Draft Agenda :
7/13/98 Informal Meeting to Discuss PRS 16-021(c) Issues

- Update on PRS 16-021 (c) data – Alluvial well data, statistical comparisons, possible COPCs identified during RFI data review, possible Br breakthrough at Burning Ground spring, time-series spring flow data
- Additional data needs for CMS Plan – discussion of 6/17 handout.
- CMS process flow – discussion of 6/17 handout
- CMS report outline – discussion of 6/17 handout
- CMS bench & pilot studies – ongoing and potential upcoming activities

TR

6112

Borehole 2712-260 outfall
downgradient location

DRAFT

Attached are the analytical results for VOC and HE analysis for one water sample. The VOC results exceeded the 7 day holding period by 6 days. However, the sample was properly preserved and stored. According to EPA CLP National Functional Guidelines, a holding time of less than 14 days is acceptable for properly preserved samples. We believe that exceeding the 7 day holding time has not affected the quality of the analytical results. Acetone and methylene chloride, common laboratory solvents, were present in the blank and sample. The concentrations of these analytes found in the sample were attributed to laboratory contamination, not environmental contamination. Tetrachlorethene, trichloroethene, and 1,2-dichlorethane were detected at 1-2 ppb. These values were considered estimated because they are so close to the detection limit.

The HE results are affected by higher than usual detection limits. The high concentrations of HE in the sample required a fiftyfold dilution in order to bring the sample into calibration range, which causes an equivalent increase in detection limits. Detection limits for nitrotoluenes were also elevated due to the presence of these analytes in the blank at elevated levels, possibly due to laboratory contamination or instrumental problems. The results of the dilution provide a more accurate measure for RDX although the lower dilution results are appropriate for the remaining analytes. The amino-DNTs had one analyte in the LCS that had a recovery of 57%, below the acceptable limit of 60%. As a result, the amino-DNT results were qualified as estimated with a low bias.

1D
ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

RE16-98-3022 02

DRAFT

Lab Name: Recra.LabNet Work Order: 02744-064-001-9999-00

Client: LANL-REQ#4232R

Matrix: (soil/water) WATER Lab Sample ID: 9804L519-001

Sample wt/vol: 770 (g/mL) ML Lab File ID: 04279846.08

% Moisture: decanted: (Y/N) _ Date Received: 04/23/98

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 04/27/98

Concentrated Extract Volume: 6000(uL) Date Analyzed: 04/27/98

Injection Volume: 65.0(uL) Dilution Factor: 1.00

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q	
2691-41-0	HMX	16		
121-82-4	RDX	1500	E	← outside Cal. ran
99-35-4	1,3,5-Trinitrobenzene	0.70		
99-65-0	1,3-Dinitrobenzene	0.20	U	
98-95-3	Nitrobenzene	0.20	U	
479-45-8	Tetryl	0.58	U	
1946-51-0	Amino-DNTs	11		(J-, Mba)
118-96-7	2,4,6-Trinitrotoluene	0.20	U	
606-20-2	2,6-Dinitrotoluene	1.1		
121-14-2	2,4-Dinitrotoluene	0.39		
88-72-2	2-Nitrotoluene	0.78	U	
99-99-0	4-Nitrotoluene	2.3	U	
99-08-1	3-Nitrotoluene	0.78	U	

