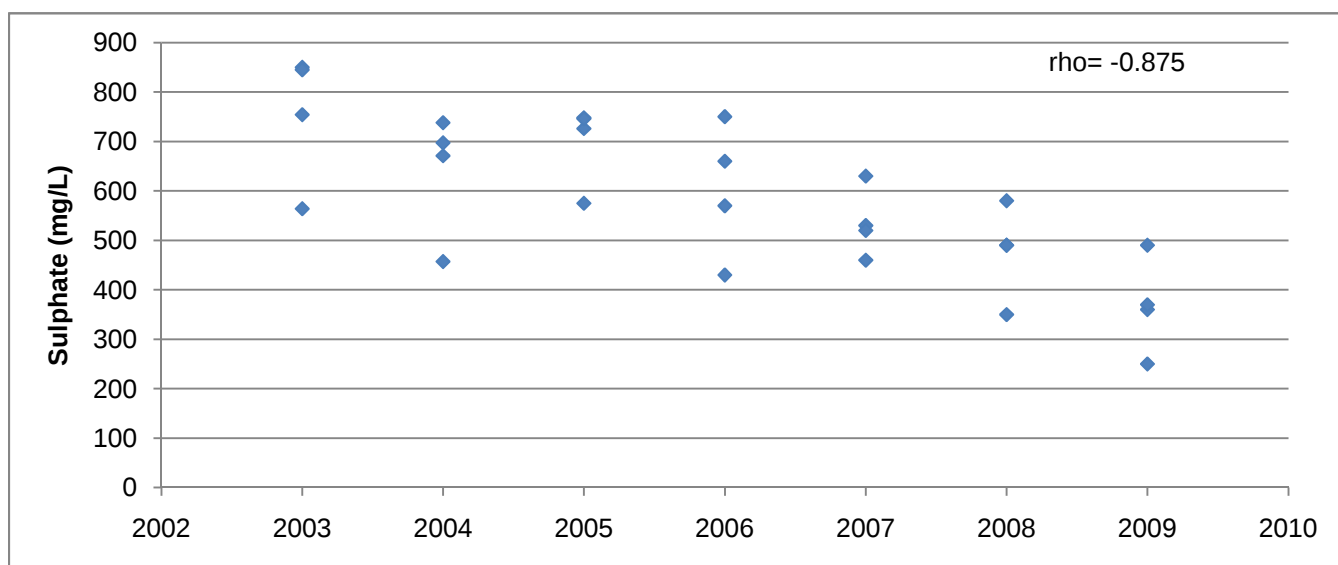
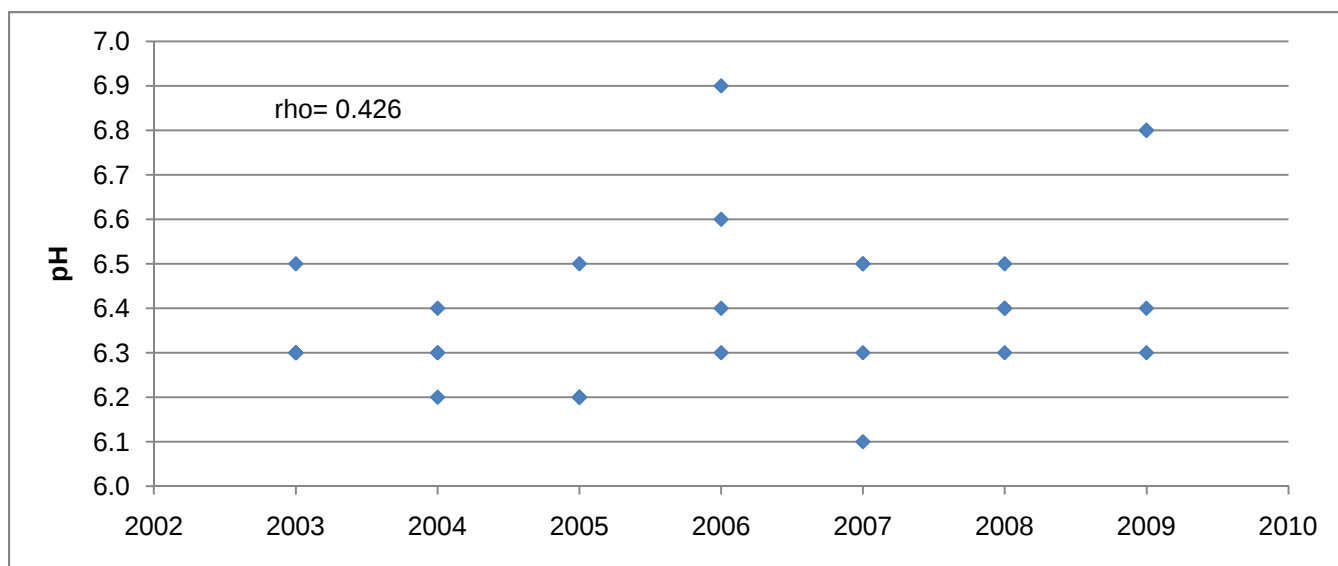
Appendix Figure D.3.1: Percent contribution to loads from Panel TMA discharge points.



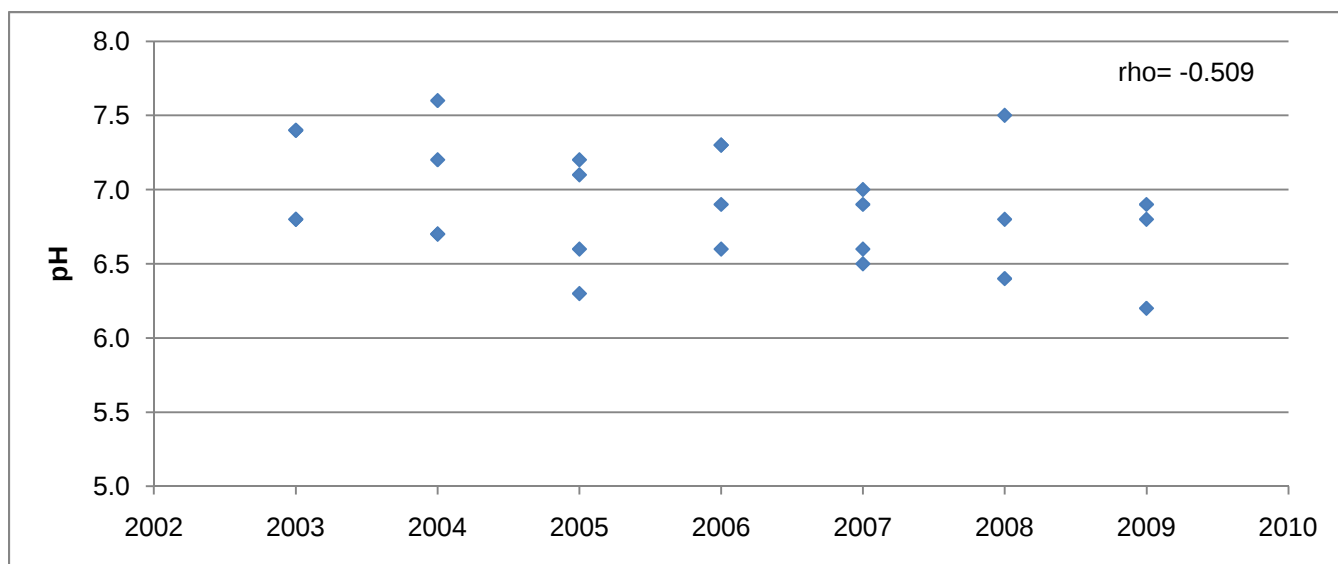
Appendix Figure D.3.1: Percent contribution to loads from Panel TMA discharge points.



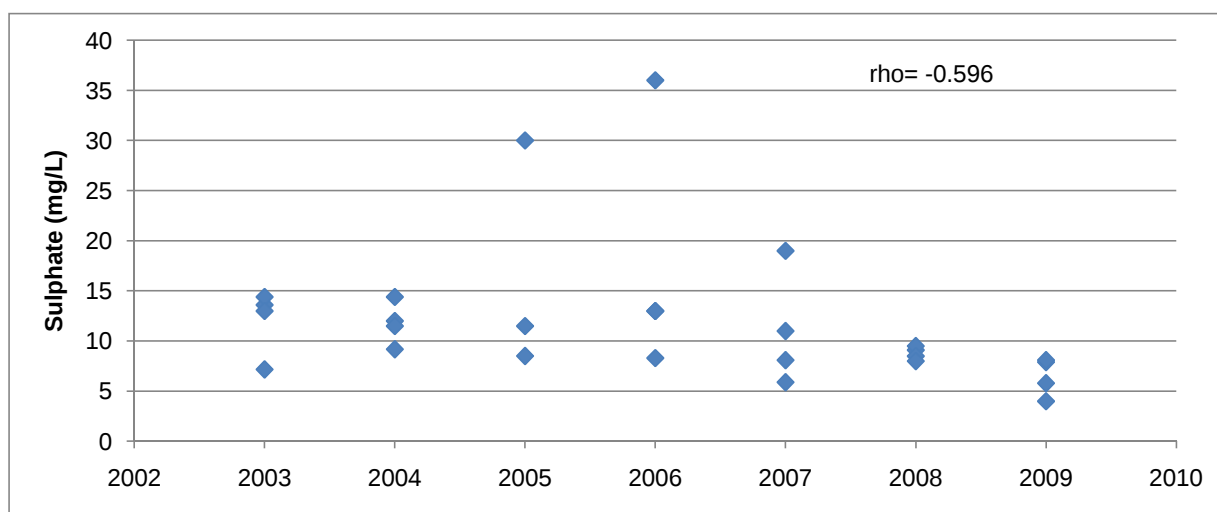
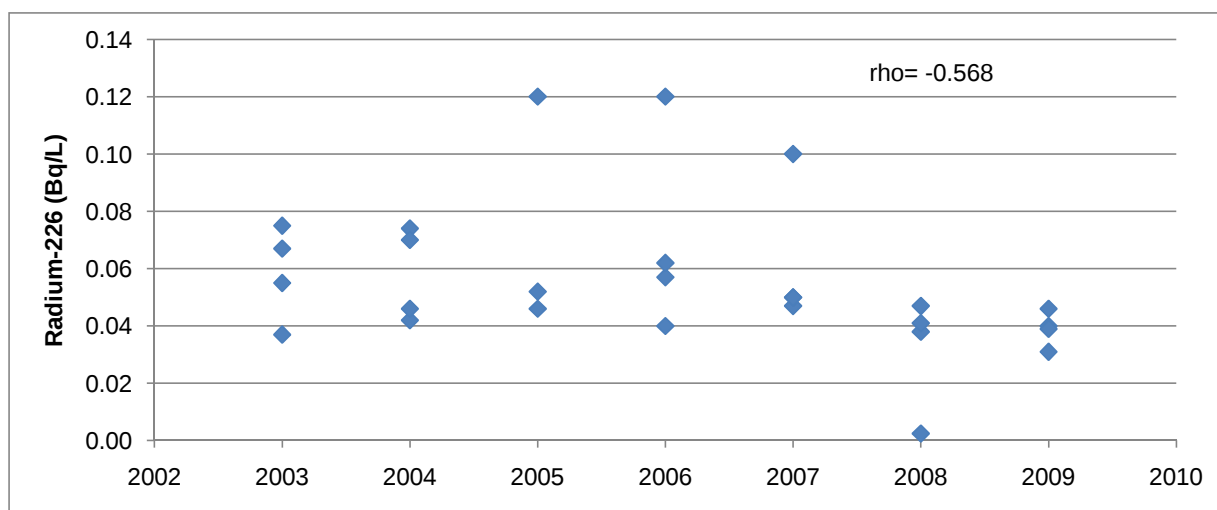
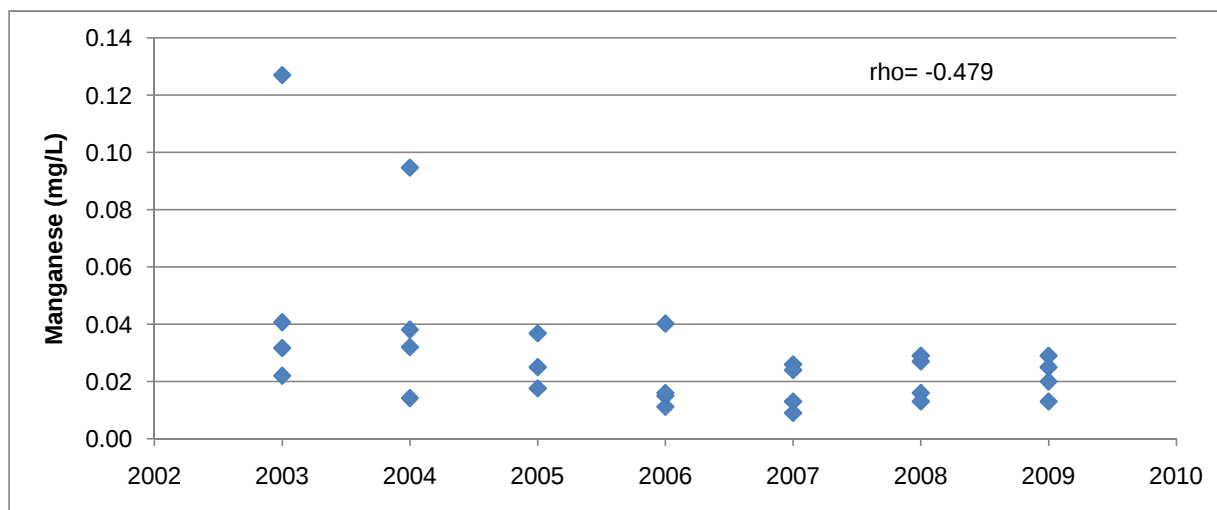
Appendix Figure D.3.1: Percent contribution to loads from Panel TMA discharge points.



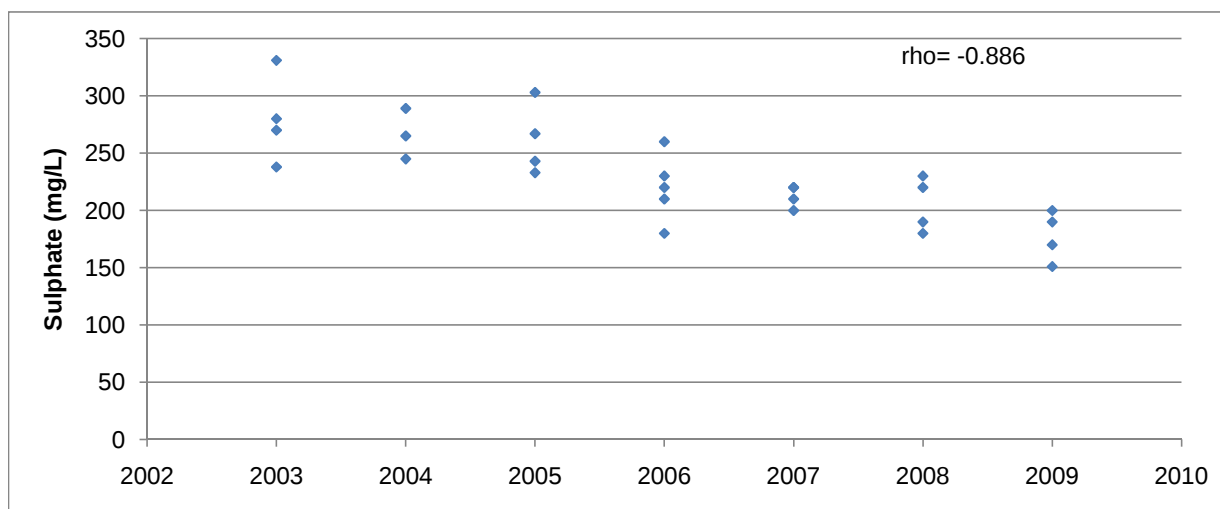
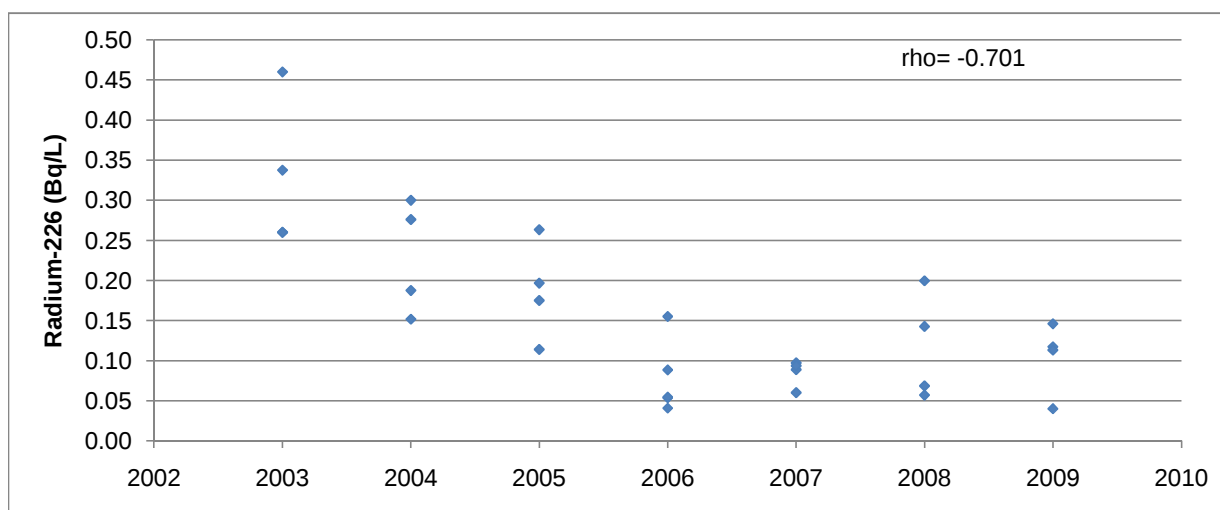
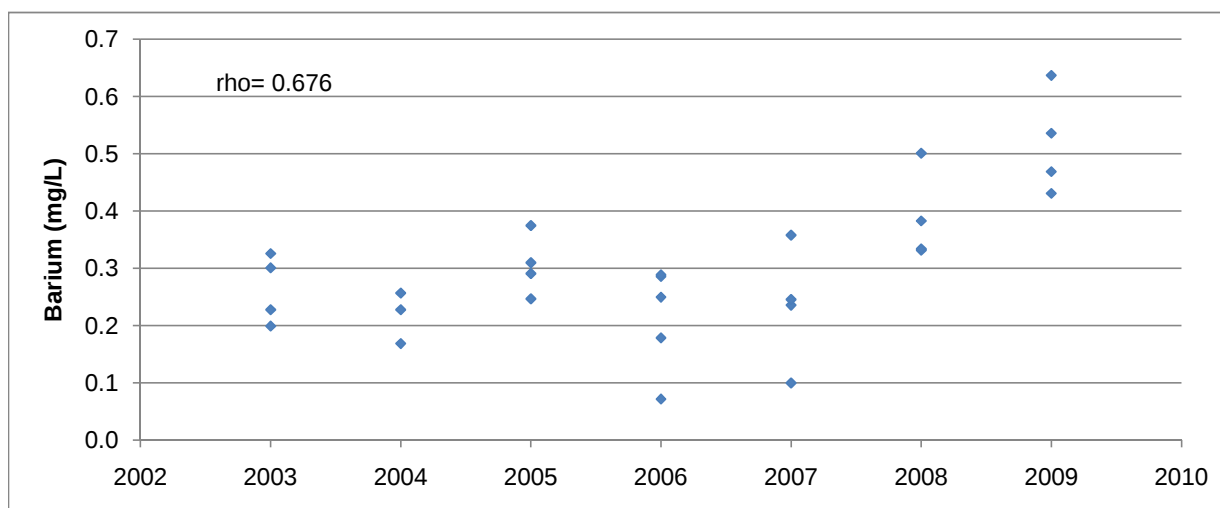
Appendix Figure D.3.2: Significant common (average) trends observed for pH and sulphate over all seasons at station P-02, 2003 to 2009.



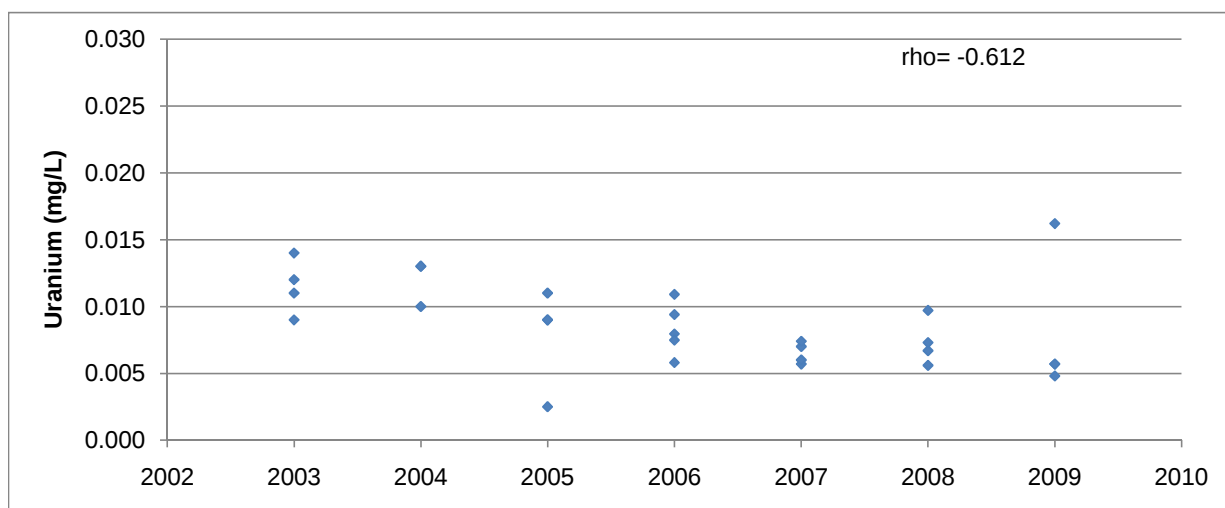
Appendix Figure D.3.3: Significant common (average) trends observed for pH over all seasons at station P-03, 2003 to 2009.



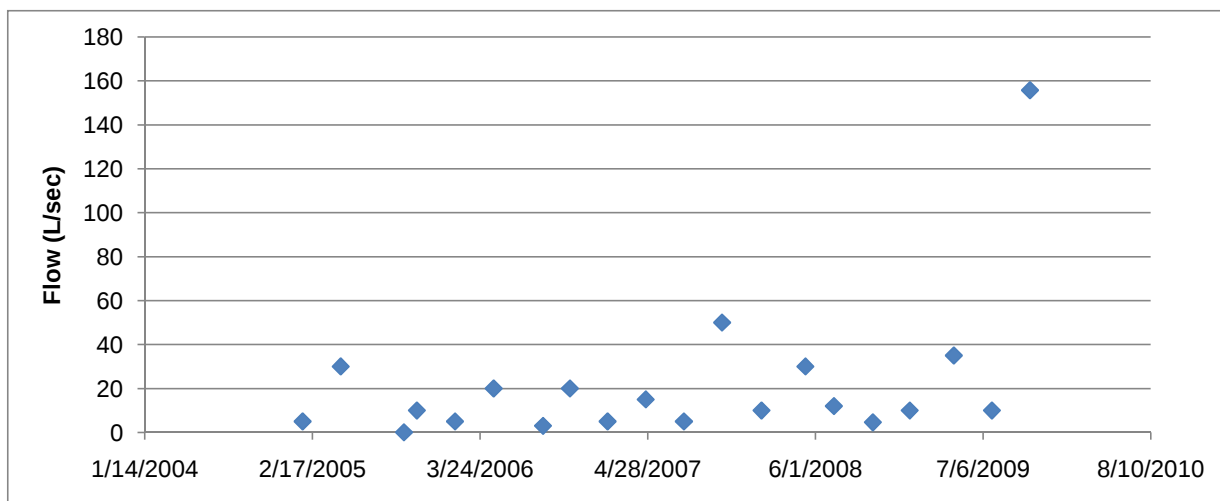
Appendix Figure D.3.4: Significant common (average) trends observed for manganese, radium-226 and sulphate over all seasons at station P-11, 2003 to 2009.



Appendix Figure D.3.5: Significant common (average) trends observed for barium, radium-226, sulphate and uranium over all seasons at station P-14, 2003 to 2009.



Appendix Figure D.3.5: Significant common (average) trends observed for barium, radium-226, sulphate and uranium over all seasons at station P-14, 2003 to 2009.



Appendix Figure D.3.6: Flows at station P-11 from 2005 to 2009.



Appendix Figure D.3.7: Flows at station P-14 from 2005 to 2009.

APPENDIX D.4

Stanrock TMA

Appendix Table D.4.1: Water quality at station DS-4 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
1/4/2005	0.0225	0.0008	< 0.001	0.203	0.0402	0.001	< 0.0006	7.7	0.041	400	1	0.006	0.003
1/11/2005								7.2	0.039		< 1		
1/18/2005								7.8	0.04		1		
1/25/2005								7.3	0.046		1		
2/1/2005								7.3	0.049		< 1		
2/8/2005	0.0254	0.001	< 0.001	0.273	0.0648	0.001	< 0.0006	7.2	0.041	448	1	0.008	0.002
2/15/2005								7.1	0.037		2		
2/22/2005								7.2	0.057		1		
3/1/2005								7.1	0.069		1		
3/8/2005	0.0231	0.001	< 0.001	0.253	0.0863	0.0014	< 0.0006	7.1	0.054	492	< 1	0.009	0.002
3/15/2005								7.2	0.06		< 1		
3/22/2005								7	0.068		< 1		
3/29/2005								7.4	0.046		< 1		
4/5/2005	0.0381	0.0033	< 0.001	0.844	0.143	0.0027	< 0.0006	7.5	0.044	450	3	0.006	0.005
4/12/2005								9.3	0.032		< 1		
4/19/2005								8.2	0.037		< 1		
4/26/2005								7.7	0.049		< 1		
5/3/2005	0.0356	0.001	< 0.001	0.083	0.0613	0.0015	< 0.0006	7.6	0.051	300	< 1	< 0.005	< 0.001
5/10/2005								7.2	0.068		< 1		
5/17/2005								7.2	0.047		< 1		
5/24/2005								7	0.069		< 1		
5/31/2005								7.3	0.059		< 1		
6/7/2005	0.0264	0.0004	< 0.001	0.034	0.015	< 0.0003	< 0.0006	7.3	0.081	321	< 1	< 0.005	0.0183
6/14/2005								7.2	0.1		< 1		
6/21/2005								7.2	0.1		< 1		
6/28/2005								7.2	0.097		< 1		
7/5/2005	0.0239	< 0.0003	< 0.001	0.046	0.0256	0.0003	< 0.0006	7.1	0.13	359	< 1	< 0.005	0.008
7/12/2005								7.3	0.15		< 1		
7/19/2005								7.2	0.12		< 1		
7/26/2005								7.2	0.14		< 1		
8/2/2005	0.028	< 0.0003	< 0.001	0.031	0.0461	< 0.0003	< 0.0006	7.2	0.088	392	< 1	< 0.005	0.005
8/9/2005								7.3	0.15		< 1		
8/16/2005								7.1	0.12		< 1		
8/23/2005								7.1	0.15		< 1		
8/30/2005								7.2	0.1		< 1		
9/6/2005	0.0265	< 0.0003	< 0.001	0.058	0.106	< 0.0003	< 0.0006	7	0.12	445	< 1	< 0.005	0.009
9/13/2005								7.1	0.13		< 1		
9/20/2005								7.3	0.082		< 1		
9/27/2005								7.2	0.089		< 1		
10/4/2005	0.0177	< 0.0003	< 0.001	0.038	0.0408	0.001	< 0.0006	7.3	0.064	487	< 1	< 0.005	0.009
10/11/2005								7.2	0.12		< 1		
10/18/2005								7.1	0.092		< 1		
10/25/2005								7.1	0.096		< 1		
11/1/2005								7.1	0.067		< 1		
11/8/2005	0.0171	< 0.0003	< 0.001	0.049	0.0224	< 0.0003	< 0.0006	7.4	0.075	412	< 1	< 0.005	0.001
11/15/2005								6.8	0.055		< 1		
11/22/2005								6.8	0.057		< 1		
11/29/2005								7	0.07		< 1		
12/6/2005	0.0225	0.0004	< 0.001	0.175	0.0364	0.0006	< 0.0006	7.3	0.051	391	< 1	< 0.005	< 0.001
12/13/2005								7.3	0.057		< 1		
12/20/2005								7.3	0.055		< 1		
12/28/2005								7.6	0.048		< 1		
1/3/2006	0.024	0.0007	0.0007	0.13	0.058	0.001	< 0.0002	7.4	0.038	390	< 2	0.0042	0.001
1/10/2006								7	0.05		< 2		
1/17/2006								7	0.045		< 2		
1/24/2006								7.1	0.05		2		
1/31/2006								7.4	0.05		< 2		
2/7/2006	0.025	0.0005	0.0018	0.11	0.0468	0.001	< 0.0002	7.6	0.051	430	< 2	0.0046	0.002
2/14/2006								7.4	0.045		< 2		
2/21/2006								7.3	0.042		< 2		
2/28/2006								7.4	0.055		< 2		
3/7/2006	0.026	0.0004	< 0.0008	0.1	0.062	0.001	< 0.0002	7.1	0.062	420	< 2	0.0046	0.002
3/14/2006								7.4	0.052		< 2		
3/21/2006								7.3	0.045		< 2		
3/28/2006								7.2	0.048		< 2		
4/4/2006	0.031	0.00176	0.0014	0.41	0.107	0.0027	0.00005	9.4	0.028	360	1	0.0033	0.0049
4/11/2006								9.3	0.11		4		
4/18/2006								8.1	0.029		1		
4/24/2006								7.7	0.036		1		
5/2/2006	0.051	0.0007	0.0009	0.06	0.053	0.001	< 0.0005	7.5	0.062	260	1	0.0022	0.002
5/9/2006								7.5	0.078		< 1		
5/16/2006								7.5	0.047		1		
5/23/2006								7.6	0.051		1		
5/30/2006								7.4	0.079		< 1		

Appendix Table D.4.1: Water quality at station DS-4 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
6/6/2006	0.0386	0.0003	0.0006	0.01	0.0485	0.0009	0.00009	7.2	0.14	360	< 1	0.00166	0.001
6/13/2006								7.3	0.11		< 1		
6/20/2006								7.3	0.099		< 1		
6/27/2006								7.4	0.088		< 1		
7/4/2006	0.04	0.0002	0.0005	0.03	0.039	0.002	< 0.0005	7.3	0.12	390	< 1	0.0023	0.001
7/11/2006								7.3	0.085		1		
7/18/2006								7.4	0.13		< 1		
7/24/2006								7.2	0.13		< 1		
8/1/2006	0.0338	< 0.0005	0.0006	0.05	0.0271	< 0.002	< 0.0005	7.4	0.1	390	< 1	0.00308	0.0068
8/8/2006								7.3	0.12		< 1		
8/15/2006								7.4	0.11		< 1		
8/22/2006								7.4	0.12		< 1		
8/29/2006								7.3	0.12		1		
9/5/2006	0.031	< 0.0005	0.0022	0.09	0.079	< 0.002	< 0.0005	7.3	0.092	420	< 1	0.0029	< 0.001
9/12/2006								7.3	0.13		< 1		
9/19/2006								7.2	0.087		< 1		
9/26/2006								7.3	0.088		1		
10/3/2006	0.027	< 0.0005	0.0005	0.08	0.014	< 0.002	0.0007	7.4	0.071	420	< 1	0.0045	0.001
10/10/2006								7.2	0.079		< 1		
10/17/2006								7.4	0.073		1		
10/24/2006								7.5	0.049		1		
10/31/2006								7.4	0.062		2		
11/7/2006	0.025	< 0.0005	< 0.0005	0.14	0.027	< 0.002	< 0.0005	7.4	0.042	420	< 1	0.0039	0.001
11/14/2006								7.4	0.05		1		
11/21/2006								7.4	0.033		1		
11/28/2006								7.3	0.055		1		
12/5/2006	0.023	0.0009	0.0012	0.23	0.041	< 0.002	< 0.0005	7.2	0.039	480	1	0.00367	0.003
12/12/2006								7.2	0.034		1		
12/19/2006								7.3	0.028		1		
12/28/2006								7.3	0.029		1		
1/9/2007	0.028	0.0013		0.24	0.060			7.4	0.037	420.0		0.0028	
2/13/2007	0.028	0.0010		0.13	0.061			7.0	0.039	480.0		0.0031	
3/13/2007	0.027	0.0011		0.20	0.064			7.4	0.044	490.0		0.0033	
4/10/2007	0.047	0.0012		0.28	0.065			7.8	0.032	280.0		0.0017	
5/8/2007	0.036	0.0006		0.07	0.059			7.4	0.061	370.0		0.0019	
6/5/2007	0.034	0.0006		0.04	0.029			7.5	0.077	390.0		0.0022	
7/10/2007	0.032	0.0005		0.03	0.044			7.5	0.110	430.0		0.0029	
8/14/2007	0.030	< 0.0005		0.08	0.114			7.3	0.130	450.0		0.0019	
9/11/2007	0.028	< 0.0005		0.09	0.081			7.5	0.095	430.0		0.0028	
10/9/2007	0.025	< 0.0005		0.14	0.027			7.0	0.080	430.0		0.0038	
11/13/2007	0.025	0.0008		0.24	0.033			7.3	0.047	430.0		0.0041	
12/11/2007	0.024	< 0.0005		0.17	0.034			7.1	0.046	440.0		0.0039	
1/8/2008	0.022	0.0009		0.32	0.051			7.1	0.037	460.0		0.0032	
2/12/2008	0.031	0.0011		0.24	0.054			7.2	0.026	410.0		0.0023	
3/11/2008	0.027	0.0008		0.18	0.067			7.2	0.032	430.0		0.0022	
4/8/2008	0.030	0.0011		0.33	0.082			7.3	0.027	440.0		0.0025	
5/13/2008	0.066	0.0007		0.16	0.052			7.7	0.040	310.0		0.0018	
6/10/2008	0.055	0.0005		0.06	0.043			7.2	0.058	360.0		0.0018	
7/8/2008	0.049	< 0.0005		0.05	0.034			7.1	0.078	360.0		0.0017	
8/12/2008	0.039	< 0.0005		0.05	0.032			7.3	0.073	390.0		0.0025	
9/9/2008	0.035	0.0015		0.09	0.093			7.2	0.077	420.0		0.0027	
10/14/2008	0.032	< 0.0005		0.15	0.049			7.2	0.089	400.0		0.0034	
11/11/2008	0.039	0.0015		0.12	0.094			7.2	0.072	410.0		0.0034	
12/9/2008	0.033	0.0022		0.10	0.045			7.1	0.063	160.0		0.0042	
1/13/2009	0.027	0.0012		0.20	0.066			6.7	0.034	410.0		0.0029	
2/11/2009	0.032	0.0011		0.14	0.084			6.8	0.044	470.0		0.0030	
3/10/2009	0.033	0.0027		0.23	0.088			7.1	0.043	450.0		0.0041	
4/14/2009	0.039	0.0023		0.34	0.084			7.1	0.042	300.0		0.0021	
5/12/2009	0.051	0.0011		0.06	0.052			6.6	0.070	230.0		0.0011	
6/9/2009	0.054	0.0017		0.10	0.049			7.1	0.049	360.0		0.0024	
7/14/2009	0.042	< 0.0005		0.04	0.031			7.2	0.074	390.0		0.0017	
8/11/2009	0.035	< 0.0005		0.04	0.027			7.1	0.078	370.0		0.0025	
9/8/2009	0.034	< 0.0005		0.04	0.055			7.0	0.093	400.0		0.0019	
10/13/2009	0.030	< 0.0005		0.07	0.030			6.9	0.056	380.0		0.0032	
11/10/2009	0.024	0.0008		0.17	0.026			6.8	0.044	390.0		0.0023	
12/8/2009	0.026	0.0011		0.21	0.036			6.7	0.038	390.0		0.0027	
Number	60	60	24	60	60	24	24	261	140	60	104	60	24
Minimum	0.0171	0.0002	0.0005	0.01	0.014	0.0003	0.00005	6.6	0.026	160	1	0.0011	0.001
Maximum	0.066	0.0033	0.0022	0.844	0.143	0.0027	0.0007	9.4	0.15	492	4	0.009	0.0183
Mean	0.032	0.0009	0.0010	0.15	0.055	0.001	0.0005	7.2	0.070	396.1	1	0.0034	0.004
Median	0.030	0.0007	0.0010	0.11	0.050	0.001	0.0006	7.2	0.061	405.0	1	0.0031	0.002
10th Perc.	0.023	0.0003	0.0005	0.04	0.027	0.0003	0.0002	6.9	0.037	309.0	1	0.0018	0.001

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.4.2: Water quality at station DS-16 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/4/2005	0.0237	0.049	1.44	2.47	3.6	0.23	274	0.006
4/12/2005	0.0165	0.0273	1.19	1.66	3.7	0.21	154	< 0.005
7/5/2005	0.0247	0.0718	2.44	6.52	3.9	0.43	302	< 0.005
10/22/2005	0.0137	0.0691	3.25	5.05	6.8	0.28	463	< 0.005
11/9/2005	0.0077	0.0105	0.702	0.829	8.3	0.089	289	< 0.005
1/3/2006	0.029	0.0838	0.39	4.84	6.7	0.26	290	0.0004
4/4/2006	0.0202	0.0264	1.18	1.36	8.8	0.098	73	0.00115
7/4/2006	0.026	0.0416	0.81	3.31	7.3	0.032	290	0.0009
10/3/2006	0.028	0.054	0.62	4.04	6.9	0.23	410	0.001
1/2/2007	0.027	0.0197	0.72	1.420	8.9	0.009	130.0	0.0015
4/3/2007	0.021	0.0200	1.49	1.280	9.0	0.089	110.0	0.0013
7/3/2007	0.022	0.0786	0.05	5.320	6.9	0.068	380.0	0.0019
10/9/2007	0.028	0.0503	1.10	3.420	6.7	0.340	270.0	0.0012
1/14/2008	0.016	0.0366	1.19	2.010	6.6	0.110	130.0	0.0016
4/7/2008	0.014	0.0171	1.18	0.913	6.5	0.067	65.0	0.0013
7/7/2008	0.018	0.0098	0.54	0.773	8.7	0.092	190.0	0.0006
10/6/2008	0.014	0.0491	1.31	2.770	6.9	0.024	290.0	0.0016
1/5/2009	0.025	0.0453	1.01	2.990	9.0	0.180	200.0	0.0009
4/7/2009	0.018	0.0219	1.50	1.330	8.9	0.099	81.0	0.0013
7/6/2009	0.022	0.0195	0.65	1.800	8.2	0.170	230.0	0.0007
10/5/2009	0.049	0.0481	5.86	5.020	7.1	0.340	470.0	0.0015
Number	21	21	21	21	315	21	21	21
Minimum	0.0077	0.0098	0.05	0.773	3.6	0.009	65.0	0.0004
Maximum	0.049	0.0838	5.86	6.52	9.4	0.43	470.0	0.006
Mean	0.022	0.0405	1.36	2.815	7.4	0.164	242.4	0.0021
Median	0.022	0.0416	1.18	2.470	7.2	0.110	270.0	0.0013
10th Perc.	0.014	0.0171	0.54	0.913	6.6	0.032	81.0	0.0007

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.4.3: Summary of Annual Plant Operations and Discharge at Stanrock, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	84	122	93	151	138
Maximum Daily Plant Flow (L/s @ DS-2)	182	174	139	490	162
Minimum Daily Plant Flow (L/s @ DS-2)	56	7.9	0	0	0
Monthly Average Daily Plant Flow (L/s @ DS-2)	103	91	97	117	98
Total Volume Treated (ML)	746	963	779	1524	1174
Barium Chloride Consumption					
Total (kg/month)	388	785	484	714	575
Monthly Average (mg/L)	0.52	0.82	0.62	0.47	0.49
Lime Consumption					
Total Dry (tonne/month)	162	249	199.54	282.18	200.58
Monthly Average (g/L)	0.22	0.26	0.26	0.19	0.17
ORIENT CREEK					
Discharge Days	226	214	259.00	299	323
Max Daily Flow (L/s @ DS-5)	62	26	23.10	25	41.8
Min Daily Flow (L/s @ DS-5)	0	0	0.00	0	0
Monthly Average Daily Flow (L/s @ DS-5)	7.0	5.7	3.90	5.2	5.7
Total Volume (ML)	137	105	86.20	135.3	159.3
Site Total Including ETP Operations (ML)	884	1068	865.50	1659.1	1333
NEUTRALIZATION					
Lime Consumption					
Beaver Lake Total Dry (tonnes/month)	0	0	0	0	0
Site Total Including ETP Operations	162	249	199.50	282.2	200.58
Caustic Soda Consumption					
Orient Creek Total (kg/month)	1782	0	0.00	0	0
Sodium Carbonate Consumption					
Orient Creek Total (kg/month)	0	0	0.00	50	0
Moose Lake (DS-1 & DS-6) Total (kg/month)	1625	0	0.00	300	0
*EFFLUENT					
Discharge Days	365	365	365	366	365
Maximum Daily Discharge Flow (L/s @ DS-4)	254	211	120	254	254
Minimum Daily Discharge Flow (L/s @ DS-04)	1	1	1	3	1
Monthly Average Daily Discharge Flow (L/s @ DS-04)	21	27	22	40	33
Total Annual Volume Discharged (ML)	676	862	705	1253	1037

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.4.4: Mean annual discharge and seepage loadings from Stanrock TMA, 2005 - 2009.

Station		Drainage Type	Mean Annual Discharge (m ³)		Sulphate (kg/yr)	Radium (MBq/yr)	Uranium (kg/yr)	Barium (kg/yr)	Cobalt (kg/yr)	Iron (kg/yr)	Manganese (kg/yr)
May Lake Drainage	DS-4	Controlled Discharge	912,248	Mean	357,215	44	3.0	29	1.1	214	56
				S.D.	93,637	8.4	0.5	12	0.5	67	19
	DS-18	Halfmoon Lake Outlet	4,964,041	Mean	386,335	466	6.8	60	1.4	1,489	89
				S.D.	28,065	61	2.7	3.9	0.3	841	27
Quirke Lake Drainage	Q-09	Inlet to Quirke Lake	67,185,723	Mean	5,684,136	5,718	312	5,909	37		
				S.D.	926,920	866	66	931	4.7		
	DS-16	Seepage from Dam G and J	127,577	Mean	34,521	28	0.4	4.01	5.8	276	361
				S.D.	31,119	22	0.4	0.90	2.6	110	173
	SR-01	Outlet of Quirke Lake	136,511,119	Mean	7,792,055	4205	218	5,477	31		
				S.D.	1,335,662	665	55	231	6		

MBq/yr = Million Bequerels per year

Appendix Table D.4.5: Summary of seasonal trends for station DS-4, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.57143	0.321429	0.5	-0.357142857	-0.14286	-0.9549937	-0.1071429	-0.882919
	Sig. (2-tailed)	0.180202	0.482072	0.25317	0.431611352	0.759945	0.00080554	0.81915086	0.0084503
	N	7	7	7	7	7	7	7	7
February	Correlation Coefficient	0.75	0.3304	-0.01802	-0.357142857	-0.07207	-0.8571429	0.14285714	-0.942857
	Sig. (2-tailed)	0.052181	0.469202	0.969415	0.431611352	0.877959	0.01369733	0.7599453	0.0048047
	N	7	7	7	7	7	7	7	6
March	Correlation Coefficient	0.882919	0.357143	0.392857	0	-0.19821	-0.9285714	-0.3928571	-0.785714
	Sig. (2-tailed)	0.00845	0.431611	0.383317	1	0.670085	0.00251947	0.38331687	0.0362385
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	-0.57143	-0.42857	0.178571	-0.607142857	-0.42857	-0.5357143	0.46428571	-0.7
	Sig. (2-tailed)	0.180202	0.337368	0.701658	0.148231161	0.337368	0.21521746	0.29393411	0.1881204
	N	7	7	7	7	7	7	7	5
May	Correlation Coefficient	0.270281	-0.5766	-0.34236	-0.95499371	0.126131	0.32142857	0.07142857	
	Sig. (2-tailed)	0.557731	0.175382	0.452251	0.000805535	0.787572	0.48207204	0.87904819	
	N	7	7	7	7	7	7	7	
June	Correlation Coefficient	0.714286	0.370625	0.321429	0	0.214286	-0.5	-0.2223748	-0.463817
	Sig. (2-tailed)	0.071344	0.413116	0.482072	1	0.644512	0.25317	0.63174934	0.3541643
	N	7	7	7	7	7	7	7	6
July	Correlation Coefficient	0.642857	0.204124	0.309142	-0.071428571	-0.01871	-0.4642857	-0.0180187	
	Sig. (2-tailed)	0.119392	0.660642	0.499899	0.879048193	0.968239	0.29393411	0.96941539	
	N	7	7	7	7	7	7	7	
August	Correlation Coefficient	0.785714		0.381881	0.035714286	-0.05455	-0.5	-0.6126375	
	Sig. (2-tailed)	0.036238		0.397917	0.939408205	0.907523	0.25317	0.14358858	
	N	7		7	7	7	7	7	
September	Correlation Coefficient	0.678571	0.408248	0.333562	0.178571429	0.035714	-0.8571429	-0.4364358	
	Sig. (2-tailed)	0.09375	0.363217	0.464697	0.701657943	0.939408	0.01369733	0.3275825	
	N	7	7	7	7	7	7	7	
October	Correlation Coefficient	0.821429		0	0.428571429	-0.75679	-0.3928571	-0.6785714	
	Sig. (2-tailed)	0.023449		1	0.337368311	0.048905	0.38331687	0.09375025	
	N	7		7	7	7	7	7	
November	Correlation Coefficient	0.630656	0.83666	-0.21429	0.214285714	-0.78571	-0.2857143	-0.6785714	-0.9
	Sig. (2-tailed)	0.128888	0.018927	0.644512	0.644511581	0.036238	0.53450923	0.09375025	0.0373861
	N	7	7	7	7	7	7	7	5
December	Correlation Coefficient	0.392857	0	-0.67857	-0.535714286	-0.77481	-0.1071429	-0.4285714	-0.6
	Sig. (2-tailed)	0.383317	1	0.09375	0.215217456	0.040769	0.81915086	0.33736831	0.284757
	N	7	7	7	7	7	7	7	5

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

Significant trend where p<0.05.