BIG SCREEN
DRY @ DRILLING

FORM 1 ORG V4.1

AT 2/June 98

1D
ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE

RE16-98-3022

Lab Name: Recra.LabNet Work Order: 02744-064-001-9999-00

Client: LANL-REQ#4232R

Matrix: (soil/water) WATER Lab Sample ID: 9804L519-001 DL

Sample wt/vol: 770 (g/mL) ML Lab File ID: 04289846.05

% Moisture: decanted: (Y/N) _ Date Received: 04/23/98

Extraction: (SepF/Cont/Sonc) N/A Date Extracted: 04/27/98

Concentrated Extract Volume: 6000 (uL) Date Analyzed: 04/28/98

Injection Volume: 65.0 (uL) Dilution Factor: 50.0

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
2691-41-0	HMX	86	U
121-82-4	RDX	1400	
99-35-4	1,3,5-Trinitrobenzene	9.8	U
99-65-0	1,3-Dinitrobenzene	9.8	U
98-95-3	Nitrobenzene	10	U
479-45-8	Tetryl	29	U
1946-51-0	Amino-DNTs	20	U
118-96-7	2,4,6-Trinitrotoluene	9.8	U
606-20-2	2,6-Dinitrotoluene	10	U
121-14-2	2,4-Dinitrotoluene	9.8	U
88-72-2	2-Nitrotoluene	39	U
99-99-0	4-Nitrotoluene	120	U
99-08-1	3-Nitrotoluene	39	U

05/11/98

This is diluted

1B
VOLATILE ORGANICS ANALYSIS SHEET

EPA SAMPLE NO.

RE16-98-3022 03/04

Lab Name: Recra.LabNet Contract: 02744064001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9804L520-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x050428

Level: (low/med) LOW Date Received: 04/23/98

% Moisture: not dec. _____ Date Analyzed: 05/05/98

Column: (pack/cap) CAP Dilution Factor: 1.00

DRAFT

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		
142-28-9	1,3-Dichloropropane	5	U
591-78-6	2-Hexanone	20	U
124-48-1	Dibromochloromethane	5	U
106-93-4	1,2-Dibromoethane	5	U
108-90-7	Chlorobenzene	5	U
630-20-6	1,1,1,2-Tetrachloroethane	5	U
100-41-4	Ethylbenzene	5	U
1330-20-7	Xylenes (total)	5	U
100-42-5	Styrene	5	U
75-25-2	Bromoform	5	U
98-82-8	Isopropylbenzene	5	U
108-86-1	Bromobenzene	5	U
96-18-4	1,2,3-Trichloropropane	5	U
79-34-5	1,1,2,2-Tetrachloroethane	5	U
103-65-1	N-propylbenzene	5	U
95-49-8	2-Chlorotoluene	5	U
106-43-4	4-Chlorotoluene	5	U
108-67-8	1,3,5-Trimethylbenzene	5	U
98-06-6	Tert-butylbenzene	5	U
95-63-6	1,2,4-Trimethylbenzene	5	U
135-98-8	Sec-butylbenzene	5	U
541-73-1	1,3-Dichlorobenzene	5	U
106-46-7	1,4-Dichlorobenzene	5	U
99-87-6	4-Isopropyltoluene	5	U
95-50-1	1,2-Dichlorobenzene	5	U
104-51-8	N-butylbenzene	5	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U

PM

FORM 1 V-2 1/87 Rev.

A12/June 98

1A

VOLATILE ORGANICS ANALYSIS SHEET

EPA SAMPLE NO.

RE16-98-3022 03/04

Lab Name: Recra.LabNet Contract: 02744064001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9804L520-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: x050428