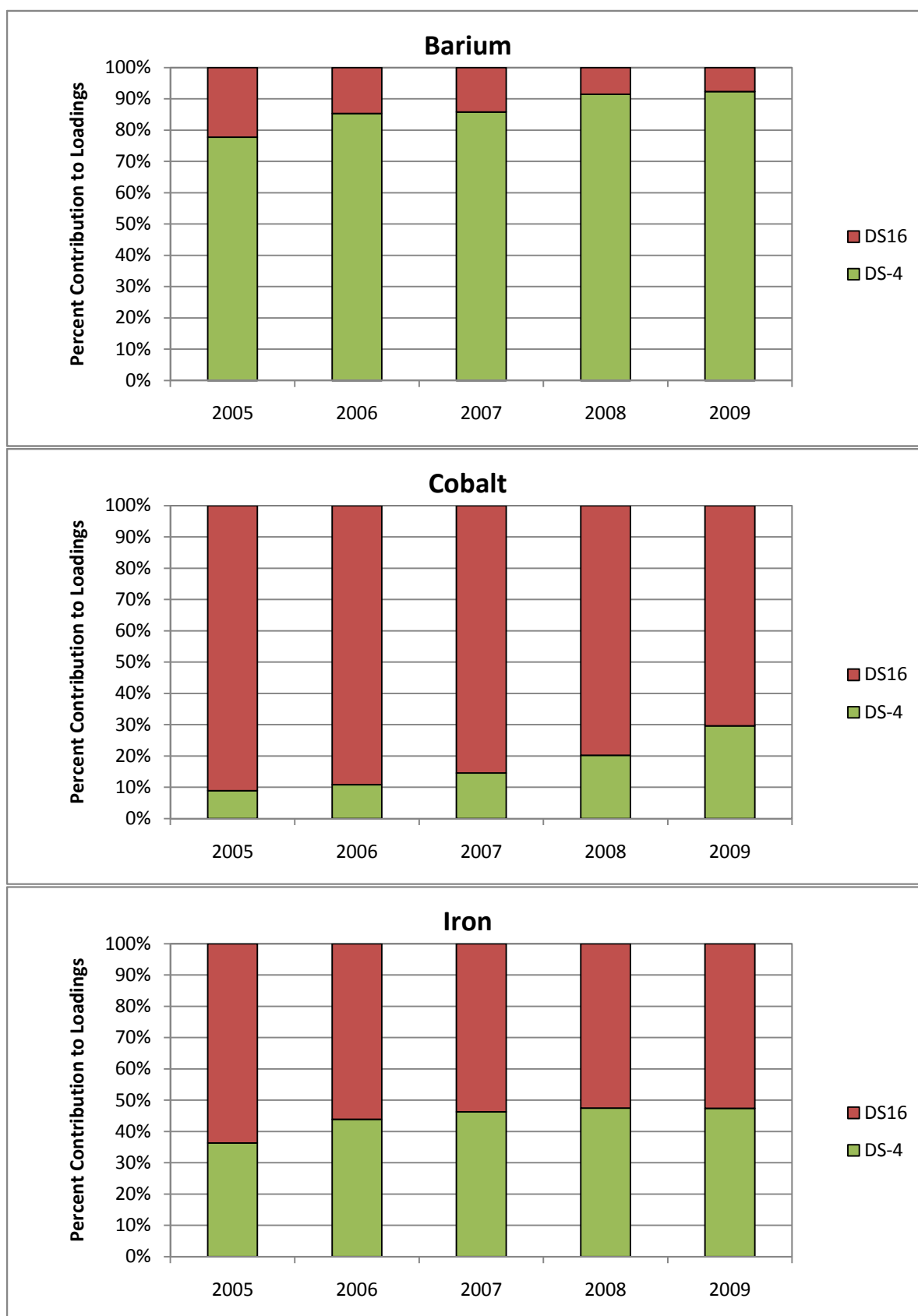
Appendix Table D.4.6: Summary of seasonal trends for station DS-16, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.32143	-0.75	-0.67857	-0.60714286	0.75	-0.821428571	-0.81084	-0.71429
	Sig. (2-tailed)	0.482072	0.052181	0.09375	0.148231161	0.052181	0.023448808	0.026916	ns
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	0.25	-0.85714	-0.21622	-0.78571429	0.678571	-0.666693722	-0.57143	
	Sig. (2-tailed)	0.588724	0.013697	0.641446	0.036238463	0.09375	0.10192046	0.180202	
	N	7	7	7	7	7	7	7	
July	Correlation Coefficient	-0.50452	-0.71429	-0.75	-0.57142857	0.892857	-0.607142857	-0.5	
	Sig. (2-tailed)	0.248203	0.071344	0.052181	0.180201989	0.006807	0.148231161	0.25317	
	N	7	7	7	7	7	7	7	
October	Correlation Coefficient	0.414431	-0.89286	0.035714	-0.35714286	0.785714	-0.180187493	0.071429	
	Sig. (2-tailed)	0.355269	0.006807	0.939408	0.431611352	0.036238	0.699045774	0.879048	
	N	7	7	7	7	7	7	7	

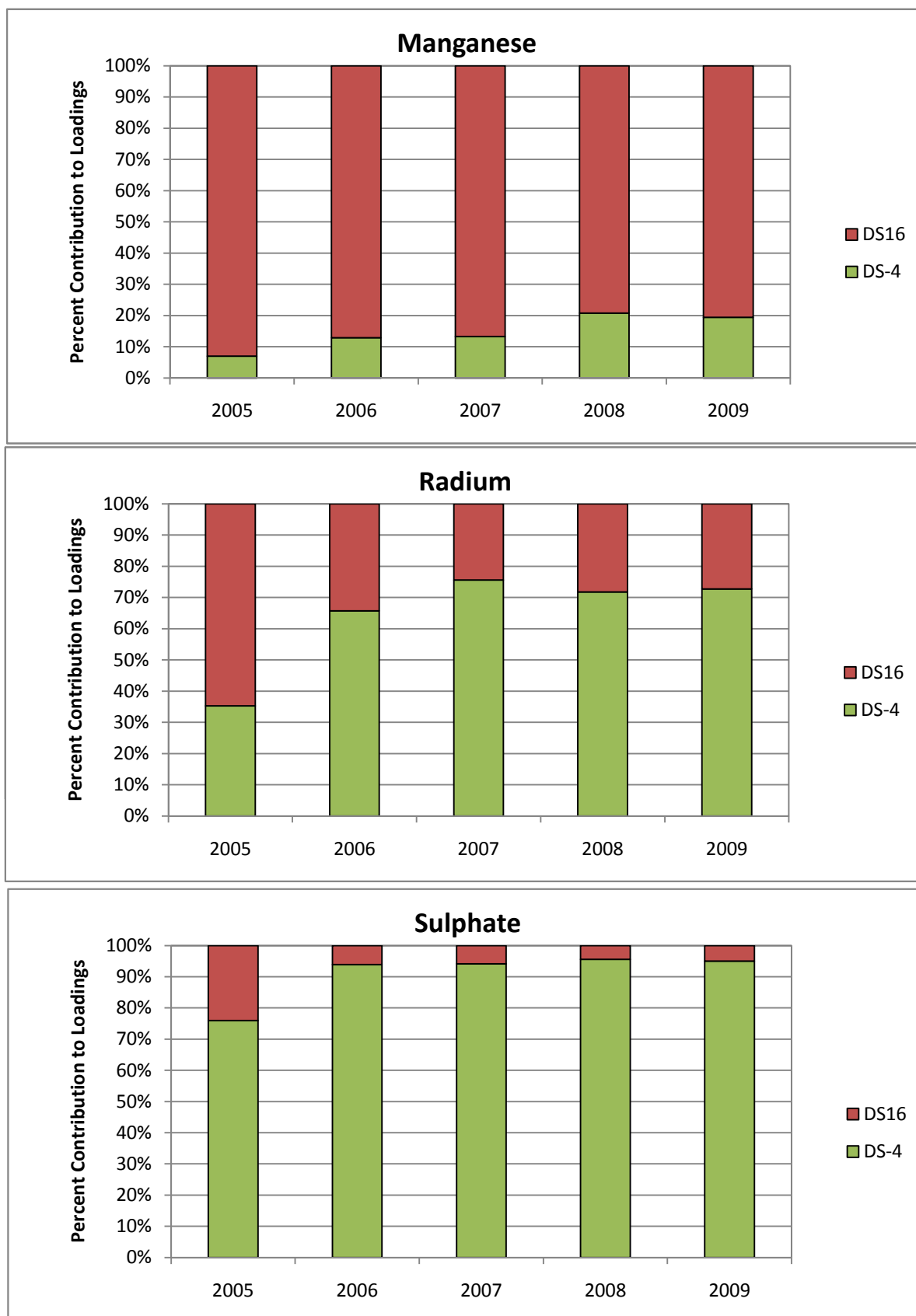
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

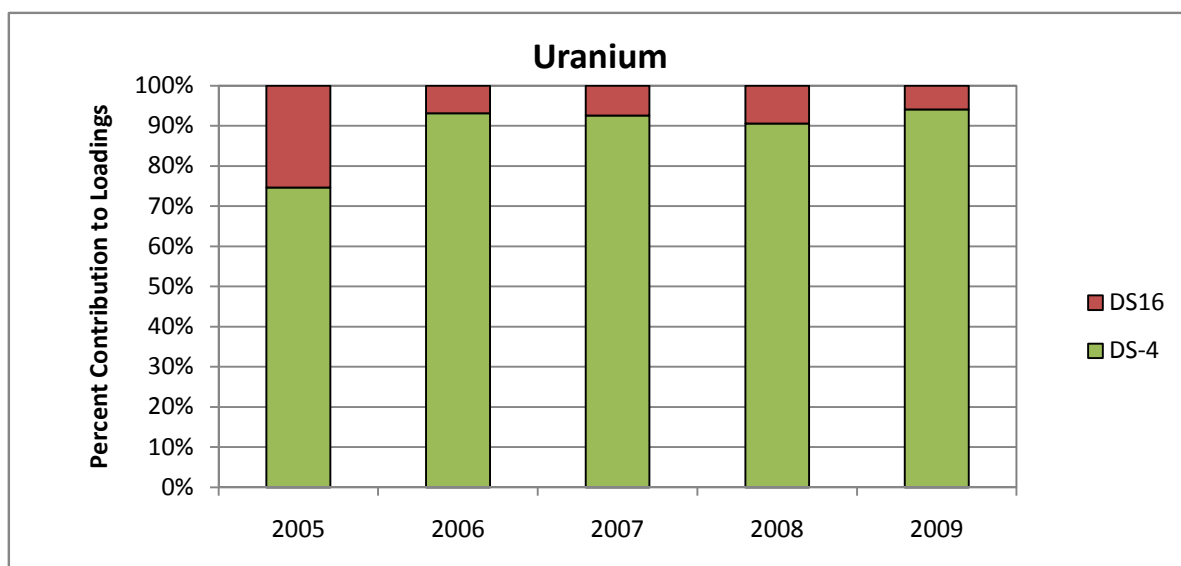
 Significant trend where p<0.05.



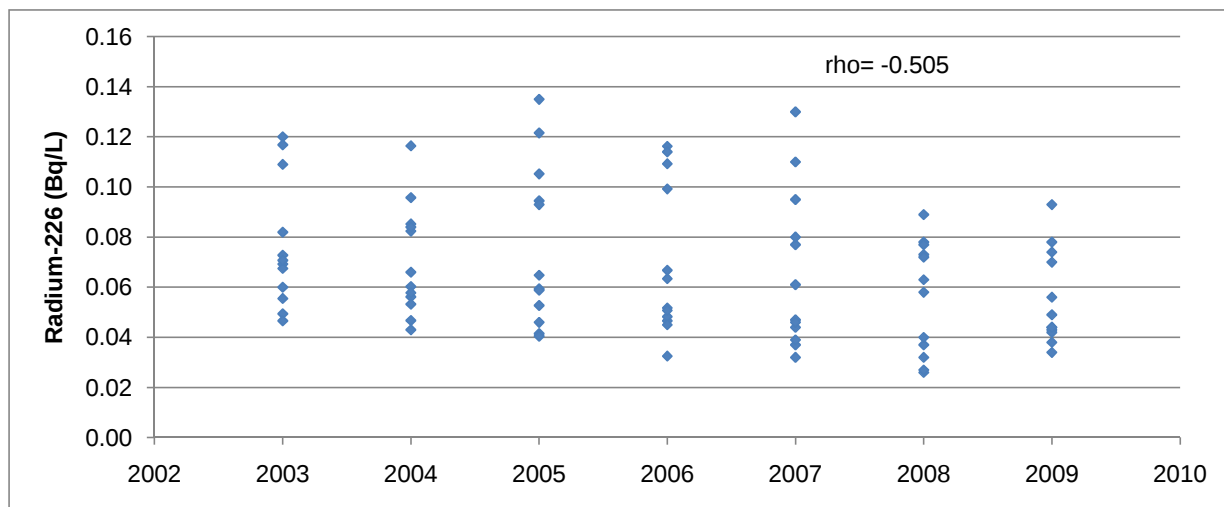
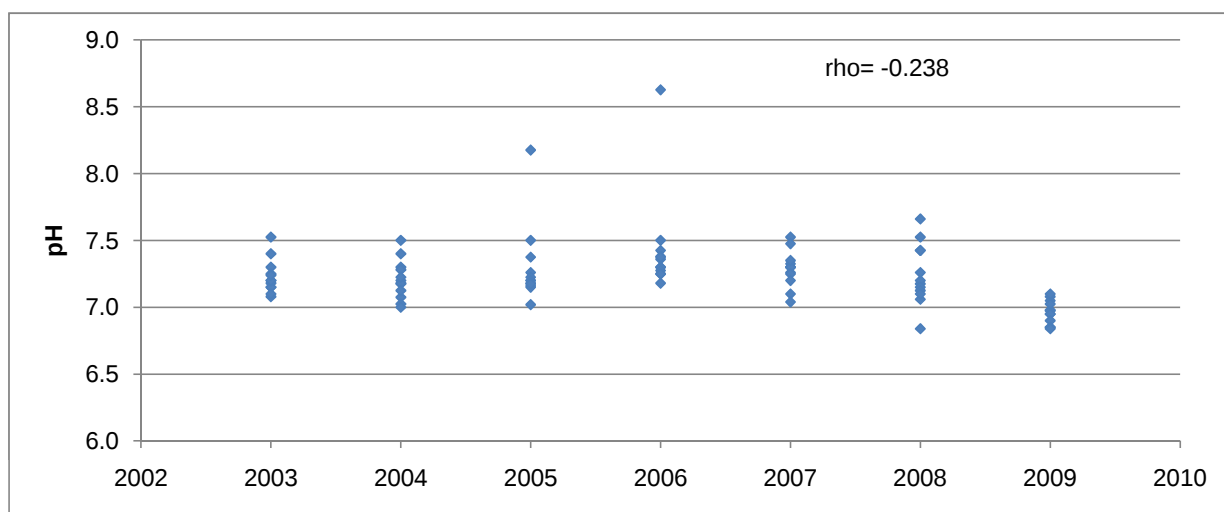
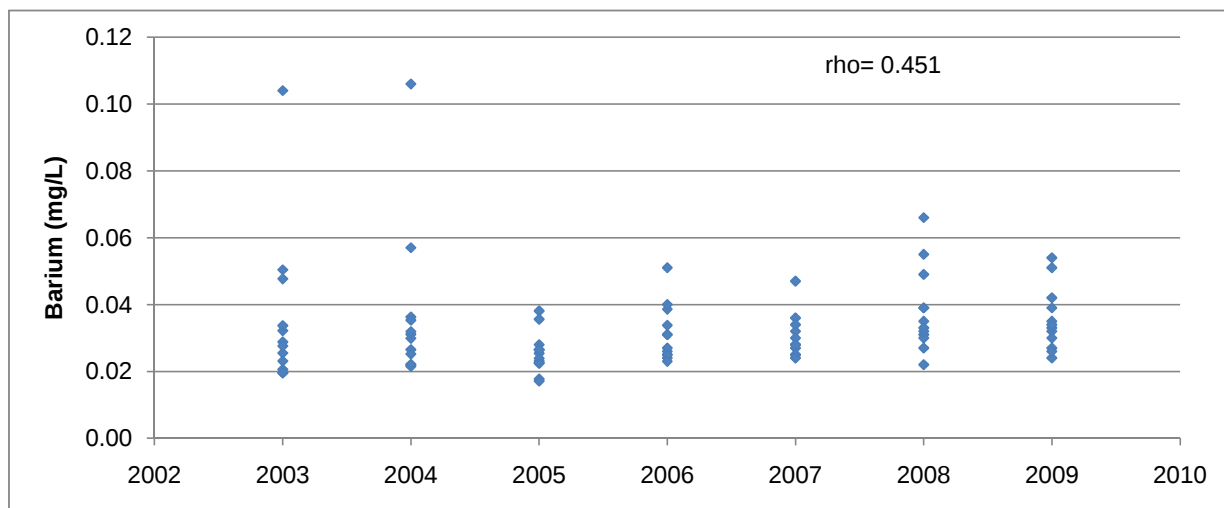
Appendix Figure D.4.1: Percent contribution to loads from Stanrock TMA discharge points.



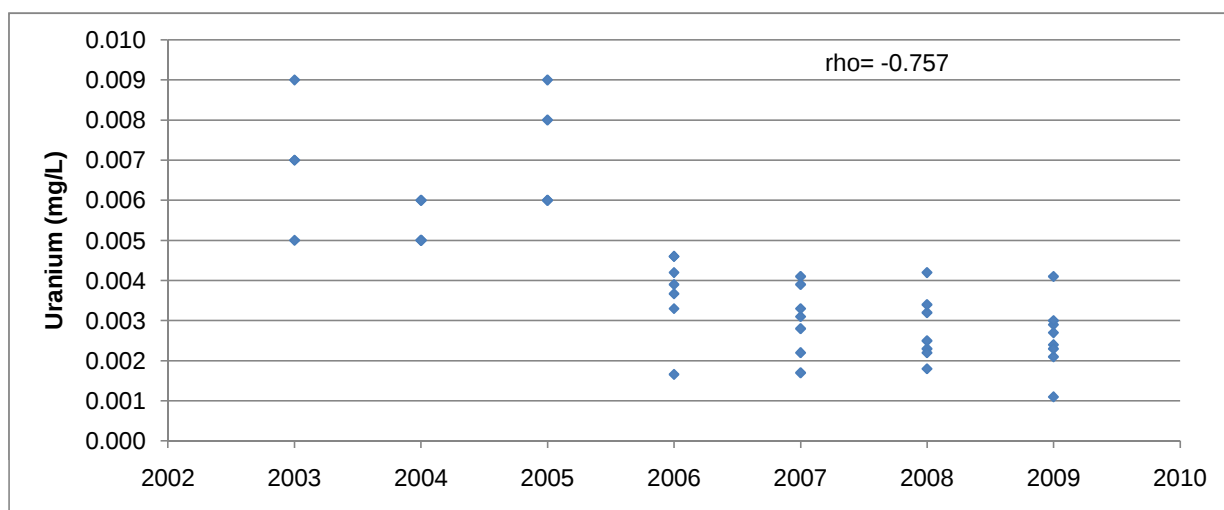
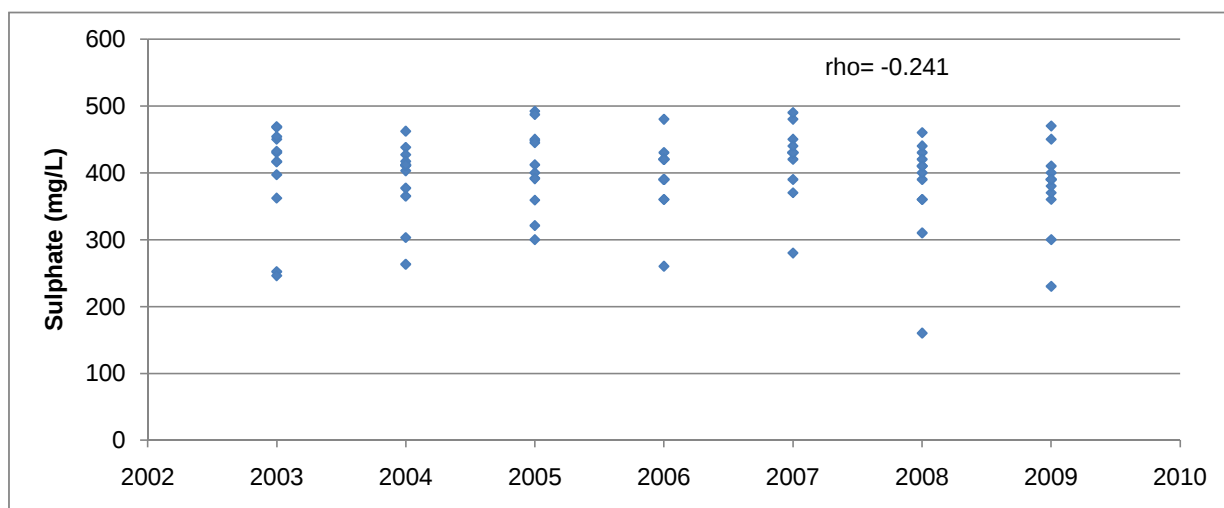
Appendix Figure D.4.1: Percent contribution to loads from Stanrock TMA discharge points.



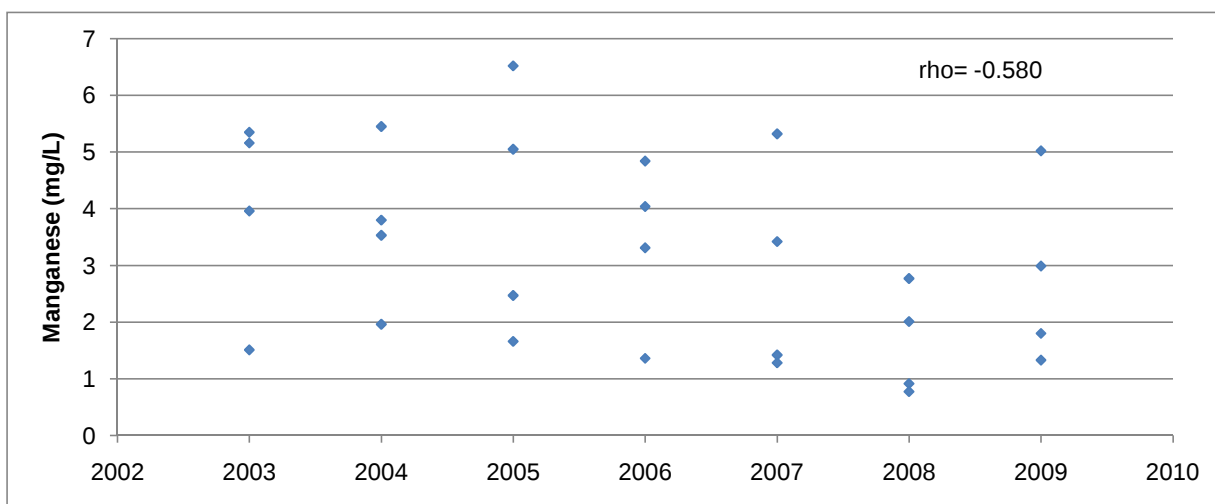
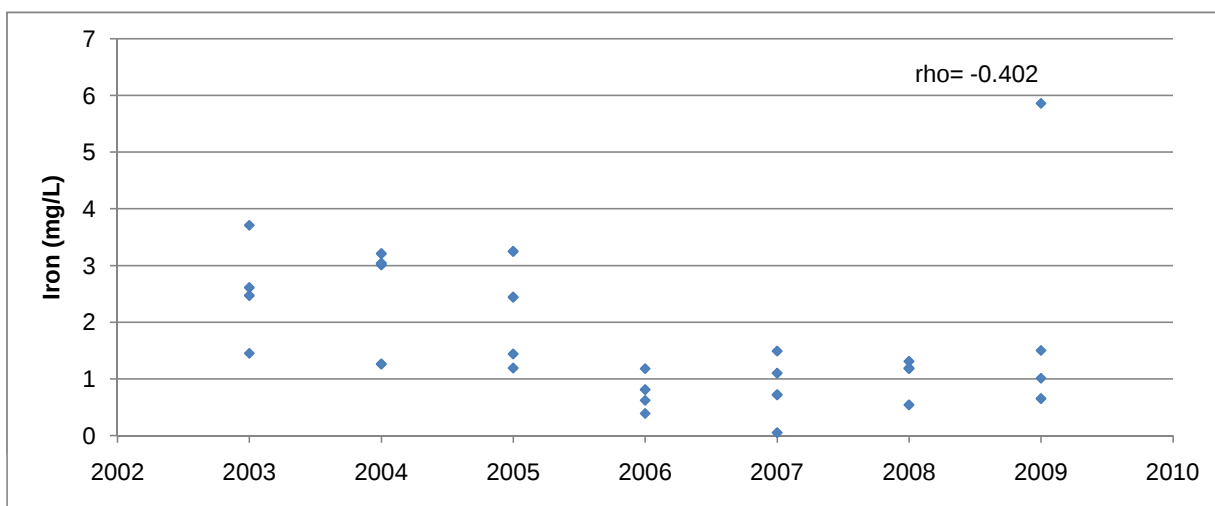
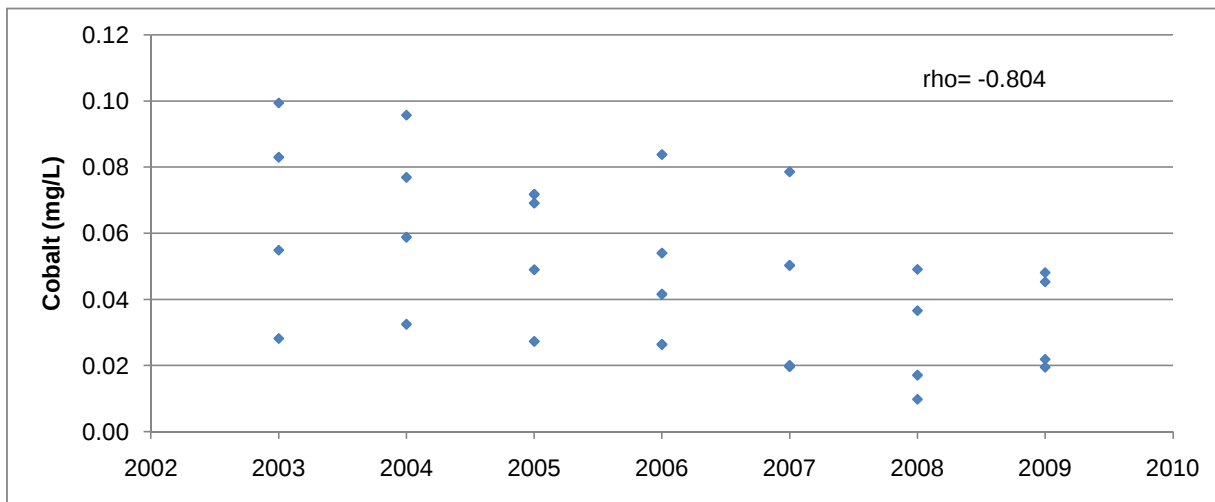
Appendix Figure D.4.1: Percent contribution to loads from Stanrock TMA discharge points



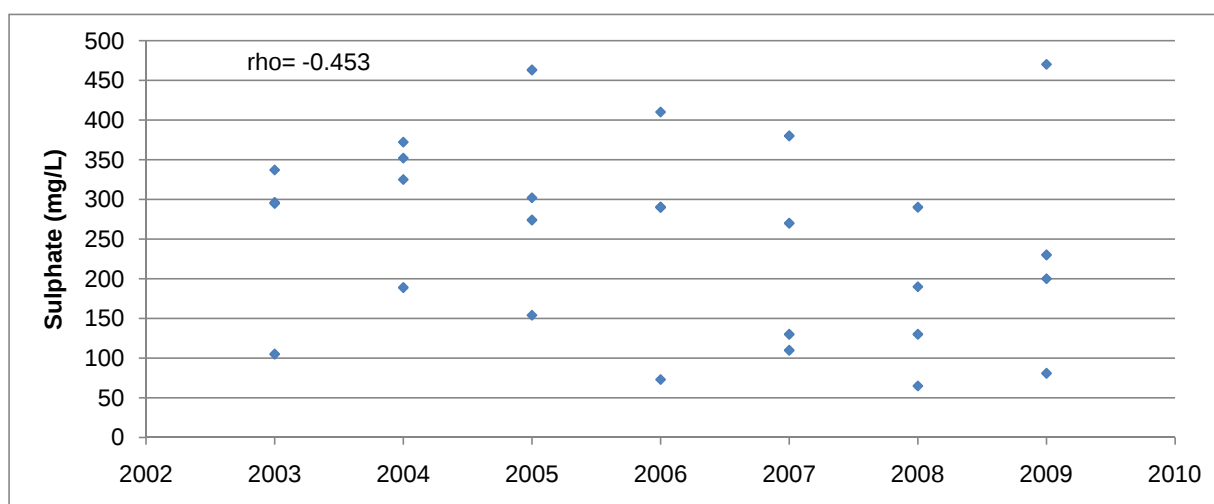
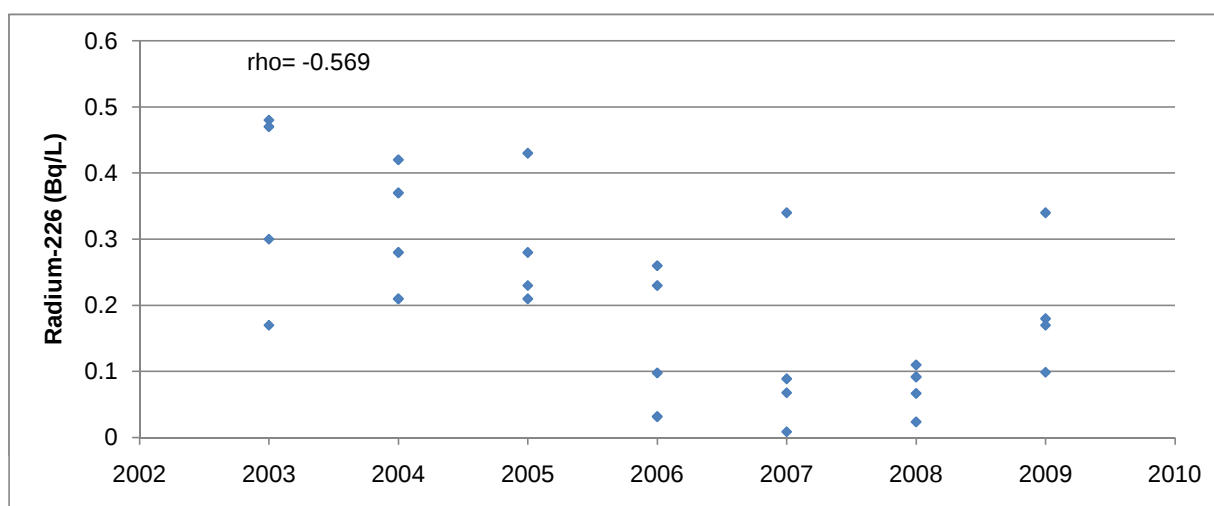
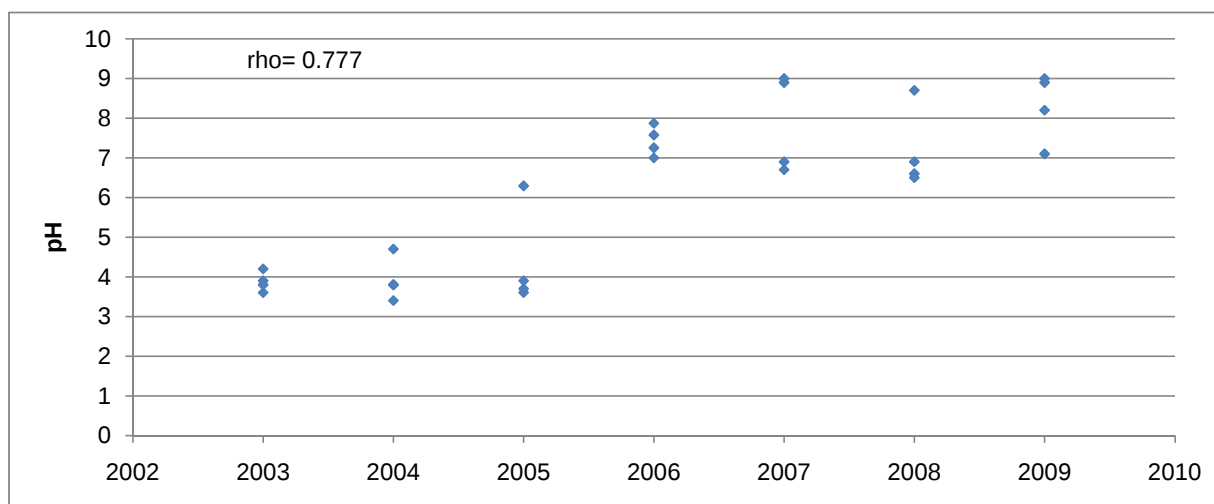
Appendix Figure D.4.2: Significant common (average) trends observed for barium, pH, radium-226, sulphate and uranium over all seasons at station DS-4, 2003 to 2009.



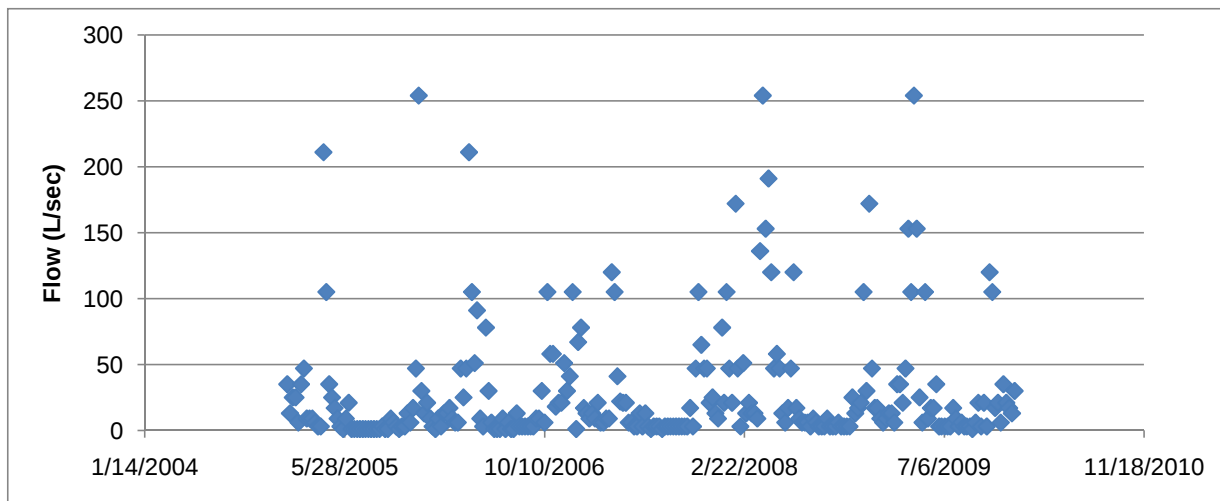
Appendix Figure D.4.2: Significant common (average) trends observed for barium, pH, radium-226, sulphate and uranium over all seasons at station DS-4, 2003 to 2009.



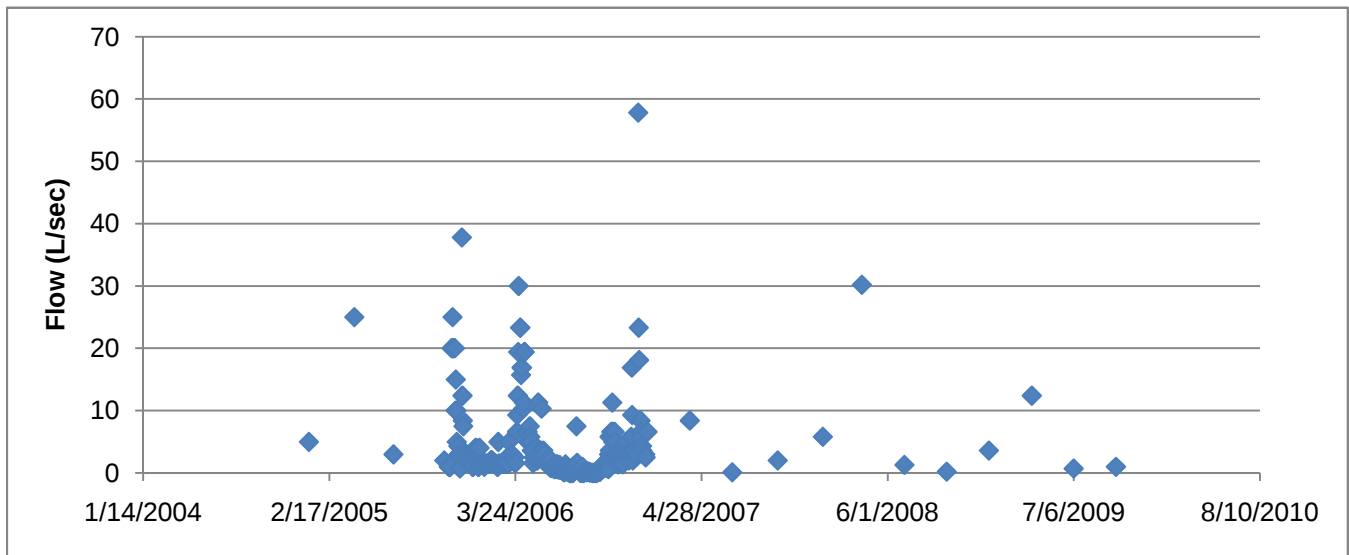
Appendix Figure D.4.3: Significant common (average) trends observed for cobalt, iron, manganese, pH, radium-226 and sulphate over all seasons at station DS-16, 2003 to 2009.



Appendix Figure D.4.3: Significant common (average) trends observed for cobalt, iron, manganese, pH, radium-226 and sulphate over all seasons at station DS-16, 2003 to 2009.



Appendix Figure D.4.4: Flows at station DS-4 from 2005 to 2009.



Appendix Figure D4.5: Flows at station DS-16 from 2005 to 2009.

APPENDIX D.5

Stanleigh TMA

Appendix Table D.5.1: Water quality at station CL-06 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO ₄ (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
4/27/2005								7.8	0.072		< 1		
5/4/2005								7.1	0.058		< 1		
5/11/2005	0.147	0.0008	< 0.001	0.03	0.188	0.0031	< 0.0006	7.5	0.058	175	< 1	< 0.005	0.001
5/18/2005								7.4	0.1		< 1		
5/25/2005								7.5	0.09		< 1		
6/1/2005								7.4	0.13		< 1		
6/8/2005	0.165	0.0006	< 0.001	0.026	0.161	0.0036	< 0.0006	7.4	0.083	200	< 1	< 0.005	0.001
6/15/2005								7.3	0.14		< 1		
6/22/2005								7.2	0.045		< 1		
6/29/2005								7.3	0.2		< 1		
7/6/2005	0.147	< 0.0003	< 0.001	0.03	0.105	0.0016	< 0.0006	7.3	0.15	179	< 1	< 0.005	0.007
7/13/2005								7.2	0.16		< 1		
7/20/2005								7.2	0.25		< 1		
9/7/2005	0.165	< 0.0003	< 0.001	0.035	0.0838	0.002	< 0.0006	7.4	0.092	172	< 1	< 0.005	0.01
9/14/2005								7.3	0.15		< 1		
9/21/2005								7.8	0.17		< 1		
9/28/2005								7.2	0.089		< 1		
11/1/2005								7.2	0.11		< 1		
11/2/2005	0.122	< 0.0003	< 0.001	0.042	0.0761	0.0024	< 0.0006	7.5	0.084	240	< 1	< 0.005	0.004
11/3/2005								7.5	0.1		< 1		
11/4/2005								7.2	0.24		< 1		
5/5/2006	0.168	0.00071	0.0005	0.04	0.166	0.0034	0.00052	7.4	0.075	210	< 1	0.00415	0.0019
5/10/2006								7.4	0.1		< 2		
5/17/2006								7.2	0.14		< 1		
5/24/2006								7.2	0.1		< 1		
5/31/2006								7.3	0.086		< 1		
6/14/2006	0.232	< 0.0005	0.0006	0.02	0.0561	0.0022	< 0.0005	7.6	0.075	190	< 1	0.00291	0.0015
6/21/2006								7.2	0.14		1		
6/28/2006								7.2	0.2		< 1		
7/6/2006	0.24	< 0.0005	0.0009	0.04	0.058	0.003	0.0007	7.4	0.19	190	< 1	0.0026	0.003
7/12/2006								7.3	0.19		1		
7/19/2006								7.2	0.22		< 1		
7/26/2006								7.1	0.18		< 1		
8/2/2006	0.261	< 0.0005	0.0009	0.03	0.0416	< 0.002	< 0.0005	7.1	0.23	200	< 1	0.0022	0.0027
8/9/2006								7.2	0.21		< 1		
11/1/2006	0.191	0.0006	0.0011	0.07	0.146	0.004	0.0034	7.2	0.12	200	< 1	0.0035	0.002
11/8/2006								7.1	0.14		< 1		
11/15/2006								7.3	0.13		1		
11/22/2006								7.3	0.15		< 1		
11/29/2006								7.5	0.11		< 1		
12/6/2006	0.135	0.0006	0.0014	0.08	0.065	0.004	0.0049	7.7	0.1	200	< 1	0.004	0.006
12/13/2006								7.8	0.095		< 1		
12/20/2006								8	0.25		< 1		
3/16/2007								7.2	0.120				
3/21/2007	0.209	0.0007		0.05	0.109			7.2	0.240	200.0		0.0032	
3/28/2007								7.3	0.130				
4/4/2007	0.183	0.0008		<0.02	0.119			7.3	0.160	190.0		0.0034	
4/11/2007								7.3	0.140				
4/18/2007								7.1	0.150				
4/25/2007								7.4	0.270				
5/2/2007	0.208	0.0006		0.04	0.099			7.4	0.190	180.0		0.0034	
5/9/2007								7.6	0.240				
5/16/2007								7.3	0.200				
5/23/2007								7.2	0.170				
5/30/2007								7.2	0.140				
6/6/2007	0.217	<0.0005		0.04	0.067			7.6	0.130	180.0		0.0026	
6/13/2007								7.6	0.150				
12/19/2007								7.3	0.220				
4/17/2008	0.022	<0.0005		0.09	0.083			7.0	0.011	11.0		<0.0005	
4/23/2008								7.3	0.150				
4/30/2008								7.3	0.290				
5/7/2008	0.830	0.0011		0.14	0.193			7.3	0.320	150.0		0.0049	
5/14/2008								7.3	0.160				
5/21/2008								7.3	0.230				
5/28/2008								7.3	0.170				
6/4/2008	0.864	0.0011		0.05	0.147			7.7	0.310	160.0		0.0034	
6/11/2008								7.5	0.450				
6/18/2008								7.5	0.490				
6/25/2008								7.1	0.200				
7/2/2008	0.750	0.0009		0.06	0.157			7.4	0.180	150.0		0.0030	
7/9/2008								7.4	0.150				
7/16/2008								7.3	0.094				
7/23/2008								7.3	0.160				

Appendix Table D.5.1: Water quality at station CL-06 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Cu (mg/L)	Fe (mg/L)	Mn (mg/L)	Ni (mg/L)	Pb (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)	Zn (mg/L)
7/30/2008								7.2	0.160				
8/6/2008	0.681	<0.0005		0.06	0.091			7.3	0.210	150.0		0.0022	
8/13/2008								7.0	0.160				
8/20/2008								7.2	0.240				
8/27/2008								7.5	0.160				
9/3/2008	0.688	<0.0005		0.05	0.070			7.6	0.160	160.0		0.0020	
9/10/2008								7.3	0.140				
9/17/2008								7.0	0.100				
9/24/2008								7.3	0.096				
10/1/2008	0.543	<0.0005		0.07	0.130			7.1	0.084	160.0		0.0023	
10/8/2008								7.2	0.110				
10/15/2008								6.9	0.130				
10/22/2008								6.9	0.120				
10/29/2008								7.1	0.074				
11/5/2008	0.254	0.0010		0.08	0.121			7.1	0.068	160.0		0.0022	
11/12/2008								7.1	0.130				
11/19/2008								7.2	0.140				
11/26/2008								8.1	0.130				
12/3/2008	0.350	0.0008		0.07	0.120			7.5	0.140	160.0		0.0026	
12/10/2008								6.8	0.180				
12/17/2008								7.1	0.160				
2/11/2009	0.337	0.0006		0.05	0.130			7.2	0.110	170.0		0.0028	
2/19/2009								7.1	0.210				
2/25/2009								7.2	0.150				
3/4/2009	0.430	0.0005		0.04	0.136			7.3	0.100	170.0		0.0026	
3/11/2009								7.2	0.120				
3/18/2009								7.3	0.160				
3/25/2009								7.2	0.140				
4/1/2009	0.445	0.0006		0.07	0.128			7.1	0.140	140.0		0.0023	
4/8/2009								7.2	0.140				
4/15/2009								7.1	0.220				
4/22/2009								7.1	0.220				
4/29/2009								7.0	0.250				
5/6/2009	0.576	0.0008		0.13	0.169			7.1	0.170	130.0		0.0029	
5/13/2009								7.4	0.140				
5/20/2009								7.4	0.170				
5/27/2009								7.6	0.380				
6/3/2009	1.160	0.0010		0.08	0.170			7.7	0.430	190.0		0.0029	
6/11/2009								7.3	0.100				
6/18/2009								7.6	0.095				
6/24/2009								7.8	0.100				
7/2/2009	0.703	0.0008		0.05	0.158			7.7	0.098	130.0		0.0023	
7/8/2009								7.8	0.190				
7/15/2009								7.6	0.170				
7/22/2009								7.7	0.160				
7/29/2009								7.6	0.160				
8/6/2009	0.558	<0.0005		0.04	0.078			7.3	0.100	120.0		0.0021	
8/12/2009								7.6	0.150				
8/19/2009								7.8	0.100				
11/4/2009	0.386	<0.0005		0.08	0.200			7.4	0.110	120.0		0.0044	
11/11/2009								7.8	0.200				
11/18/2009								7.8	0.250				
11/25/2009								7.5	0.190				
12/2/2009	0.603	0.0006		0.09	0.109			7.5	0.180	140.0		0.0029	
12/9/2009								7.7	0.087				
12/16/2009								7.6	0.100				
12/23/2009								7.5	0.160				
Number	33	26	11	32	33	11	11	272	130	33	43	32	11
Minimum	0.022	0.0003	0.0005	0.02	0.0416	0.0016	0.0005	6.8	0.011	11	1	0.002	0.001
Maximum	1.16	0.0011	0.0014	0.14	0.2	0.004	0.0049	8.1	0.49	240	2	0.005	0.01
Mean	0.393	0.0007	0.0009	0.06	0.119	0.0028	0.0012	7.3	0.159	166.0	1	0.0033	0.004
Median	0.261	0.0006	0.0010	0.05	0.12	0.003	0.0006	7.3	0.150	170.0	1	0.0029	0.0027
10th Perc.	0.147	0.0004	0.0006	0.03	0.065	0.0020	0.0005	7.1	0.087	130.0	1	0.0022	0.001

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.5.2: Summary of Annual Plant Operations and Discharge at Stanleigh , 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	115	143	108	239	240
Maximum Daily Plant Flow (L/s @ CL-04)	528	519	506	550	555
Minimum Daily Plant Flow (L/s @ CL-04)	0	0	0	0	0
Monthly Average Daily Plant Flow (L/s @ CL-04)	430	416	478	477	503
Total Volume Treated (ML)	4271	5139	4462	9842	10428
Annual Average Treatment Rate (L/s)	-	-	478	477	503
Barium Chloride Consumption					
Total (kg/yr)	3675	4128	3548	22155	20600
Monthly Average (mg/L)	0.86	0.80	0.80	2.25	1.98
Lime Consumption					
Dry (tonne/yr)	2.8	6.4	5.00	15.87	17.36
Average (g/L)	0.00066	0.0012	0.0011	0.0016	0.0017
*EFFLUENT					
Discharge Days	115	143	97	239	241
Maximum Daily Discharge Flow (L/s @ CL-06)	528	517	504	550	555
Minimum Daily Discharge Flow (L/s @ CL-06)	0	0	0	0	0
Monthly Average Daily Discharge Flow (L/s @ CL-06)	430	425	486	474	490
Total Annual Volume Discharged (ML)	4271	5247	4071	9788	10194
Annual Average Discharge Rate (L/s)	-	-	486	474	490

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.5.3: Mean annual discharge loadings from Stanleigh TMA, 2005 - 2009.