cc c 17:40

Level: (low/med) LOW Date Received: 04/23/98

% Moisture: not dec. _____ Date Analyzed: 05/05/98

Column: (pack/cap) CAP Dilution Factor: 1.00

DRAFT

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND			PM
75-71-8	Dichlorodifluoromethane	10	U	
74-87-3	Chloromethane	10	U	
75-01-4	Vinyl Chloride	10	U	
74-83-9	Bromomethane	10	U	
75-00-3	Chloroethane	10	U	
75-69-4	Trichlorofluoromethane	5	U	
75-35-4	1,1-Dichloroethene	5	U	
76-13-1	Trichlorotrifluoroethane	5	U	
67-64-1	Acetone	20	B	(U, V4)
74-88-4	Iodomethane	5	U	
75-15-0	Carbon Disulfide	5	U	
75-09-2	Methylene Chloride	4	BJ	(U, V5)
156-60-5	Trans-1,2-dichloroethene	5	U	
75-34-3	1,1-Dichloroethane	5	U	
78-93-3	2-Butanone	20	U	
159-59-2	Cis-1,2-dichloroethene	5	U	
590-20-7	2,2-Dichloropropane	5	U	
74-97-5	Bromochloromethane	5	U	
67-66-3	Chloroform	5	U	
71-55-6	1,1,1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
563-58-6	1,1-dichloropropene	5	U	
71-43-2	Benzene	5	U	
107-06-2	1,2-Dichloroethane	2	J	
79-01-6	Trichloroethene	1	J	
78-87-5	1,2-Dichloropropane	5	U	
74-95-3	Dibromomethane	5	U	
75-27-4	Bromodichloromethane	5	U	
10061-01-5	cis-1,3-Dichloropropene	5	U	
108-10-1	4-Methyl-2-pentanone	20	U	
108-88-3	Toluene	5	U	
10061-02-6	Trans-1,3-Dichloropropene	5	U	
79-00-5	1,1,2-Trichloroethane	5	U	
127-18-4	Tetrachloroethene	1	J	

M2/un98

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TABLE 3.4.3.2-3 RESULTS FOR INORGANIC CHEMICALS IN ALLUVIAL WATER

(2655 = Steam Plant, 2656 = upgradient 260, 2658 = BG spring area, 2659 = downgradient from MDA-P)

Analyte	Location ID	Sample ID	Sample Concentration (ug/l)	Media	Field Prep	Collection Date
Aluminum	16-2655	0316-97-0476	100	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	7800	water	Unfiltered	22-Dec-97
	16-2658	0316-97-0485	19000	water	Unfiltered	22-Dec-97
	16-2659	0316-97-0486	20000	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0483	28000	water	Unfiltered	19-Dec-97
Arsenic	16-2656	0316-97-0483	9	water	Unfiltered	19-Dec-97
Barium	16-2655	0316-97-0476	110	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	160	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0477	3100	water	Filtered	19-Dec-97
	16-2656	0316-97-0483	4300	water	Unfiltered	19-Dec-97
	16-2659	0316-97-0480	5000	water	Filtered	22-Dec-97
	16-2659	0316-97-0486	6800	water	Unfiltered	22-Dec-97
	16-2658	0316-97-0479	12000	water	Filtered	22-Dec-97
	16-2658	0316-97-0485	16000	water	Unfiltered	22-Dec-97
Calcium	16-2658	0316-97-0479	16000	water	Filtered	22-Dec-97
	16-2659	0316-97-0480	16000	water	Filtered	22-Dec-97
	16-2659	0316-97-0486	17000	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0477	19000	water	Filtered	19-Dec-97
	16-2658	0316-97-0485	19000	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0483	21000	water	Unfiltered	19-Dec-97
	16-2655	0316-97-0476	30000	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	32000	water	Unfiltered	22-Dec-97
Iron	16-2656	0316-97-0483	30000	water	Unfiltered	19-Dec-97
Lead	16-2656	0316-97-0477	1	water	Filtered	19-Dec-97
	16-2655	0316-97-0476	2	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	5	water	Unfiltered	22-Dec-97
	16-2659	0316-97-0486	15	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0483	38	water	Unfiltered	19-Dec-97
	16-2658	0316-97-0485	59	water	Unfiltered	22-Dec-97
Magnesium	16-2659	0316-97-0486	6700	water	Unfiltered	22-Dec-97
Manganese	16-2659	0316-97-0480	10	water	Filtered	22-Dec-97
	16-2656	0316-97-0477	210	water	Filtered	19-Dec-97
	16-2655	0316-97-0476	710	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	740	water	Unfiltered	22-Dec-97
	16-2658	0316-97-0479	1300	water	Filtered	22-Dec-97
	16-2656	0316-97-0483	1400	water	Unfiltered	19-Dec-97
	16-2658	0316-97-0485	1800	water	Unfiltered	22-Dec-97

Interesting observation

Nitrogen	16-2659	0316-97-0480	320	water	Filtered	22-Dec-97
	16-2659	0316-97-0486	320	water	Unfiltered	22-Dec-97
	16-2655	0316-97-0476	850	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	1100	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0477	1700	water	Filtered	19-Dec-97
	16-2656	0316-97-0483	2100	water	Unfiltered	19-Dec-97
Potassium	16-2658	0316-97-0479	2000	water	Filtered	22-Dec-97
	16-2656	0316-97-0477	3000	water	Filtered	19-Dec-97
	16-2659	0316-97-0480	3000	water	Filtered	22-Dec-97
	16-2658	0316-97-0485	6000	water	Unfiltered	22-Dec-97
	16-2659	0316-97-0486	6000	water	Unfiltered	22-Dec-97
	16-2655	0316-97-0476	9000	water	Filtered	19-Dec-97
	16-2655	0316-97-0482	9000	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0483	10000	water	Unfiltered	19-Dec-97
Sodium	16-2659	0316-97-0480	17000	water	Filtered	22-Dec-97
	16-2659	0316-97-0486	17000	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0477	19000	water	Filtered	19-Dec-97
	16-2658	0316-97-0479	19000	water	Filtered	22-Dec-97
	16-2656	0316-97-0483	21000	water	Unfiltered	19-Dec-97
	16-2658	0316-97-0485	22000	water	Unfiltered	22-Dec-97
	16-2655	0316-97-0482	170000	water	Unfiltered	22-Dec-97
	16-2655	0316-97-0476	190000	water	Filtered	19-Dec-97
Vanadium	16-2655	0316-97-0482	10	water	Unfiltered	22-Dec-97
	16-2658	0316-97-0485	10	water	Unfiltered	22-Dec-97
	16-2659	0316-97-0486	20	water	Unfiltered	22-Dec-97
	16-2656	0316-97-0483	30	water	Unfiltered	19-Dec-97

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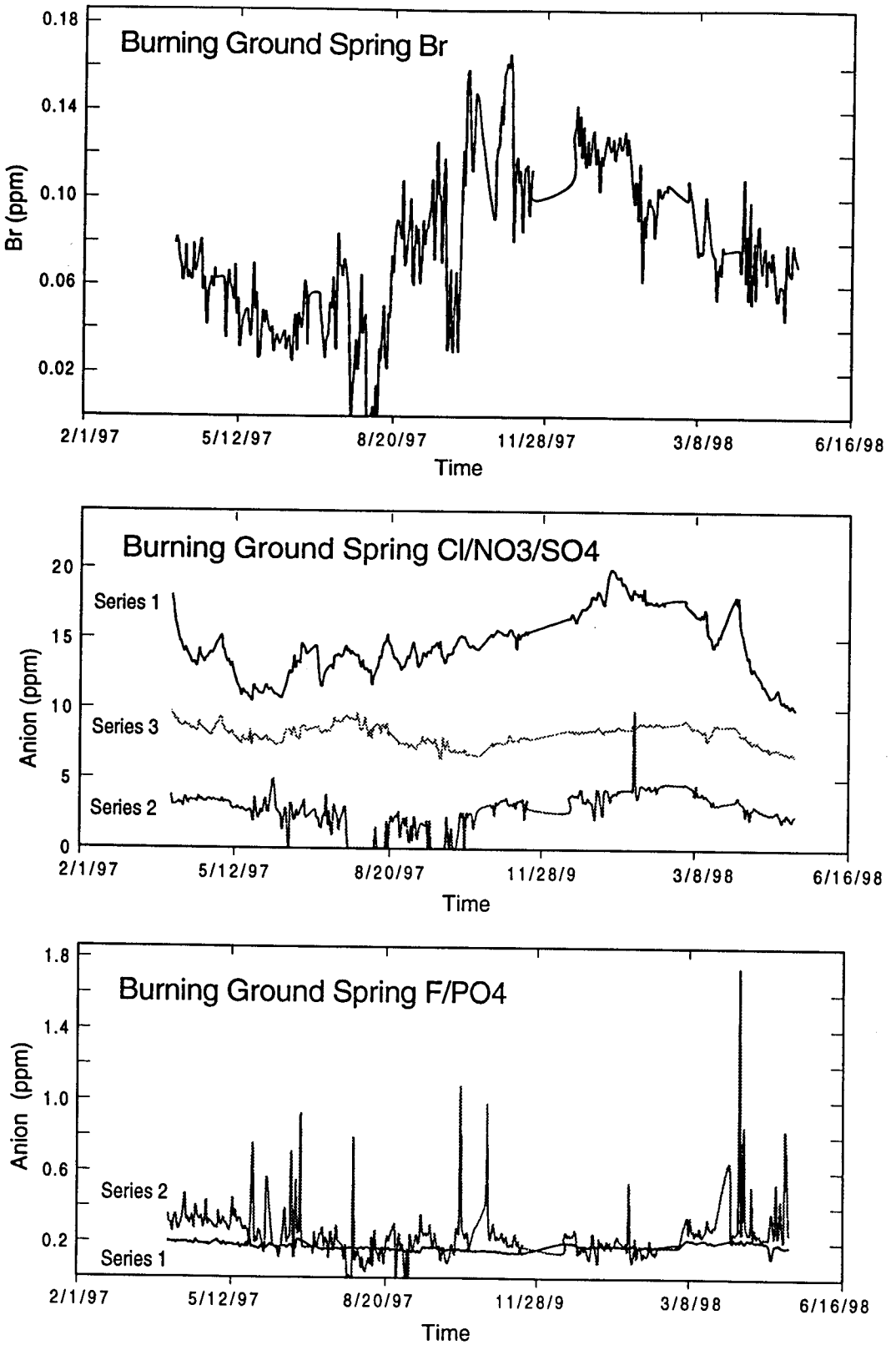