Station	Drainage Type	Mean Annual Discharge (m ³)		Sulphate	Radium	Uranium	Barium	Cobalt	Iron	Manganese
				(kg/yr)	(MBq/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
CL-06	Controlled Discharge	9,795,082	Mean	1,192,891	1,164	21	2,963	4.2	428	915.6
			S.D.	342,799	581	7.8	2,752	2.2	318	473.4
SR-06	Outlet of McCabe Lake	14,036,253	Mean	1,732,074	639	18	1,426	3.0		
			S.D.	474,189	163	1.1	710.0	0.7		

MBq/yr = Million Bequerels per year

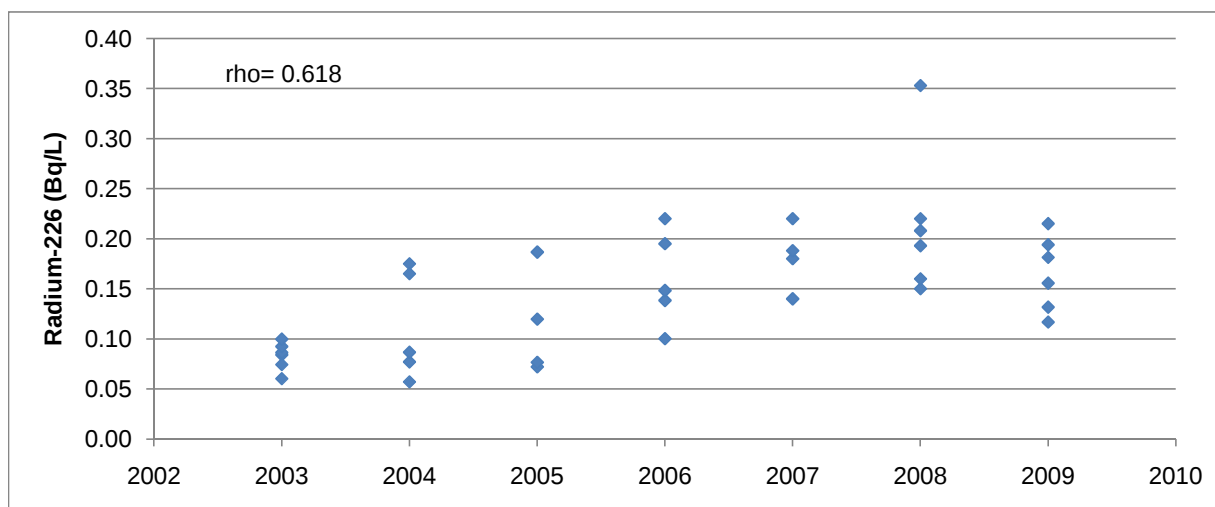
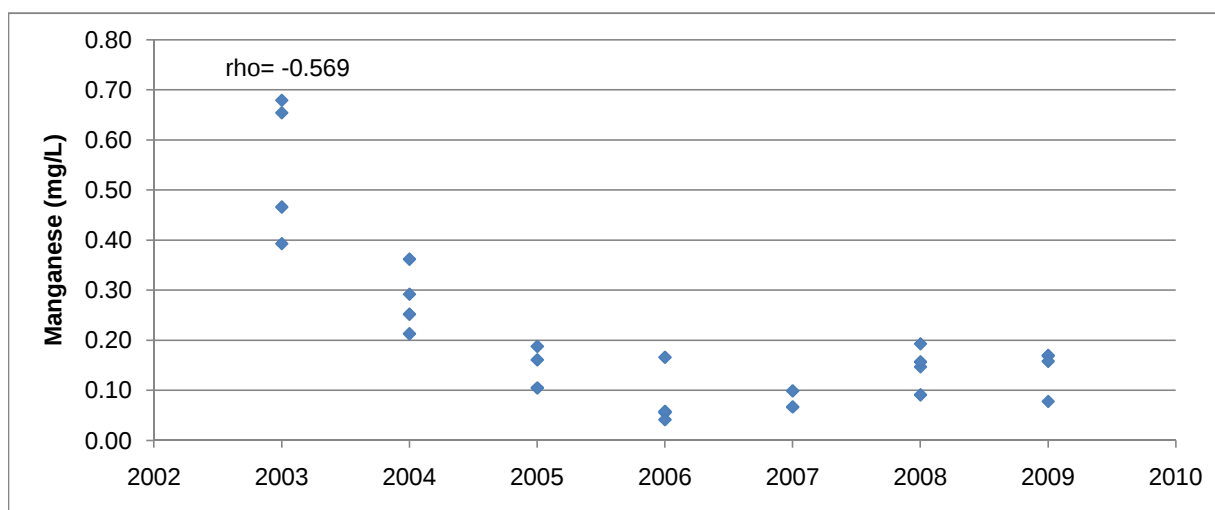
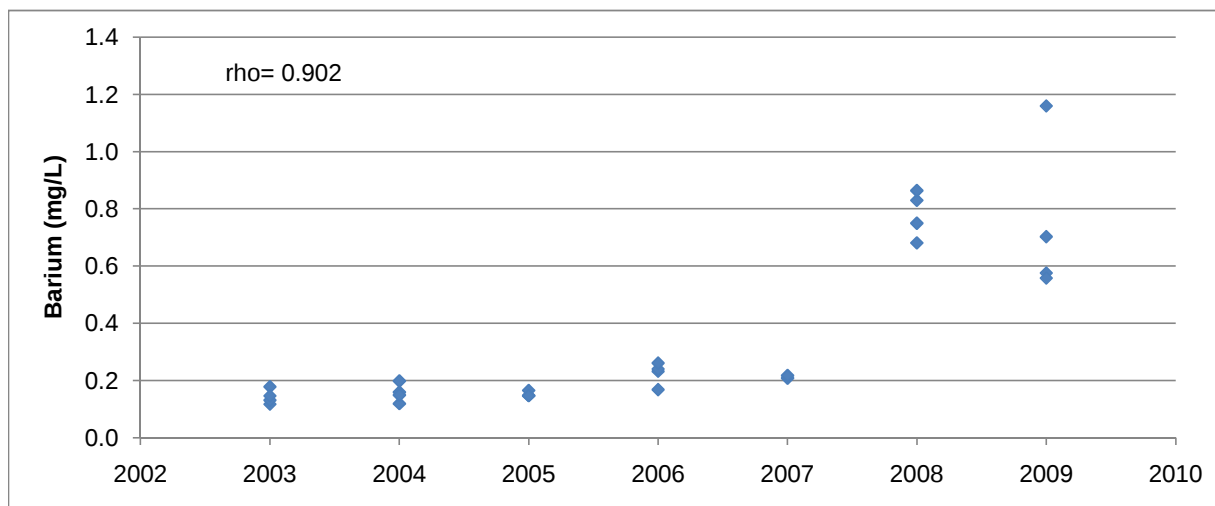
Appendix Table D.5.4: Summary of seasonal trends for station CL-06, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate
April	Correlation Coefficient					-0.371429	0.771428571	
	Sig. (2-tailed)					0.468478	0.072396501	
	N					6	6	
May	Correlation Coefficient	0.964286	-0.540562	0.378394	-0.607142857	-0.464286	0.821428571	-0.8928571
	Sig. (2-tailed)	0.000454	0.210289	0.402602	0.148231161	0.293934	0.023448808	0.0068072
	N	7	7	7	7	7	7	7
June	Correlation Coefficient	0.857143	-0.126131	0.428571	-0.5	0.49099	0.964285714	-0.8468812
	Sig. (2-tailed)	0.013697	0.787572	0.337368	0.253169995	0.263194	0.000454149	0.0161971
	N	7	7	7	7	7	7	7
July	Correlation Coefficient	0.885714	-0.235396	0.542857	-0.485714286	0.2	0.428571429	-0.9428571
	Sig. (2-tailed)	0.018845	0.653428	0.265703	0.328723032	0.704	0.396501458	0.0048047
	N	6	6	6	6	6	6	6
August	Correlation Coefficient	0.9	-0.707107	0.3	-0.7	0.2	0.3	-1
	Sig. (2-tailed)	0.037386	0.18169	0.623838	0.188120404	0.74706	0.623837665	0.000001
	N	5	5	5	5	5	5	5
December	Correlation Coefficient					-0.2	0.3	
	Sig. (2-tailed)					0.74706	0.623837665	
	N					5	5	

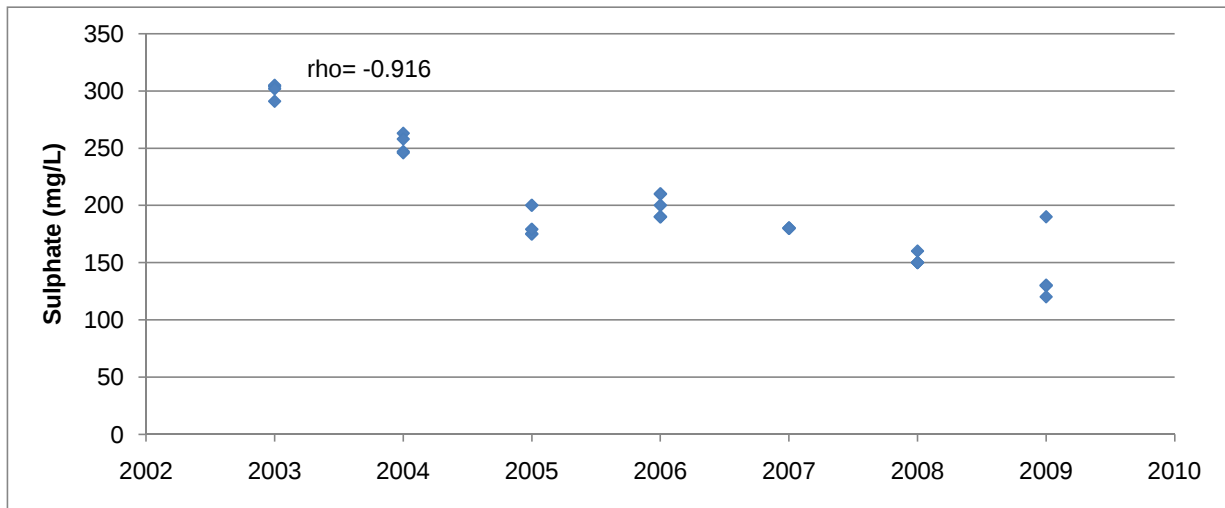
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

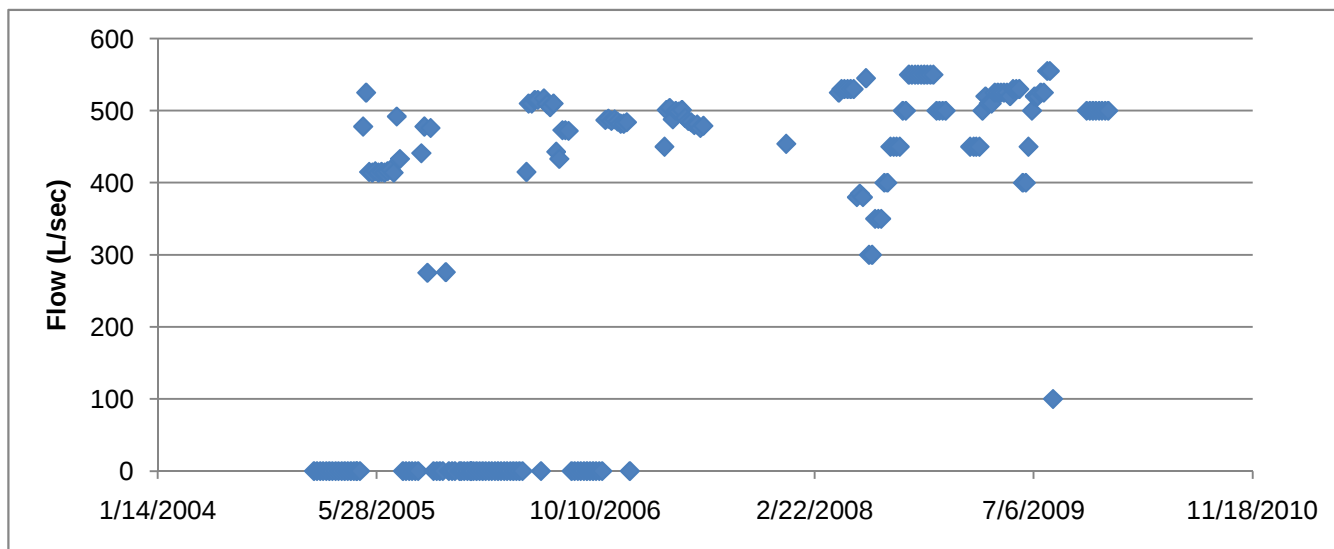
 Significant trend where p<0.05.



Appendix Figure D.5.1: Significant common (average) trends observed for barium, manganese, radium-226 and sulphate over all seasons at station CL-06, 2003 to 2009.



Appendix Figure D.5.1: Significant common (average) trends observed for barium, manganese, radium-226 and sulphate over all seasons at station CL-06, 2003 to 2009.



Appendix Figure D.5.2: Flows at station CL-06 from 2005 to 2009.

APPENDIX D.6

Milliken TMA

Appendix Table D.6.1: Water quality at station MPE from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/12/2005	0.0106	0.0007	0.484	0.0825	6.2	0.02	19.4	0.011
2/16/2005	0.0119	0.0012	0.539	0.0872	6.8	0.029	19.8	0.013
3/16/2005	0.0126	0.0012	0.862	0.153	6.9	0.042	22.1	0.016
4/13/2005	0.0066	0.00025	0.21	0.0306	7.2	0.022	11.3	0.006
5/11/2005	0.0129	0.00025	0.687	0.0698	7.3	0.034	18	
6/16/2005	0.0164	0.0012	3.14	0.288	6.9	0.065	15.8	
11/23/2005	0.0174	0.0022	0.274	0.0931	6.1	0.058	36.2	
12/14/2005	0.0106	0.0011	0.364	0.085	6.5	0.031	23.5	0.013
1/11/2006	0.014	0.0012	0.83	0.124	6.7	0.042	22	0.0078
2/15/2006	0.015	0.001	1.03	0.124	6.7	0.033	23	0.0122
3/8/2006	0.015	0.0018	0.74	0.138	6.8	0.032	26	0.0132
4/12/2006	0.0091	0.0006	0.14	0.0272	6.8	0.022	12	0.00548
5/10/2006	0.0168	0.00025	0.19	0.0354	6.7	0.059	20	0.00319
6/14/2006	0.0145	0.00074	2.82	0.124	6.8	0.087	15	0.00267
7/12/2006	0.0118	0.00025	4.83	0.13	6.5	0.059	14	0.00183
8/9/2006	0.013	0.0007	5.09	0.282	6.7	0.081	12	0.0016
9/13/2006	0.014	0.00025	4.7	0.137	6.9	0.07	11	0.0023
10/11/2006	0.013	0.00025	1.11	0.056	7	0.038	21	0.0014
11/22/2006	0.012	0.00025	0.33	0.034	6.9	0.021	18	0.0055
12/13/2006	0.009	0.0006	0.26	0.046	7.1	0.027	13	0.0043
1/10/2007	0.010	0.0007	0.24	0.046	7.0	0.031	13.0	0.0067
2/14/2007	0.013	0.0009	0.80	0.108	6.5	0.028	18.0	0.0105
3/14/2007	0.015	0.0013	0.81	0.150	6.6	0.097	26.0	0.0082
4/11/2007	0.009	0.0005	0.15	0.026	7.2	0.025	11.0	0.0053
5/9/2007	0.013	0.00025	0.51	0.063	7.0	0.041	17.0	0.0026
6/12/2007	0.014	0.0008	2.00	0.129	6.9	0.047	15.0	0.0032
7/11/2007	0.012	0.0009	4.70	0.274	6.4	0.080	12.0	0.0026
8/8/2007	0.008	0.00025	4.16	0.164	6.4	0.035	11.0	0.0012
9/12/2007	0.011	0.00025	4.72	0.141	6.7	0.037	6.7	0.0013
10/10/2007	0.014	0.00025	3.60	0.108	6.8	0.045	8.4	0.0016
11/14/2007	0.015	0.00025	0.30	0.029	6.5	0.050	24.0	0.0015
12/12/2007	0.013	0.00025	0.59	0.098	6.5	0.022	22.0	0.0135
1/9/2008	0.010	0.0009	0.35	0.062	6.5	0.024	16.0	0.0086
2/14/2008	0.011	0.00025	0.32	0.036	6.8	0.013	17.0	0.0144
3/12/2008	0.012	0.0005	0.40	0.067	6.7	0.015	17.0	0.0132
4/9/2008	0.011	0.0008	0.25	0.045	6.7	0.018	16.0	0.0247
5/14/2008	0.013	0.00025	0.38	0.040	7.2	0.025	16.0	0.0077
6/4/2008	0.014	0.00025	0.69	0.071	7.5	0.044	17.0	0.0027
7/9/2008	0.011	0.00025	3.04	0.042	6.5	0.039	12.0	0.0019
8/13/2008	0.014	0.0005	6.04	0.234	6.6	0.067	8.9	0.0016
10/8/2008	0.015	0.00025	3.40	0.063	7.1	0.031	8.6	0.0021
11/12/2008	0.014	0.00025	1.76	0.064	6.5	0.031	15.0	0.0018
12/10/2008	0.014	0.0007	1.28	0.210	6.8	0.028	15.0	0.0073
1/14/2009	0.012	0.00025	0.45	0.059	6.9	0.016	16.0	0.0121
2/11/2009	0.017	0.0010	1.26	0.160	6.6	0.039	18.0	0.0131
3/11/2009	0.014	0.0008	1.25	0.142	6.6	0.045	19.0	0.0115
4/8/2009	0.010	0.0005	0.18	0.031	6.5	0.019	12.0	0.0106
5/13/2009	0.013	0.00025	0.56	0.043	7.4	0.028	14.0	0.0045
6/10/2009	0.013	0.00025	0.80	0.065	7.2	0.038	14.0	0.0028
7/8/2009	0.015	0.0007	4.19	0.099	6.7	0.077	9.3	0.0051
8/12/2009	0.011	0.00025	2.74	0.110	6.9	0.038	9.9	0.0019
9/9/2009	0.011	0.00025	3.47	0.084	6.9	0.021	8.1	0.0019
10/7/2009	0.012	0.00025	3.26	0.065	7.2	0.020	6.5	0.0021
11/4/2009	0.009	0.00025	0.35	0.028	7.0	0.018	11.0	0.0039
12/3/2009	0.012	0.00025	0.57	0.047	6.8	0.014	15.0	0.0077
Number	55	55	55	55	239	55	55	52
Minimum	0.0066	0.00025	0.14	0.026	5.8	0.013	6.5	0.0012
Maximum	0.0174	0.0022	6.04	0.288	7.5	0.097	36.2	0.0247
Mean	0.013	0.00059	1.60	0.097	6.78	0.039	15.79	0.0066
Median	0.013	0.00050	0.80	0.083	6.8	0.033	15	0.0052
10th Perc.	0.009	0.00025	0.24	0.032	6.5	0.018	9.06	0.0016

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Concentration below maximum MDL.

Appendix Table D.6.2: Mean annual discharge and seepage loadings from Milliken TMA, 2005 - 2009.

Station	Drainage Type	Mean Annual Discharge (m ³)		Sulphate	Radium	Uranium	Barium	Cobalt	Iron	Manganese
				(kg/yr)	(MBq/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
SC-01	Westner Lake Outlet	1,014,205	Mean	38,223	37	0.3	16	2.8	213	
			S.D.	13,911	50	0.1	7	4.5	69	
MPE	Discharge	5,759,999	Mean	92,732	221	37	72	3.6	8,938	564
			S.D.	17,714	45	8.9	2	1.5	2,468	90
M-01	Sheriff Creek Park Dam	7,942,465	Mean	140,018	205	35	146	5.6	4,955	
			S.D.	37,625	50	7.1	8	1.6	1,620	

MBq/yr = Million Bequerels per year

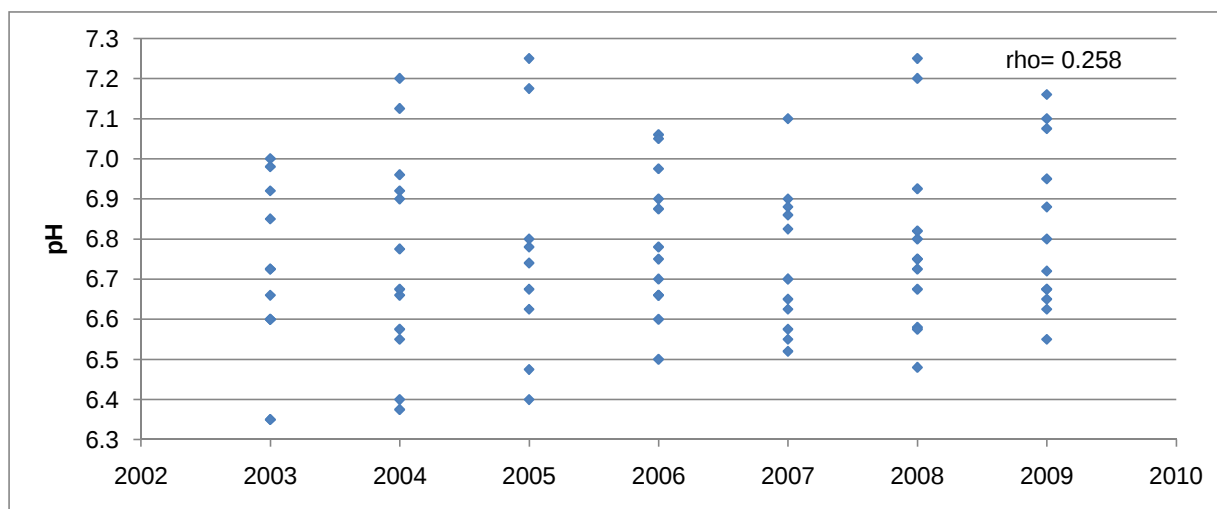
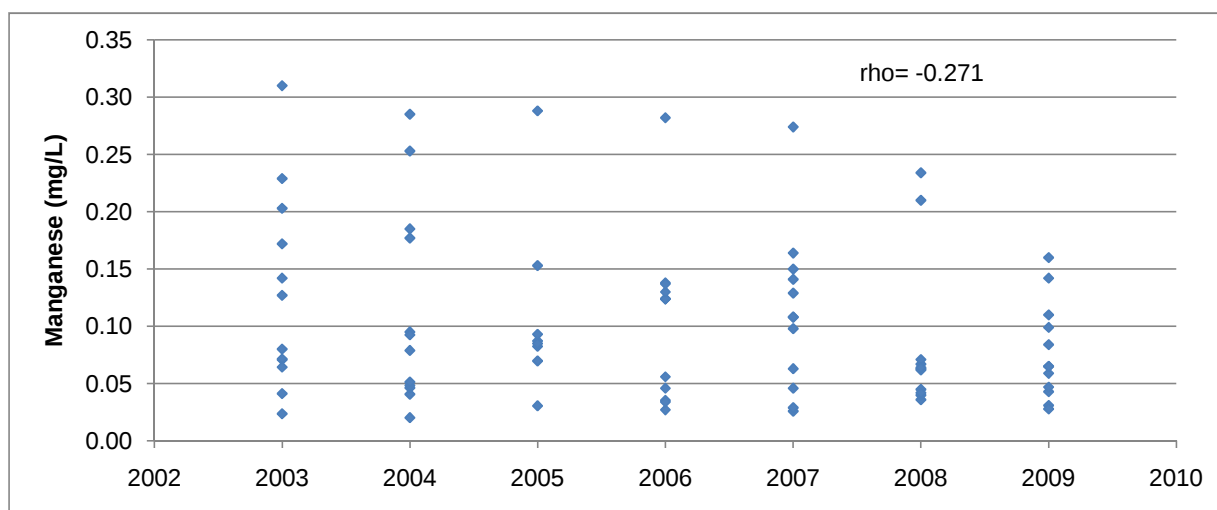
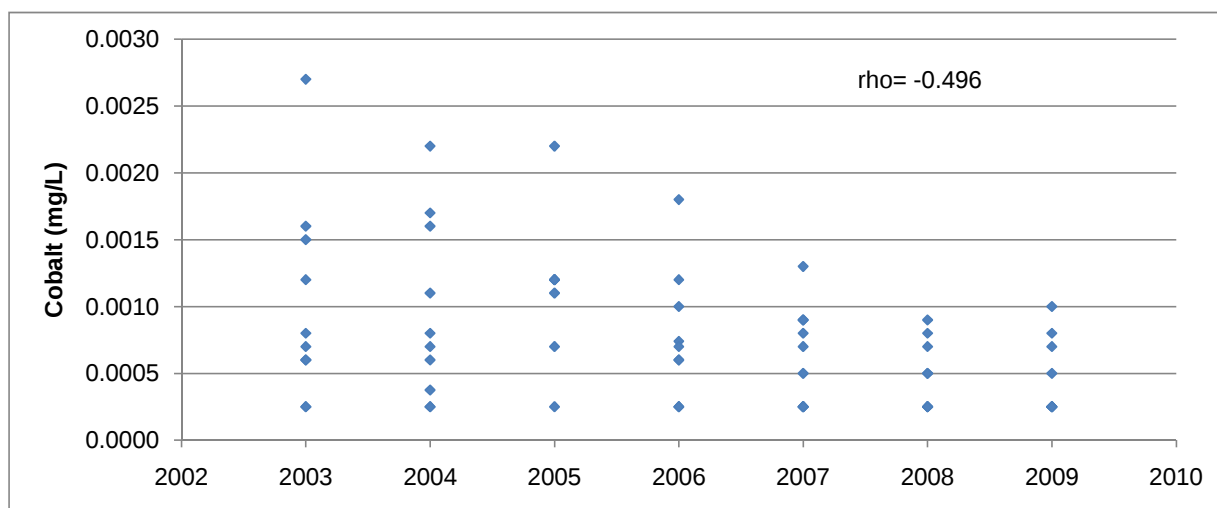
Appendix Table D.6.3: Summary of seasonal trends for station MPE, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.63066	-0.75679	-0.82143	-0.85714286	0.666694	-0.78571429	-0.8468812	-0.2571429
	Sig. (2-tailed)	0.128888	0.048905	0.023449	0.013697327	0.10192	0.03623846	0.01619713	0.62278717
	N	7	7	7	7	7	7	7	6
February	Correlation Coefficient	-0.07143	-0.81084	-0.5	-0.5	0.763763	-0.35714286	-0.8728716	0.54285714
	Sig. (2-tailed)	0.879048	0.026916	0.25317	0.253169995	0.045659	0.43161135	0.01032342	0.26570262
	N	7	7	7	7	7	7	7	6
March	Correlation Coefficient	-0.30632	-0.78571	-0.42857	-0.82142857	0.5766	-0.10714286	-0.6666937	-0.072075
	Sig. (2-tailed)	0.504027	0.036238	0.337368	0.023448808	0.175382	0.81915086	0.10192046	0.87795925
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	-0.35714	-0.36037	-0.53571	-0.32142857	-0.07143	-0.84688121	-0.1261312	0.5
	Sig. (2-tailed)	0.431611	0.427149	0.215217	0.482072038	0.879048	0.01619713	0.78757216	0.39100222
	N	7	7	7	7	7	7	7	5
May	Correlation Coefficient	0.704187		0.285714	0.142857143	0.054056	-0.71428571	-0.8829187	
	Sig. (2-tailed)	0.07735		0.534509	0.7599453	0.908365	0.07134356	0.00845034	
	N	7		7	7	7	7	7	
June	Correlation Coefficient	0.270281	-0.41443	-0.42857	-0.53571429	0.5	-0.42857143	-0.4144312	
	Sig. (2-tailed)	0.557731	0.355269	0.337368	0.215217456	0.25317	0.33736831	0.35526894	
	N	7	7	7	7	7	7	7	
July	Correlation Coefficient	0.542857	0.27323	0.2	-0.31428571	-0.29096	-0.14285714	-0.8116794	
	Sig. (2-tailed)	0.265703	0.600355	0.704	0.544093294	0.526695	0.78717201	0.04985759	
	N	6	6	6	6	7	6	6	
August	Correlation Coefficient	0.085714	-0.72471	0.028571	-0.48571429	0.485714	-0.28988552	-0.3714286	
	Sig. (2-tailed)	0.871743	0.103243	0.957155	0.328723032	0.328723	0.57735179	0.46847813	
	N	6	6	6	6	6	6	6	
September	Correlation Coefficient	-0.56429	-0.35355	0.7	0.4	0.6	-0.7	-0.9	
	Sig. (2-tailed)	0.321723	0.559404	0.18812	0.504631575	0.208	0.1881204	0.03738607	
	N	5	5	5	5	6	5	5	
October	Correlation Coefficient	0.6		0.714286	0.142857143	0.428571	-0.88571429	-0.7714286	
	Sig. (2-tailed)	0.208		0.110787	0.787172012	0.396501	0.01884548	0.0723965	
	N	6		6	6	6	6	6	
November	Correlation Coefficient	-0.03571	-0.20412	0	-0.10714286	-0.14286	-0.53571429	-0.5357143	-0.7142857
	Sig. (2-tailed)	0.939408	0.660642	1	0.819150856	0.759945	0.21521746	0.21521746	0.11078717
	N	7	7	7	7	7	7	7	6
December	Correlation Coefficient	0.642857	-0.74558	0.571429	0.142857143	-0.41443	-0.35714286	-0.4144312	0.10714286
	Sig. (2-tailed)	0.119392	0.054379	0.180202	0.7599453	0.355269	0.43161135	0.35526894	0.81915086
	N	7	7	7	7	7	7	7	7