Figure 4.4.3.2-10a Anion concentrations vs time for Burning Ground Spring.

>FLOW
~10 gpm

DRAFT

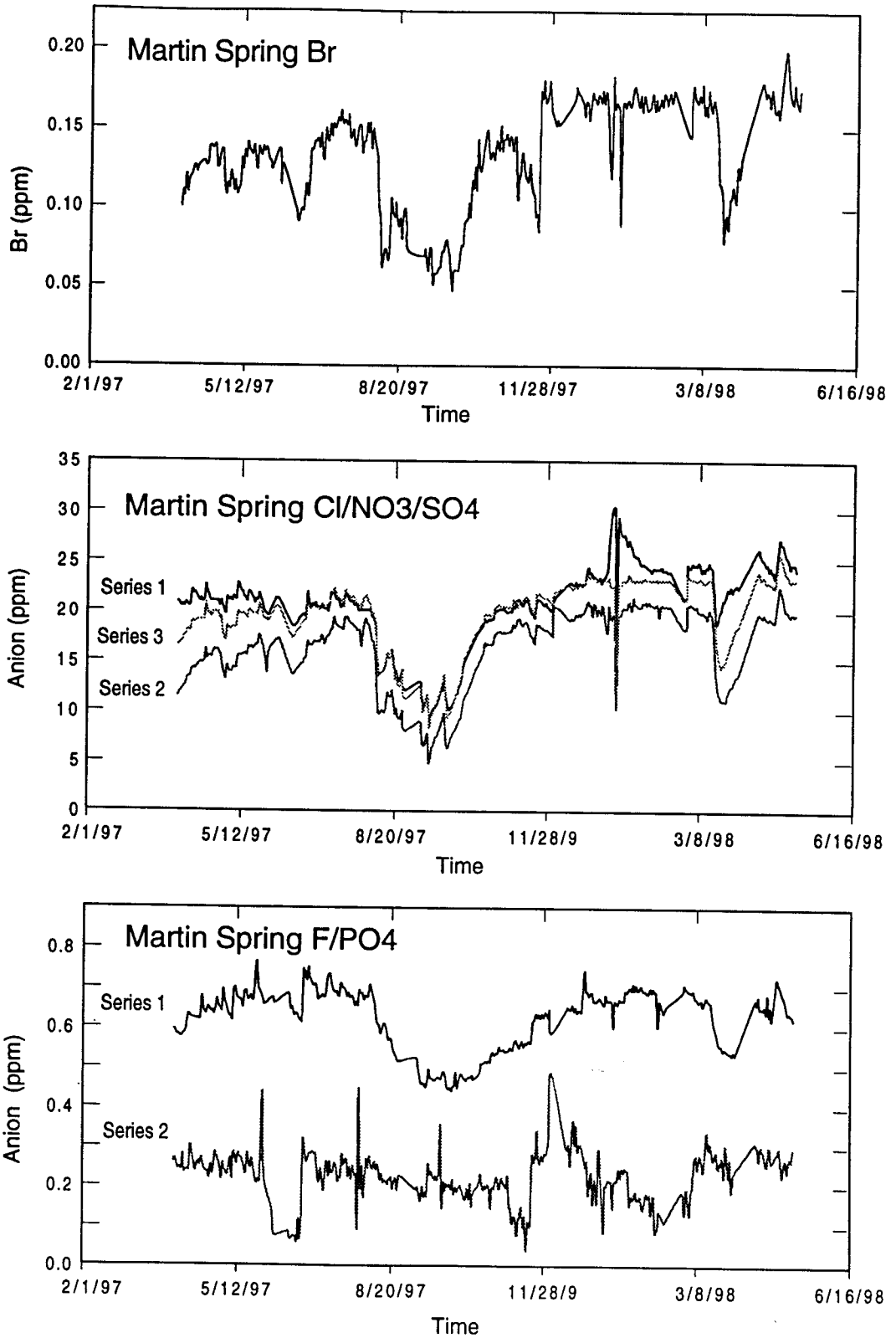

Figure 4.4.3.2-10b Anion concentrations vs time for Martin Spring.

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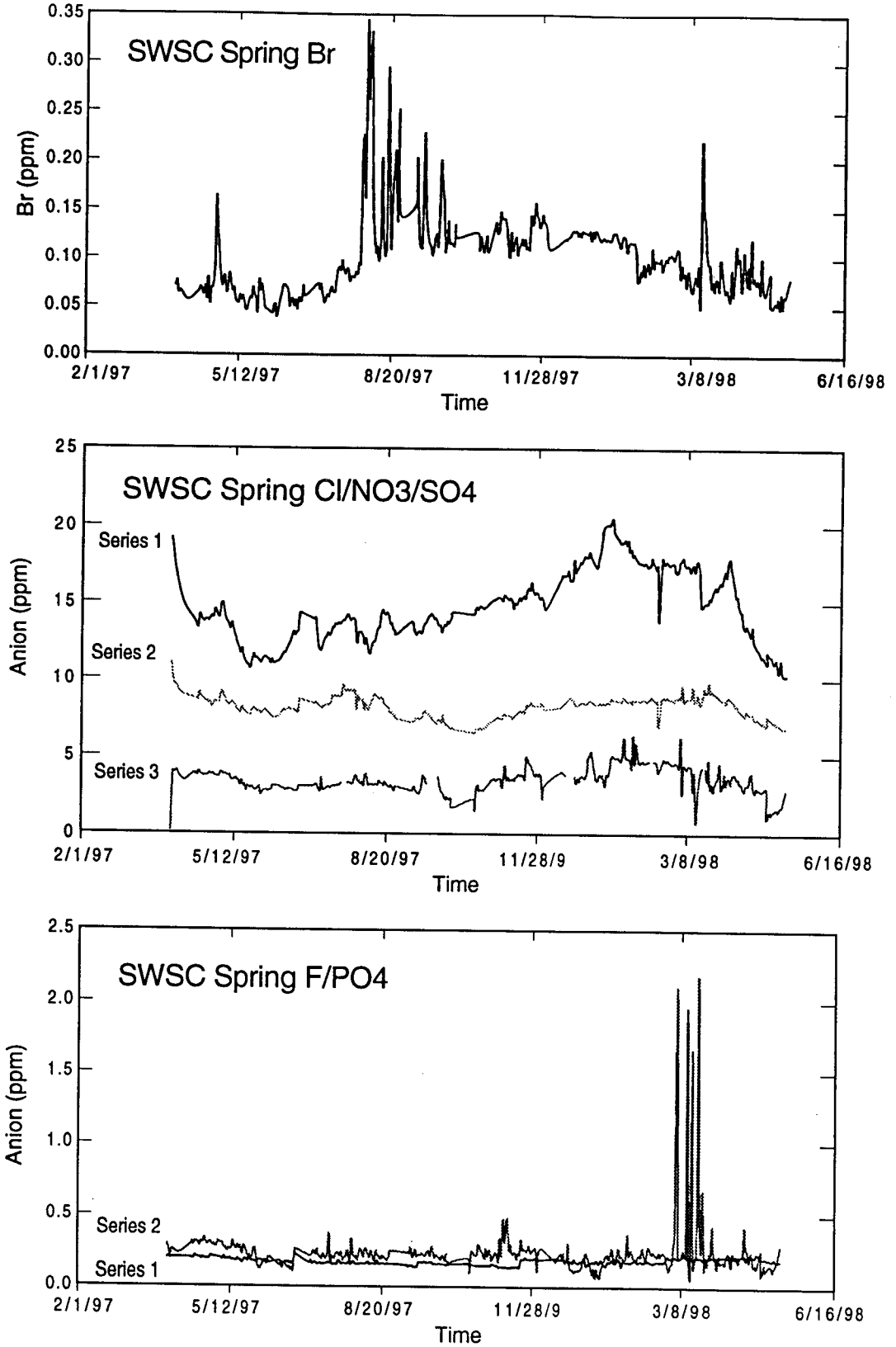