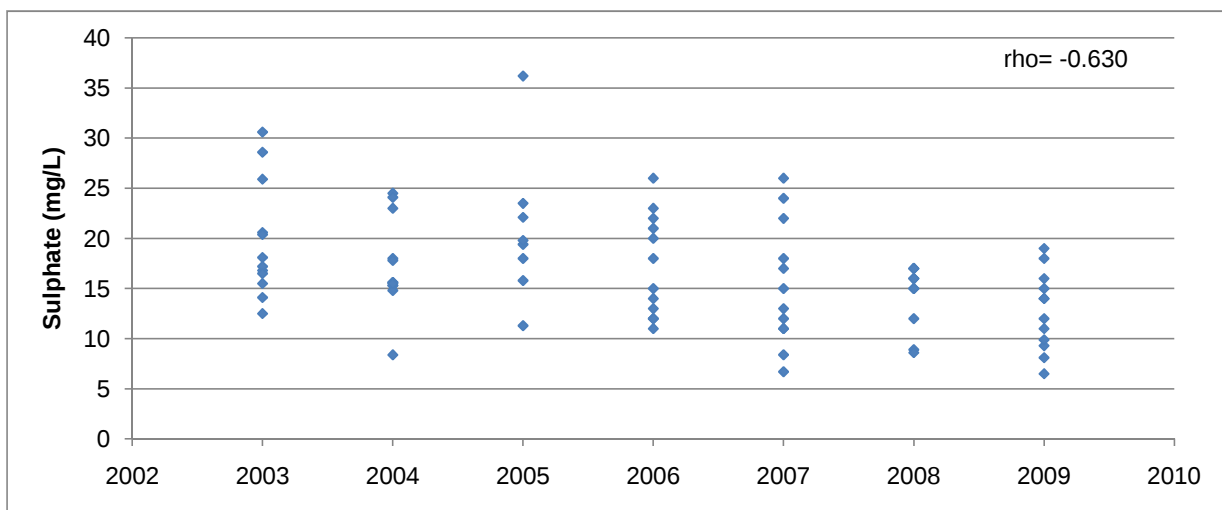
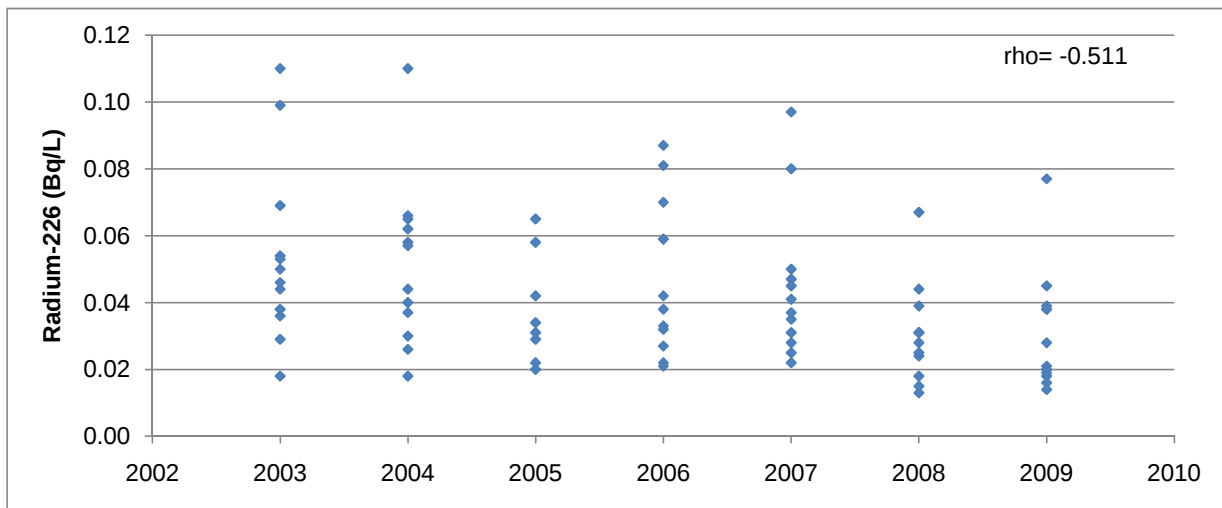
Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where p<0.05.



Appendix Figure D.6.1: Significant common (average) trends observed for cobalt, manganese, pH, radium-226 and sulphate over all seasons at station MPE, 2003 to 2009.



Appendix Figure D.6.1: Significant common (average) trends observed for cobalt, manganese, pH, radium-226 and sulphate over all seasons at station MPE, 2003 to 2009.

APPENDIX D.7
Lacnor/Nordic TMA

Appendix Table D.7.1: Water quality at station N-12 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/4/2005	0.0463	0.0035	2.17	0.181	6.2	0.24	387	0.006
1/17/2005	0.0362	0.0052	3.82	0.224	6.2	0.22	357	0.006
2/7/2005	0.0515	0.004	1.68	0.241	6.3	0.24	403	0.009
2/21/2005	0.0404	0.0026	1.22	0.196	6.1	0.18	324	0.008
3/14/2005	0.0466	0.0041	1.804	0.3019	6.3	0.29	578	
3/21/2005	0.0455	0.0034	2.82	0.255	6.3	0.29	404	0.006
4/4/2005	0.0264	0.0007	0.707	0.0868	7	0.17	238	0.006
4/18/2005	0.0443	0.0009	0.773	0.0732	6.3	0.3	209	
5/2/2005	0.0327	0.0021	0.75	0.175	6.9	0.2	672	
5/16/2005	0.052	0.0019	0.824	0.185	6.7	0.17	755	0.006
6/6/2005	0.0539	0.0012	1.45	0.136	6.6	0.49	776	0.005
6/20/2005	0.0366	0.001	0.694	0.175	6.7	0.29	945	0.007
7/4/2005	0.0274	0.0008	0.762	0.2	6.8	0.37	1021	
7/18/2005	0.0291	0.0022	1	0.28	6.5	0.32	1029	0.005
8/2/2005	0.0938	0.0026	2.46	0.336	6.8	0.37	815	0.005
9/6/2005	0.0303	0.0021	0.585	0.239	6.9	0.1	1066	
10/3/2005	0.0159	0.0015	0.774	0.166	6.8	0.071	995	
11/21/2005	0.0179	0.0021	1.09	0.184	6.4	0.065	638	
12/12/2005	0.0128	0.0012	0.978	0.126	6.7	0.045	420	
1/3/2006	0.02	0.0029	2.24	0.256	6.5	0.066	590	0.0024
2/6/2006	0.019	0.0024	1.98	0.245	6.7	0.044	620	0.0023
3/8/2006	0.017	0.0019	1.51	0.205	6.6	0.049	510	0.002
4/5/2006	0.015	0.00315	1.11	0.129	6.7	0.069	170	0.0034
5/1/2006	0.0216	0.00235	2.76	0.185	6.7	0.069	490	0.00256
6/5/2006	0.0257	0.00344	2.25	0.286	6.6	0.094	670	0.00296
7/4/2006	0.0261	0.00359	0.86	0.245	6.9	0.11	910	0.00356
8/10/2006	0.03	0.0063	0.68	0.403	7	0.12	870	0.0037
9/5/2006	0.026	0.0034	0.62	0.293	6.9	0.065	990	0.004
10/5/2006	0.027	0.0034	1.79	0.259	6.9	0.094	850	0.0039
11/6/2006	0.017	0.0015	2.18	0.137	6.5	0.053	450	0.0021
12/4/2006	0.016	0.0019	1.34	0.116	7.1	0.05	460	0.0022
1/8/2007	0.018	0.0030	3.00	0.126	6.6	0.070	300.0	0.0035
2/7/2007	0.021	0.0021	2.15	0.179	6.7	0.072	510.0	0.0030
3/7/2007	0.026	0.0021	2.44	0.197	6.9	0.080	640.0	0.0030
3/28/2007					7.3	0.084		
4/4/2007	0.021	0.0021	1.79	0.101	7.2		180.0	0.0029
5/7/2007	0.021	0.0031	1.79	0.169	7.0	0.076	590.0	0.0024
6/6/2007	0.031	0.0030	1.30	0.219	7.1	0.120	670.0	0.0033
7/4/2007	0.021	0.0024	0.23	0.184	7.4	0.079	950.0	0.0039
8/1/2007	0.016	0.0015	0.20	0.122	7.5	0.067	1000.0	0.0032
9/5/2007	0.017	0.0037	0.32	0.148	7.5	0.060	1000.0	0.0051
10/3/2007	0.019	0.0031	0.32	0.188	7.0	0.086	980.0	0.0038
11/5/2007	0.028	0.0044	0.67	0.310	6.7	0.084	930.0	0.0041
12/4/2007	0.014	0.0016	0.50	0.140	6.8	0.045	600.0	0.0021
1/15/2008	0.013	0.0012	0.54	0.087	6.8	0.056	260.0	0.0038
2/6/2008	0.017	0.0042	2.31	0.169	6.6	0.100	290.0	0.0045
3/5/2008	0.022	0.0029	1.70	0.209	6.5	0.068	440.0	0.0046
4/16/2008	0.017	0.0020	0.78	0.098	6.4	0.060	150.0	0.0043
5/5/2008	0.019	0.0018	0.67	0.106	6.7	0.066	330.0	0.0028
6/2/2008	0.021	0.0019	0.61	0.167	7.2	0.068	490.0	0.0030
7/2/2008	0.025	0.0018	0.27	0.186	6.7	0.088	660.0	0.0028
8/13/2008	0.020	0.0012	0.33	0.165	7.1	0.063	870.0	0.0023
9/3/2008	0.020	0.0012	0.44	0.149	7.0	0.078	880.0	0.0031
10/1/2008	0.024	0.0014	0.33	0.161	6.7	0.100	880.0	0.0025
11/3/2008	0.029	0.0025	0.46	0.258	6.9	0.073	850.0	0.0023
12/17/2008	0.023	0.0033	1.54	0.291	6.8	0.099	370.0	0.0029
1/7/2009	0.017	0.0010	0.81	0.101	7.1	0.072	300.0	0.0025
2/2/2009	0.026	0.0020	1.85	0.202	6.6	0.098	660.0	0.0037
3/4/2009	0.032	0.0024	2.27	0.238	6.9	0.130	630.0	0.0033

Appendix Table D.7.1: Water quality at station N-12 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
4/6/2009	0.021	0.0013	0.87	0.104	6.3	0.095	170.0	0.0046
5/4/2009	0.023	0.0011	0.82	0.106	6.9	0.085	330.0	0.0025
6/3/2009	0.024	0.0013	0.85	0.132	6.5	0.100	470.0	0.0029
7/6/2009	0.034	0.0015	0.70	0.149	7.2	0.150	700.0	0.0031
8/5/2009	0.026	0.0011	0.51	0.117	6.5	0.100	640.0	0.0024
9/9/2009	0.024	0.0015	0.29	0.147	6.9	0.091	820.0	0.0025
10/7/2009	0.096	0.0022	1.96	0.190	6.8	0.370	510.0	0.0037
11/2/2009	0.020	0.0013	0.48	0.094	6.9	0.056	360.0	0.0022
12/7/2009	0.022	0.0012	0.70	0.112	6.7	0.085	410.0	0.0021
Number	67	67	67	67	261	67	67	59
Minimum	0.0128	0.0007	0.2	0.0732	6	0.044	150	0.002
Maximum	0.096	0.0063	3.82	0.403	7.5	0.49	1066	0.009
Mean	0.028	0.0023	1.23	0.184	6.8	0.128	603.5	0.0037
Median	0.024	0.0021	0.86	0.179	6.8	0.086	600.0	0.0033
10th Perc.	0.017	0.0012	0.33	0.103	6.5	0.056	278.0	0.0023

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.7.2: Summary of Annual Plant Operations and Discharge at Nordic, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	365	365	365	366	365
Maximum Daily Plant Flow (L/s @ N-17)	1100	465	280	550	476
Minimum Daily Plant Flow (L/s @ N-17)	35	32	18	29	34
Monthly Average Daily Plant Flow (L/s @ N-17)	83	76	60	101	79
Total Volume Treated (ML)	2626	2388	1906	3190	2477
Annual Average Treatment Rate (L/s)	-	-	60	101	79
Lime Consumption					
Dry (tonne/yr)	867	883	738.90	818.59	803.81
Average (g/L)	0.33	0.37	0.39	0.26	0.32
*EFFLUENT					
Discharge Days	365	365	365	366	365
Maximum Daily Discharge Flow (L/s @ N-19)	1100	465	280	550	476
Minimum Daily Discharge Flow (L/s @ N-19)	35	32	18	29	34
Monthly Average Daily Discharge Flow (L/s @ N-19)	83	76	60	101	79
Total Annual Volume Discharged (ML)	2626	2388	1906	3190	2477
Annual Average Discharge Rate (L/s)	-	-	60	101	79

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.7.3: Mean annual loadings from Lacnor and Nordic TMAs, 2005 - 2009.

Station	Drainage Type	Mean Annual Discharge (m ³)		Sulphate	Radium	Uranium	Barium	Cobalt	Iron	Manganese
				(kg/yr)	(MBq/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
N-12	Combined Site Discharge	4,361,429	Mean	1,976,100	450	15	107	10	5,763	699
			S.D.	300,651	215	4	32	3	1,040	168
SR-08	Outlet of Nordic Lake	13,822,286	Mean	2,831,726	571	19	303	4		
			S.D.	141,117	160	4	37	1		

MBq/yr = Million Bequerels per year

Appendix Table D.7.4: Summary of seasonal trends for station N-12, 2003 to 2009.

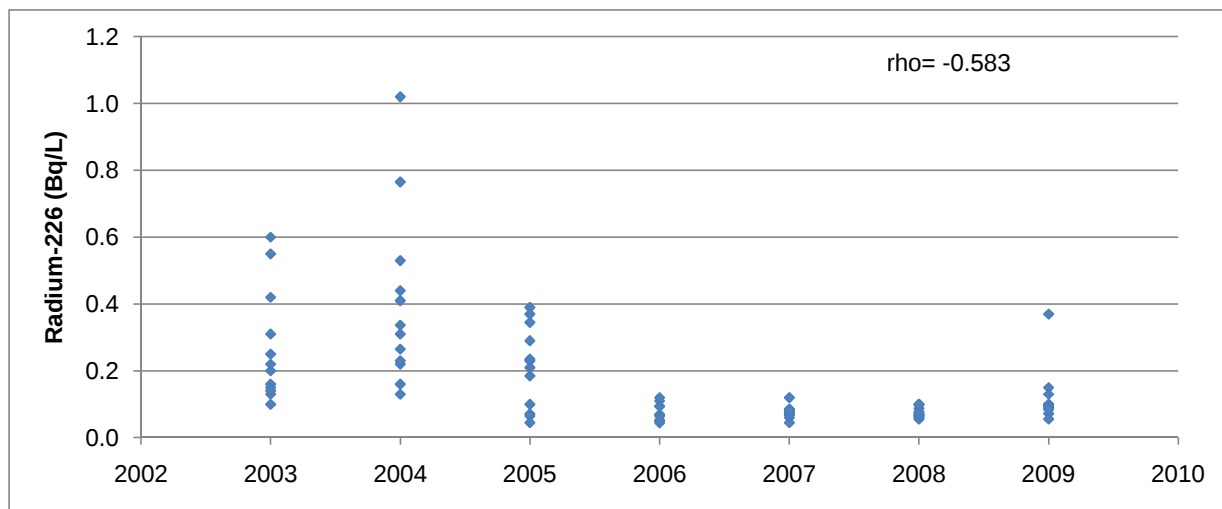
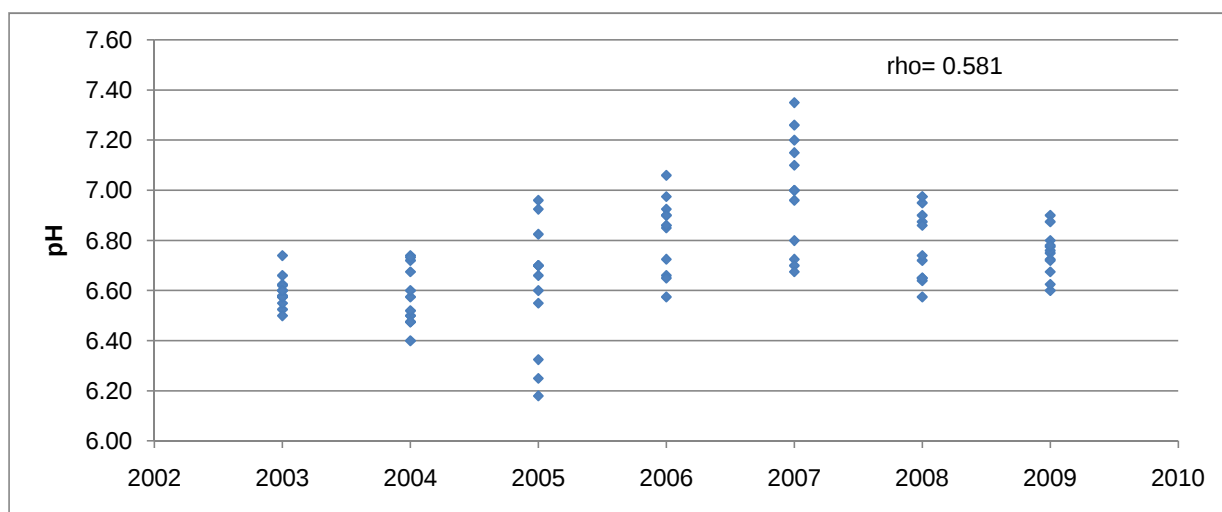
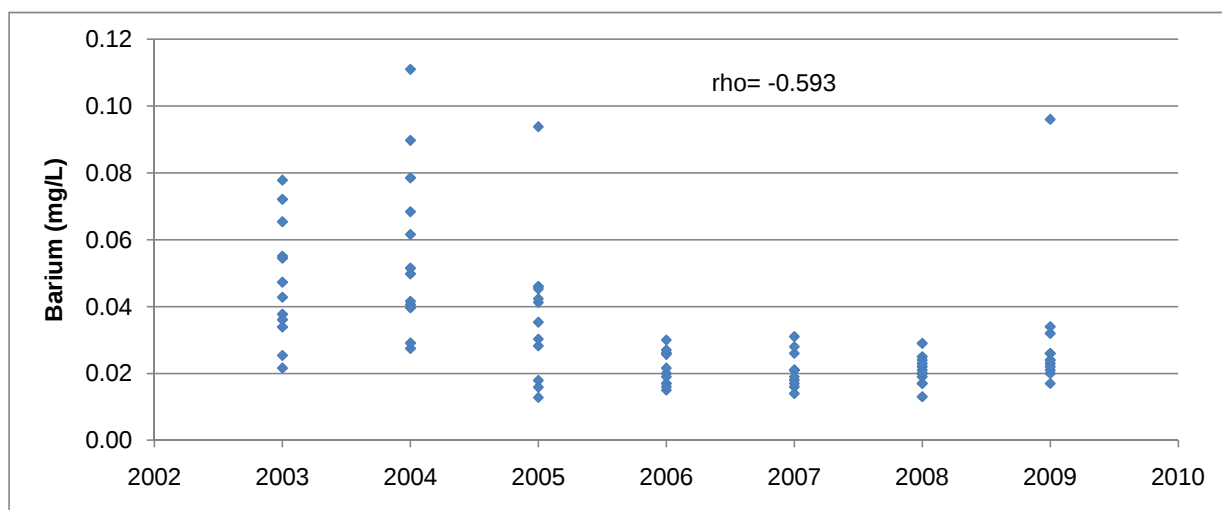
Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.96429	-0.39286	0.107143	-0.642857143	0.642857	-0.60714286	-0.6847125	-0.6
	Sig. (2-tailed)	0.000454	0.383317	0.819151	0.119392373	0.119392	0.148231161	0.0896665	0.208
	N	7	7	7	7	7	7	7	6
February	Correlation Coefficient	-0.60714	0.142857	0.785714	-0.678571429	0.535714	-0.57142857	0.1785714	-0.1
	Sig. (2-tailed)	0.148231	0.759945	0.036238	0.093750254	0.215217	0.180201989	0.7016579	0.8728886
	N	7	7	7	7	7	7	7	5
March	Correlation Coefficient	-0.57143	0	0.071429	-0.571428571	0.5	-0.57142857	0.3214286	-0.1
	Sig. (2-tailed)	0.180202	1	0.879048	0.180201989	0.25317	0.180201989	0.482072	0.8728886
	N	7	7	7	7	7	7	7	5
April	Correlation Coefficient	-0.5766	-0.12613	0.214286	0.642857143	0.678571	-0.6	-0.8468812	-0.1
	Sig. (2-tailed)	0.175382	0.787572	0.644512	0.119392373	0.09375	0.208	0.0161971	0.8728886
	N	7	7	7	7	7	6	7	5
May	Correlation Coefficient	-0.67857	0.25	0.535714	0.342356236	0.882919	-0.71428571	-0.0900937	-0.5
	Sig. (2-tailed)	0.09375	0.588724	0.215217	0.452251222	0.00845	0.071343561	0.8476721	0.3910022
	N	7	7	7	7	7	7	7	5
June	Correlation Coefficient	-0.82143	0.607143	-0.07143	0.5	0.821429	-0.67857143	0.2702812	-0.7
	Sig. (2-tailed)	0.023449	0.148231	0.879048	0.253169995	0.023449	0.093750254	0.5577307	0.1881204
	N	7	7	7	7	7	7	7	5
July	Correlation Coefficient	-0.60714	-0.2965	-0.85714	-0.392857143	0.678571	-0.75	-0.0714286	-0.8696566
	Sig. (2-tailed)	0.148231	0.518477	0.013697	0.38331687	0.09375	0.0521814	0.8790482	0.0243769
	N	7	7	7	7	7	7	7	6
August	Correlation Coefficient	-0.75	-0.78571	-0.75	-0.642857143	0.5766	-0.85714286	0.3243375	-0.9428571
	Sig. (2-tailed)	0.052181	0.036238	0.052181	0.119392373	0.175382	0.013697327	0.4778855	0.0048047
	N	7	7	7	7	7	7	7	6
September	Correlation Coefficient	-0.82143	-0.03604	-0.89286	-0.214285714	0.535714	-0.64285714	0.3214286	-0.6
	Sig. (2-tailed)	0.023449	0.938861	0.006807	0.644511581	0.215217	0.119392373	0.482072	0.284757
	N	7	7	7	7	7	7	7	5
October	Correlation Coefficient	0	0.071429	0.035714	0.357142857	0.509175	-0.07142857	0	
	Sig. (2-tailed)	1	0.879048	0.939408	0.431611352	0.243146	0.879048193	1	
	N	7	7	7	7	7	7	7	
November	Correlation Coefficient	-0.39286	-0.14548	-0.64286	0	0.180187	-0.57142857	-0.0357143	-0.4
	Sig. (2-tailed)	0.383317	0.755633	0.119392	1	0.699046	0.180201989	0.9394082	0.5046316
	N	7	7	7	7	7	7	7	5
December	Correlation Coefficient	-0.32143	0	0.321429	0	0.428571	-0.36037499	0.4642857	-0.7650369
	Sig. (2-tailed)	0.482072	1	0.482072	1	0.337368	0.427148809	0.2939341	0.0763256
	N	7	7	7	7	7	7	7	6

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

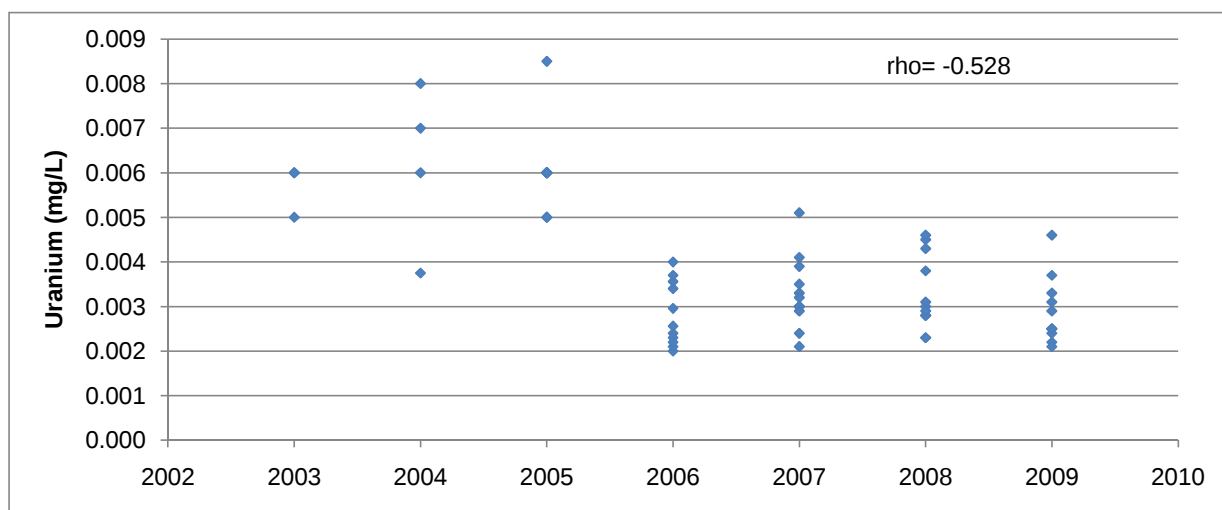
Correlation Coefficient (Zar 1984).

ns denotes not significant.

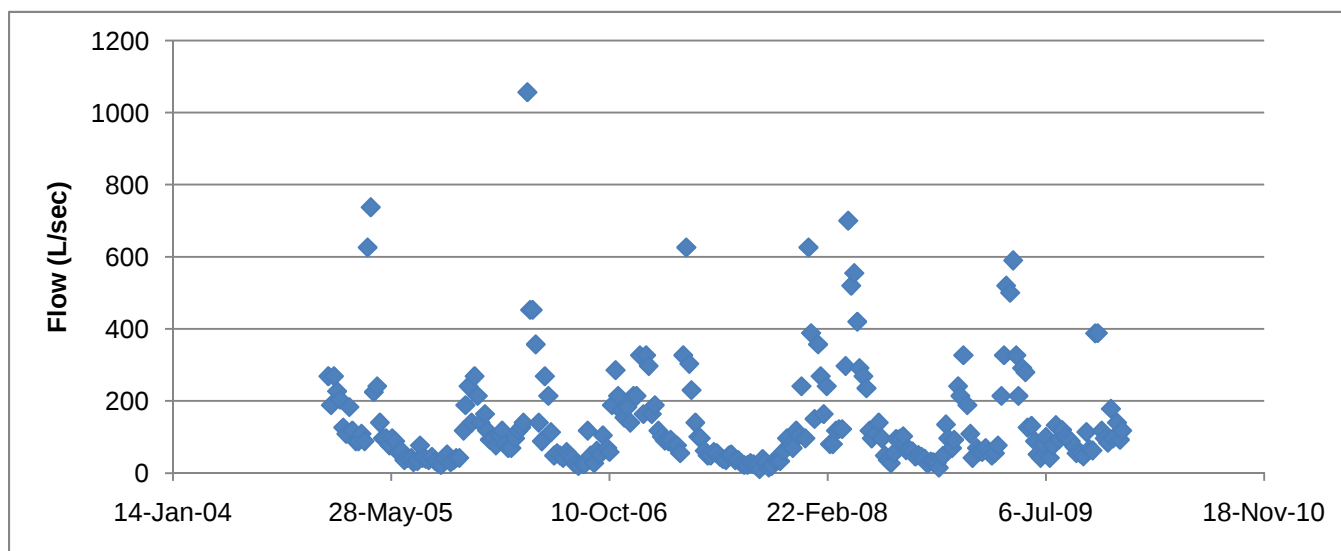
 Significant trend where p<0.05.



Appendix Figure D.7.1: Significant common (average) trends observed for barium, pH, radium-226 and uranium over all seasons at station N-12, 2003 to 2009.



Appendix Figure D.7.1: Significant common (average) trends observed for barium, pH, radium-226 and uranium over all seasons at station N-12, 2003 to 2009.



Appendix Figure D.7.2: Flows at station N-12 from 2005 to 2009.

APPENDIX D.8

Pronto TMA

Appendix Table D.8.1: Water quality at station LL-01 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH	Ra (Bq/L)	SO4 (mg/L)	TSS (mg/L)	U (mg/L)
1/5/2005	0.0357	0.0004	0.442	0.107	6.4	0.092	176		< 0.005
4/6/2005	0.0137	0.0005	0.444	0.0633	6.5	0.044	42.9		< 0.005
7/6/2005	0.0217	< 0.0003	0.297	0.0273	7.2	0.045	99		0.006
10/4/2005	0.0271	< 0.0003	0.491	0.0663	6.9	0.08	112		< 0.005
1/12/2006	0.06	< 0.0005	0.23	0.0446	6.9	0.14	310		0.0111
4/12/2006	0.0244	0.00053	0.52	0.0475	6.8	0.07	66		0.00214
7/12/2006	0.0269	< 0.0005	0.29	0.0179	7.1	0.065	140		0.00201
9/20/2006	0.046	< 0.0005	0.2	0.034	6.8	0.14	350	1	0.0029
10/11/2006	0.044	< 0.0005	0.26	0.027	7.1	0.13	280	2	0.009
11/8/2006	0.041	< 0.0005	0.15	0.019		0.088	230	1	0.0279
12/13/2006	0.018	0.0006	0.53	0.04		0.034	67	4	0.0021
1/10/2007	0.032	0.0006	0.30	0.052	6.8	0.063	150.0		0.0033
4/11/2007	0.029	0.0006	0.39	0.053	7.0	0.050	100.0		0.0048
7/11/2007	0.034	0.0005	0.59	0.092	7.0	0.094	160.0		0.0044
10/10/2007	0.027	< 0.0005	0.86	0.133	6.7	0.087	98.0		0.0043
1/9/2008	0.013	0.0006	0.59	0.087	6.5	0.035	19.0		0.0026
4/9/2008	0.010	< 0.0005	0.48	0.027	6.7	0.012	9.8		0.0018
7/9/2008	0.017	< 0.0005	1.27	0.132	6.7	0.024	14.0		0.0019
10/8/2008	0.018	< 0.0005	0.25	0.036	7.0	0.018	45.0		0.0017
1/14/2009	0.017	< 0.0005	0.39	0.037	6.7	0.027	36.0		0.0019
4/8/2009	0.011	< 0.0005	0.26	0.021	6.7	0.018	15.0		0.0016
7/8/2009	0.013	< 0.0005	1.43	0.131	6.7	0.025	8.8		0.0015
10/14/2009	0.018	< 0.0005	0.46	0.038	6.6	0.030	22.0		0.0028
Number	23.0	23.0	23.0	23.0	21.0	23.0	23.0	4.0	23.0
Minimum	0.01	0.0003	0.15	0.0179	6.4	0.012	8.8	1	0.0015
Maximum	0.06	0.0006	1.43	0.133	7.2	0.14	350	4	0.0279
Mean	0.026	0.0005	0.48	0.058	6.8	0.061	111	2	0.0048
Median	0.024	0.0005	0.44	0.045	6.8	0.050	98	2	0.0029
10th Perc.	0.013	0.0004	0.23	0.022	6.5	0.019	14.2	1	0.0017

Appendix Table D.8.2: Water quality at station PR-01 from 2005 to 2009.

Date	Ba (mg/L)	Co (mg/L)	Fe (mg/L)	Mn (mg/L)	pH ^a	Ra (Bq/L)	SO4 (mg/L)	U (mg/L)
1/12/2005	0.0347	0.0142	0.25	0.138	6.2	0.037	152	< 0.005
2/16/2005	0.0415	0.0112	0.323	0.389	6.5	0.031	94.2	0.01
3/16/2005	0.0699	0.0292	0.107	0.354	7	0.082	390	0.017
4/13/2005	0.0371	0.0044	0.148	0.0516	6.9	0.03	163	0.008
5/16/2005	0.0383	0.0053	0.302	0.0755	6.8	0.021	54.5	0.007
6/15/2005	0.0593	0.0134	0.817	0.397	7	0.04	52.6	0.016
8/10/2005	0.0543	0.0084	0.467	0.0979	6.9	0.032	52.2	0.005
9/14/2005	0.0932	0.0115	0.352	1.48	7	0.04	45.2	0.053
10/26/2005	0.0611	0.0043	0.111	0.0922	7.2	0.046	262	0.085
11/16/2005	0.0387	0.0037	0.163	0.0366	7	0.032	160	0.008
12/14/2005	0.0454	0.0132	0.256	0.187	6.5	0.044	194	0.011
1/12/2006	0.087	0.0473	0.11	0.271	7.1	0.11	490	0.0151
2/15/2006	0.069	0.0209	0.18	0.243	6.7	0.042	250	0.0111
3/8/2006	0.047	0.0166	0.27	0.267	7.1	0.039	130	0.0092
4/12/2006	0.0866	0.016	0.14	0.095	6.9	0.058	210	0.00767
5/10/2006	0.0924	0.00947	0.11	0.112	6.7	0.07	280	0.00437
7/12/2006	0.0693	0.0185	1.05	0.136	6.4	0.044		0.0159
8/9/2006	0.096	0.0242	2.58	0.658	6.6	0.14	350	0.004
9/13/2006	0.073	0.0337	2.57	1	7	0.076	74	0.028
10/11/2006	0.039	0.016	1.92	0.419	6.9	0.028	9.4	0.0118
11/8/2006	0.068	0.0427	0.47	0.307	7.2	0.07	300	0.0298
11/22/2006	0.052	0.0259	0.3	0.221	7.1	0.091	370	0.006
12/13/2006	0.025	0.0125	0.57	0.126	6.8	0.027	66	0.004
1/10/2007	0.091	0.0191	0.17	0.164	6.8	0.078	320.0	0.0096
2/14/2007	0.093	0.0482	3.23	0.850	6.6	0.086	220.0	0.0473
3/14/2007	0.090	0.1300	2.80	1.780	6.7	0.034	110.0	0.0242
4/11/2007	0.034	0.0173	0.13	0.147	7.0	0.064	280.0	0.0182
5/9/2007	0.037	0.0112	0.89	0.174	6.8	0.050	56.0	0.0133
6/12/2007	0.054	0.0091	1.62	0.255	7.2	0.040	12.0	0.0187
7/11/2007	0.092	0.0562	0.59	0.387	7.0	0.130	400.0	0.0236
8/8/2007	0.096	0.0144	0.34	0.442	6.9	0.120	470.0	0.0221
9/12/2007	0.131	0.0137	0.68	0.668	7.1	0.074	300.0	0.0703
10/10/2007	0.035	0.0333	0.54	0.218	6.7	0.028	65.0	0.0051
11/14/2007	0.031	0.0162	0.32	0.123	6.7	0.020	120.0	0.0065
12/5/2007	0.024	0.0422	0.24	0.225	6.9	0.079	460.0	0.0179
1/9/2008	0.016	0.0213	0.33	0.114	6.5	0.023	91.0	0.0066
2/13/2008	0.018	0.0416	0.34	0.135	6.9	0.054	240.0	0.0112
3/12/2008	0.022	0.0251	0.26	0.183	6.7	0.030	170.0	0.0077
4/9/2008	0.021	0.0197	0.39	0.145	6.6	0.027	100.0	0.0088
5/14/2008	0.024	0.0110	0.18	0.070	6.8	0.047	230.0	0.0046
6/4/2008	0.029	0.0081	0.22	0.074	7.3	0.067	300.0	0.0035
7/9/2008	0.064	0.0215	0.51	0.932	6.9	0.061	190.0	0.0168
8/13/2008	0.095	0.0106	0.41	1.010	7.1	0.055	260.0	0.0291
9/10/2008	0.088	0.0078	0.33	0.429	7.1	0.054	260.0	0.0322
10/15/2008	0.067	0.0052	0.31	0.191	7.0	0.052	190.0	0.0302
11/12/2008	0.047	0.0065	0.27	0.144	6.7	0.024	140.0	0.0289
12/10/2008	0.043	0.0109	0.17	0.090	6.9	0.070	380.0	0.0661
1/14/2009	0.044	0.0189	0.33	0.244	6.7	0.064	300.0	0.0284
2/10/2009	0.026	0.0450	0.06	0.254	6.5	0.088	400.0	0.0167
3/11/2009	0.030	0.0179	0.22	0.183	6.5	0.053	150.0	0.0108
4/8/2009	0.020	0.0278	0.16	0.127	7.0	0.061	180.0	0.0087
5/13/2009	0.027	0.0041	0.07	0.038	7.4	0.068	280.0	0.0039
6/10/2009	0.024	0.0039	0.44	0.054	7.0	0.018	38.0	0.0083
7/8/2009	0.040	0.0075	0.54	0.293	6.7	0.028	28.0	0.0189
8/12/2009	0.052	0.0113	0.50	0.445	7.0	0.016	12.0	0.0140
9/9/2009	0.053	0.0091	0.40	0.578	6.8	0.037	12.0	0.0245
10/14/2009	0.044	0.0055	0.39	0.094	6.7	0.029	18.0	0.0041
11/18/2009	0.037	0.0125	0.07	0.148	6.6	0.079	330.0	0.0101
12/17/2009	0.025	0.0064	0.06	0.104	6.6	0.075	370.0	0.0073
Number	59	59	59	59	252	59	58	59
Minimum	0.016	0.0037	0.06	0.0366	6.2	0.016	9.4	0.0035
Maximum	0.131	0.13	3.23	1.78	7.4	0.14	490	0.085
Mean	0.053	0.0199	0.54	0.316	6.9	0.054	200.5	0.0178
Median	0.045	0.0142	0.32	0.187	6.9	0.050	190.0	0.0112
10th Perc.	0.024	0.0053	0.11	0.075	6.6	0.026	35.0	0.0046

^a pH measures shown only for dates when other substances were measured but summary statistics reflect all measured values.

Appendix Table D.8.3: Summary of Annual Plant Operations and Discharge at Pronto, 2005-2009.

ITEM	2005	2006	2007	2008	2009
PLANT OPERATIONS					
Operating Days	60	122	90	134	146
Maximum Daily Plant Flow (L/s @ PR-02)	175	217	167	186	208
Minimum Daily Plant Flow (L/s @ PR-02)	0	0	0	0	0
Monthly Average Daily Plant Flow (L/s @ PR-02)	136	117	134	125	131
Total Volume Treated (ML)	704	1235	1044	1446	1659
Annual Average Treatment Rate (L/s)	-	-	134	125	132
Barium Chloride Consumption					
Total (kg/yr)	200	400	175	200	0
Monthly Average (mg/L)	0.28	0.32	0.17	0.14	0.00
Lime Consumption					
Dry (tonne/yr)	29	64	41.84	60.48	60.11
Average (g/L)	0.042	0.052	0.04	0.04	0.04
*EFFLUENT					
Discharge Days	57	120	86	130	145
Maximum Daily Discharge Flow (L/s @ PR-04)	175	217	167	186	208
Minimum Daily Discharge Flow (L/s @ PR-04)	0	0	0	0	0
Monthly Average Daily Discharge Flow (L/s @ PR-04)	136	116	135	125	131
Total Annual Volume Discharged (ML)	671	1204	1001	1403	1645
Annual Average Discharge Rate (L/s)	-	-	135	125	131

* Influent flows based on daily monitoring requirements as per TOMP

* Effluent flows based on weekly monitoring requirement as per SAMP

Appendix Table D.8.4: Mean annual discharge and seepage loadings from Pronto TMA, 2005 - 2009.

Station	Drainage Type	Mean Annual Discharge (m³)		Sulphate	Radium	Uranium	Barium	Cobalt	Iron	Manganese
				(kg/yr)	(MBq/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)	(kg/yr)
PR-01	Controlled Discharge	1,822,781	Mean	400,185	103	24	79	39	609	352
			S.D.	126,415	45	5	37	14	357	119
LL-01	Upstream Source to Lake Lauzon	320,022	Mean	26,197	15	1.4	6.6	0.1	135	14.6
			S.D.	32,856	14.9	1.6	5.7	0.1	72	6.5
All Pronto Sources				426,382	118	25	85	39	744	367

MBq/yr = Million Bequerels per year

Appendix Table D.8.5: Summary of seasonal trends for station LL-01, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.82143		-0.07143	-0.82142857	-0.34236	-0.89285714	-0.607143	-0.8285714
	Sig. (2-tailed)	0.023449		0.879048	0.023448808	0.452251	0.006807187	0.1482312	0.0415627
	N	7		7	7	7	7	7	6
April	Correlation Coefficient	-0.39286		-0.42857	-0.92857143	0.407687	-0.64285714	-0.464286	
	Sig. (2-tailed)	0.383317		0.337368	0.002519472	0.363942	0.119392373	0.2939341	
	N	7		7	7	7	7	7	
July	Correlation Coefficient	-0.57143		0	0.071428571	-0.2965	-0.64285714	-0.5	-0.9
	Sig. (2-tailed)	0.180202		1	0.879048193	0.518477	0.119392373	0.25317	0.0373861
	N	7		7	7	7	7	7	5
October	Correlation Coefficient	-0.63066		-0.28571	-0.32142857	-0.2883	-0.42857143	-0.75	
	Sig. (2-tailed)	0.128888		0.534509	0.482072038	0.530651	0.337368311	0.0521814	
	N	7		7	7	7	7	7	

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank

Correlation Coefficient (Zar 1984).

ns denotes not significant.

 Significant trend where p<0.05.

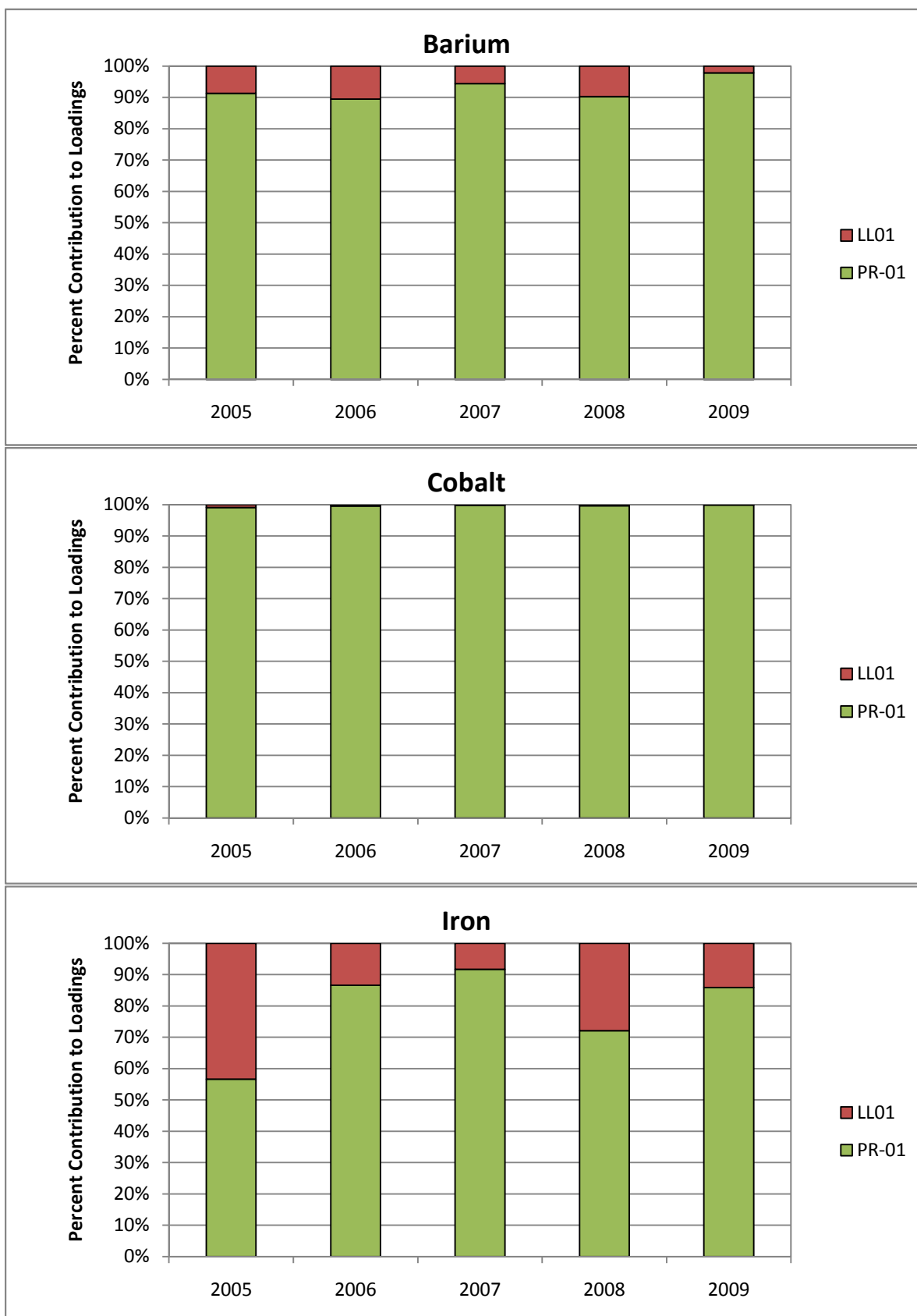
Appendix Table D.8.6: Summary of seasonal trends for station PR-01, 2003 to 2009.

Season	Spearman rho	Barium	Cobalt	Iron	Manganese	pH	Radium-226	Sulphate	Uranium
January	Correlation Coefficient	-0.21429	0.342356	0.666694	-0.285714286	0.142857	0.142857143	-0.64285714	-0.0857143
	Sig. (2-tailed)	0.644512	0.452251	0.10192	0.534509229	0.759945	0.7599453	0.11939237	0.87174344
	N	7	7	7	7	7	7	7	6
February	Correlation Coefficient	-0.39286	0.607143	0.107143	-0.392857143	0.178571	0.714285714	-0.21428571	0.10714286
	Sig. (2-tailed)	0.383317	0.148231	0.819151	0.38331687	0.701658	0.071343561	0.64451158	0.81915086
	N	7	7	7	7	7	7	7	7
March	Correlation Coefficient	-0.42857	0.214286	0.178571	-0.630656224	-0.78571	0.035714286	-0.28571429	-0.0714286
	Sig. (2-tailed)	0.337368	0.644512	0.701658	0.128887696	0.036238	0.939408205	0.53450923	0.87904819
	N	7	7	7	7	7	7	7	7
April	Correlation Coefficient	-0.92857	0.857143	-0.14286	0.678571429	-0.71429	0.535714286	0.17857143	0.21428571
	Sig. (2-tailed)	0.002519	0.013697	0.759945	0.093750254	0.071344	0.215217456	0.70165794	0.64451158
	N	7	7	7	7	7	7	7	7
May	Correlation Coefficient	-0.5	0.522544	-0.53571	0.25	-0.12613	0.642857143	0.45046873	-0.4642857
	Sig. (2-tailed)	0.25317	0.228878	0.215217	0.588724448	0.787572	0.119392373	0.3104293	0.29393411
	N	7	7	7	7	7	7	7	7
June	Correlation Coefficient	-0.65714	0.2	-0.02857	0.028571429	0.054056	0.231908414	-0.14285714	-0.5
	Sig. (2-tailed)	0.156175	0.704	0.957155	0.957154519	0.908365	0.658373571	0.78717201	0.39100222
	N	6	6	6	6	7	6	6	5
July	Correlation Coefficient	0.142857	0.257143	-0.02857	0.657142857	-0.03571	-0.31428571	0.1	0.7
	Sig. (2-tailed)	0.787172	0.622787	0.957155	0.156174927	0.939408	0.544093294	0.87288857	0.1881204
	N	6	6	6	6	7	6	5	5
August	Correlation Coefficient	0.306319	-0.32143	-0.32143	0.214285714	-0.30632	0.071428571	0	0.53571429
	Sig. (2-tailed)	0.504027	0.482072	0.482072	0.644511581	0.504027	0.879048193	1	0.21521746
	N	7	7	7	7	7	7	7	7
September	Correlation Coefficient	-0.14286	-0.28571	0.214286	-0.285714286	-0.25	-0.01801875	-0.03571429	0.46428571
	Sig. (2-tailed)	0.759945	0.534509	0.644512	0.534509229	0.588724	0.969415387	0.93940821	0.29393411
	N	7	7	7	7	7	7	7	7
October	Correlation Coefficient	-0.25	0.178571	0.571429	0.142857143	-0.66669	-0.05405625	-0.46428571	-0.4285714
	Sig. (2-tailed)	0.588724	0.701658	0.180202	0.7599453	0.10192	0.908365283	0.29393411	0.39650146
	N	7	7	7	7	7	7	7	6
November	Correlation Coefficient	-0.14286	0.142857	-0.32143	0.25	-0.09009	-0.25	0.07142857	0.42857143
	Sig. (2-tailed)	0.759945	0.759945	0.482072	0.588724448	0.847672	0.588724448	0.87904819	0.39650146
	N	7	7	7	7	7	7	7	6
December	Correlation Coefficient	-0.73877	-0.53571	-0.28571	-0.5	-0.46429	0.180187493	0.10714286	0.11595421
	Sig. (2-tailed)	0.057858	0.215217	0.534509	0.253169995	0.293934	0.699045774	0.81915086	0.82684821
	N	7	7	7	7	7	7	7	6

Note: p-values for n<10 where there is only one season used are based on Table of Critical Values of the Spearman Rank Correlation Coefficient (Zar 1984).

ns denotes not significant.

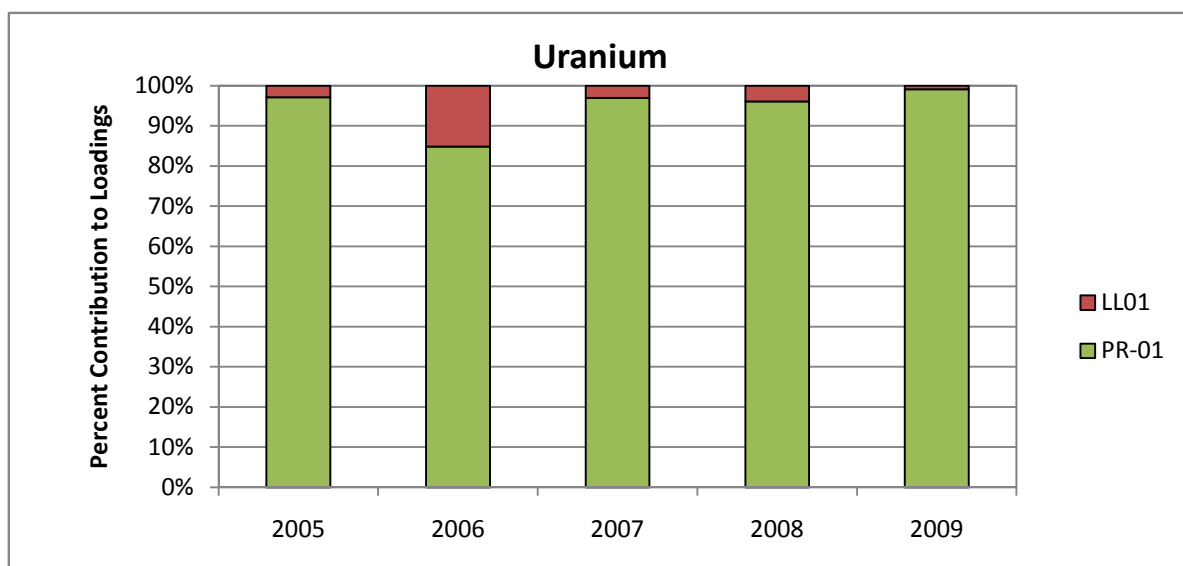
 Significant trend where p<0.05.



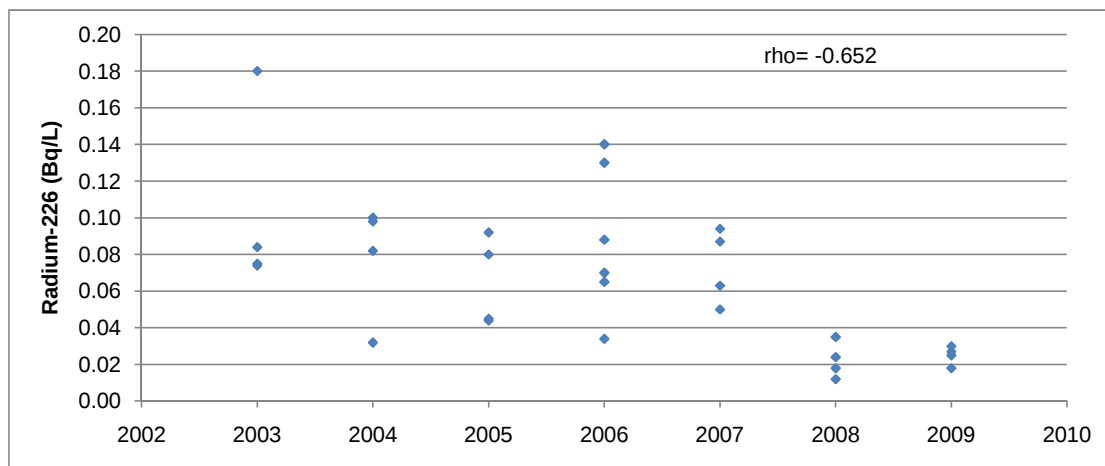
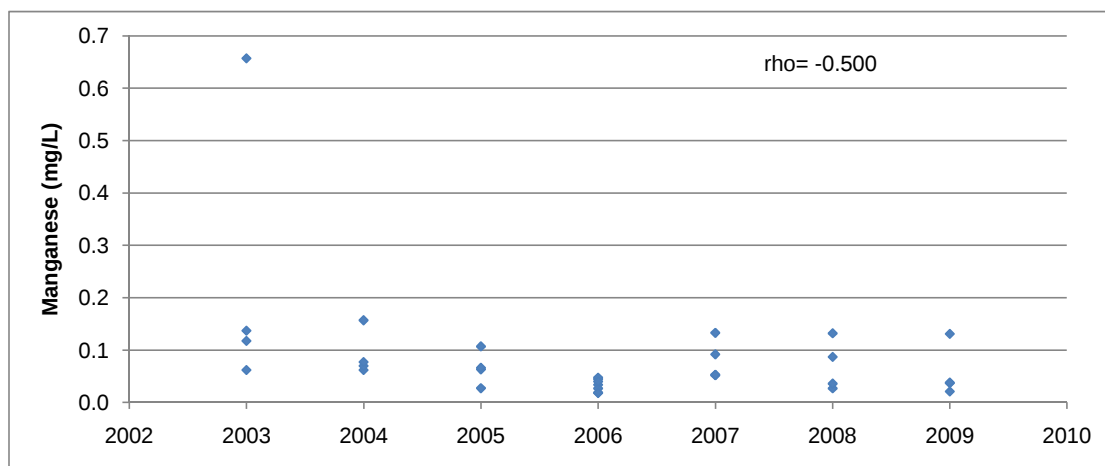
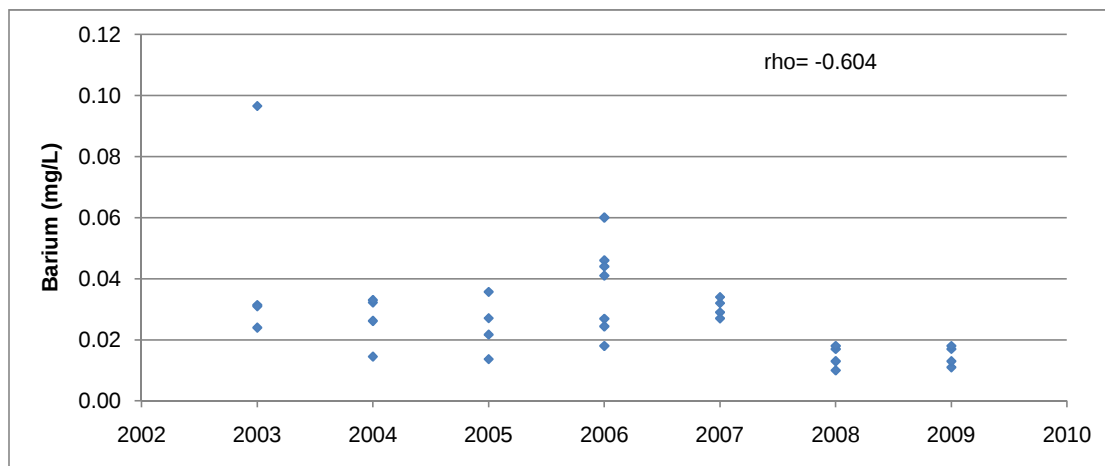
Appendix Figure D.8.1: Percent contribution to loads from Pronto TMA discharge points.



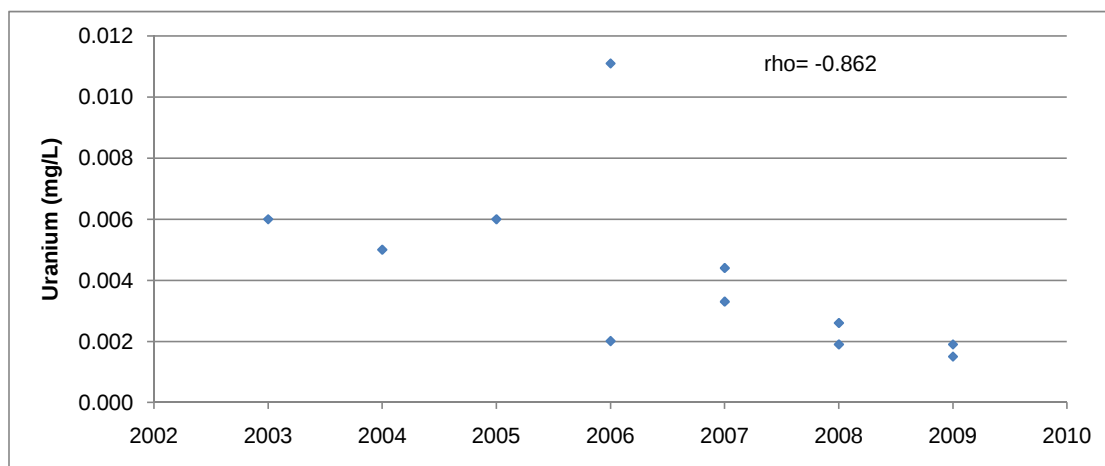
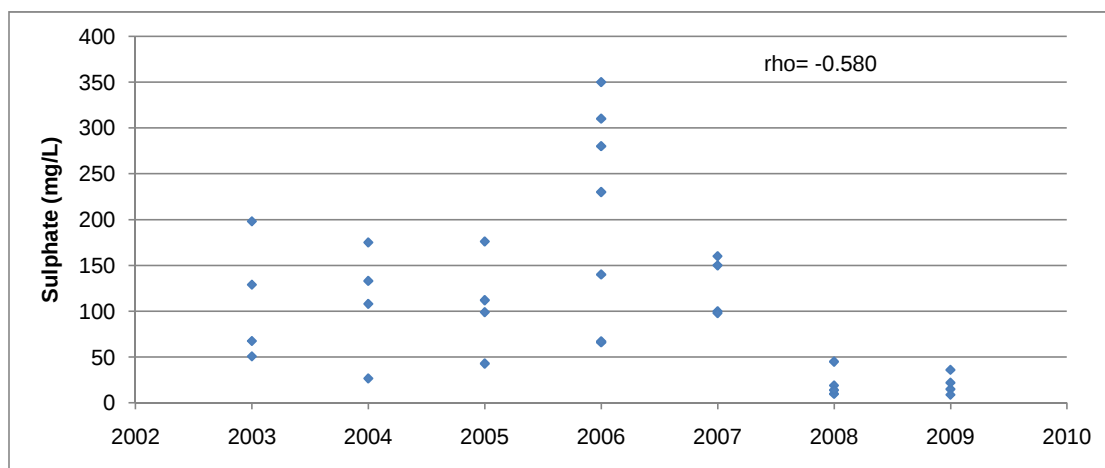
Appendix Figure D.8.1: Percent contribution to loads from Pronto TMA discharge points.



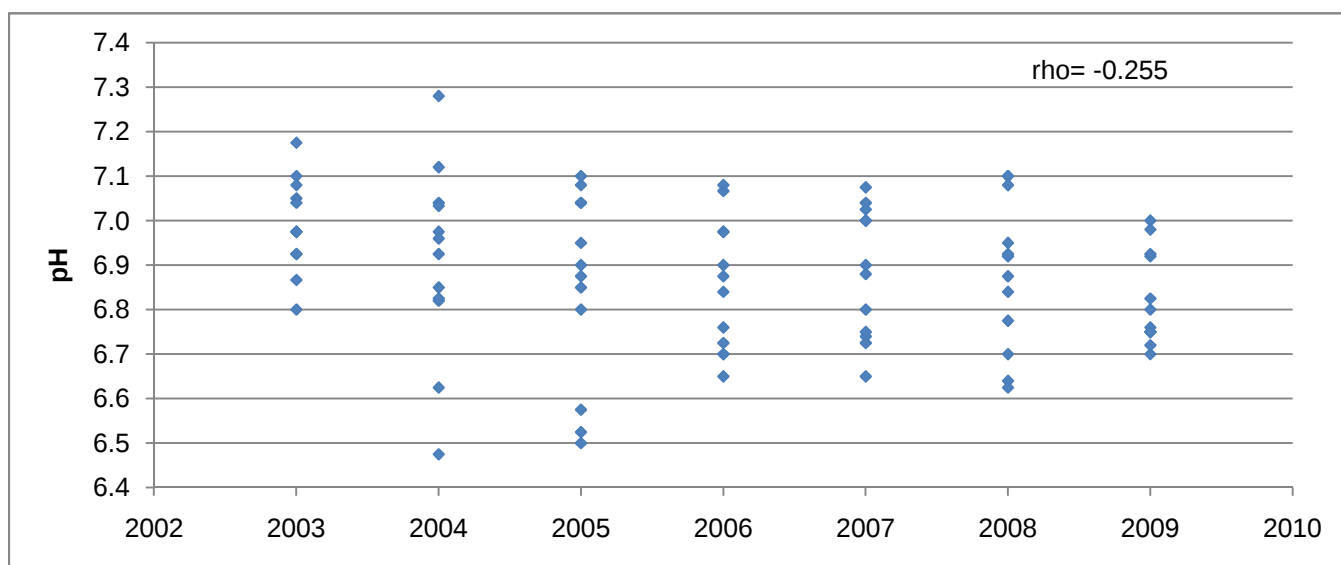
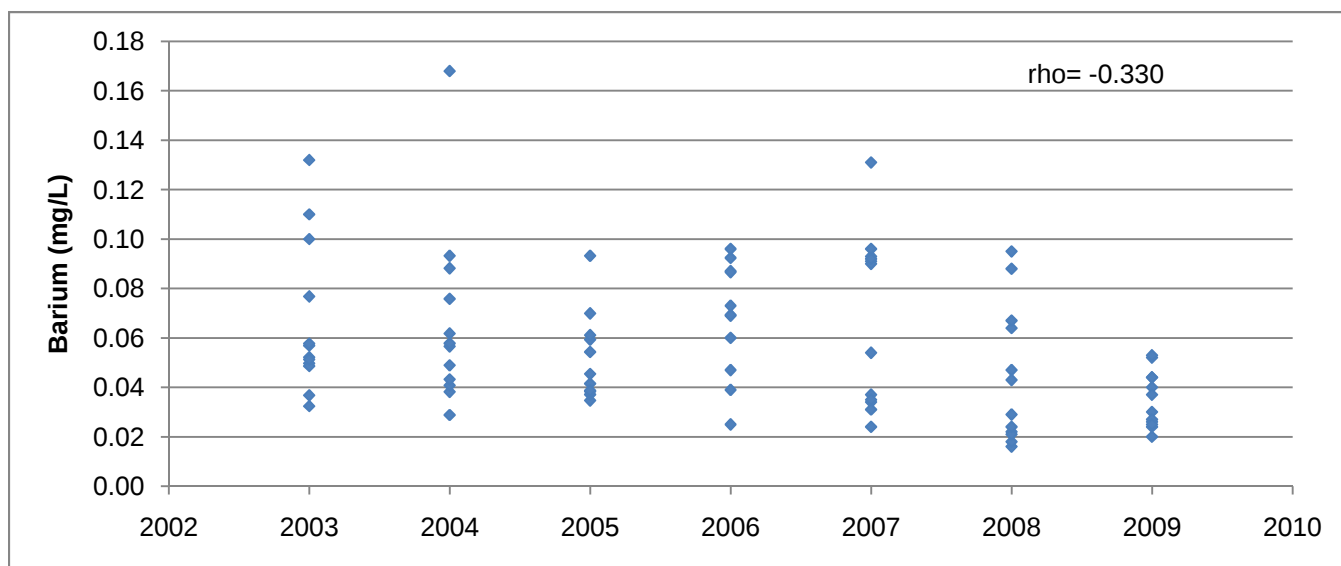
Appendix Figure D.8.1: Percent contribution to loads from Pronto TMA discharge points.



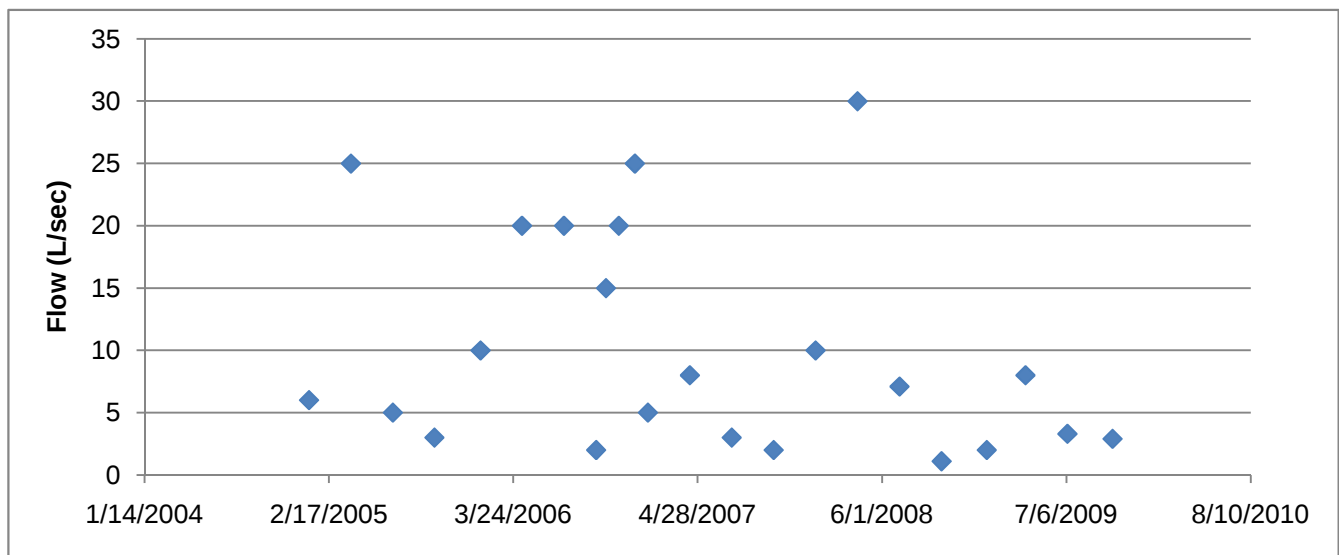
Appendix Figure D.8.2: Significant common (average) trends observed for barium, manganese, radium-226, sulphate and uranium over all seasons at station LL-01, 2003 to 2009.



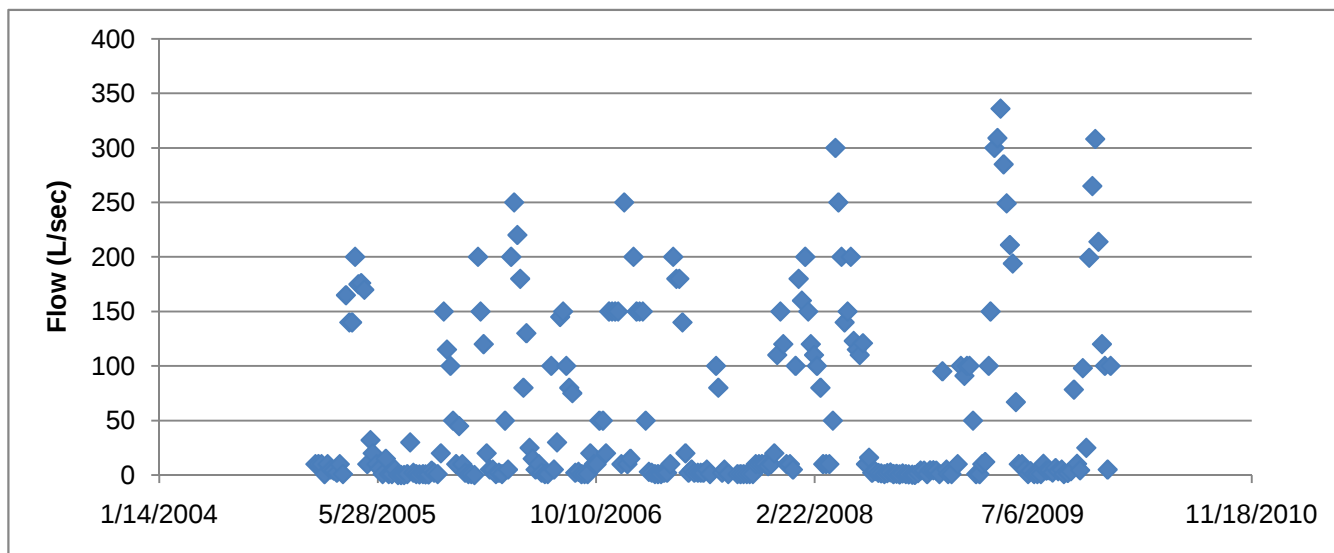
Appendix Figure D.8.2: Significant common (average) trends observed for barium, manganese, radium-226, sulphate and uranium over all seasons at station LL-01, 2003 to 2009.



Appendix Figure D.8.3: Significant common (average) trends observed for barium and pH over all seasons at station PR-01, 2003 to 2009.



Appendix Figure D.8.4: Flows at Station LL-01 from 2005 to 2009.



Appendix Figure D.8.5: Flows at station PR-01 from 2005 to 2009.