Figure 4.4.3.2-10c Anion concentrations vs time for SWSC Spring.

~1 gpm

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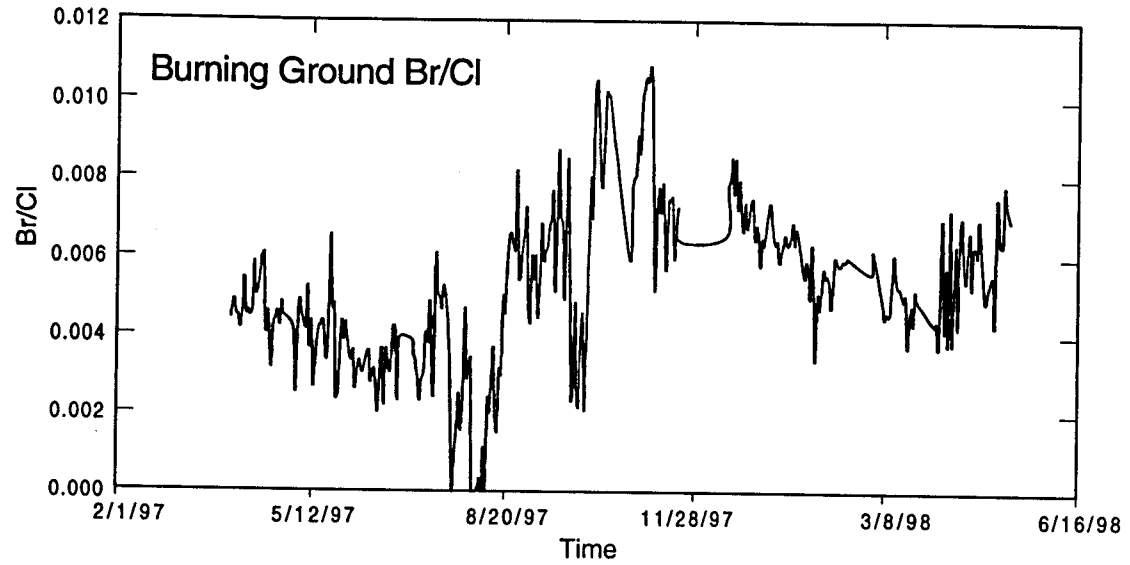

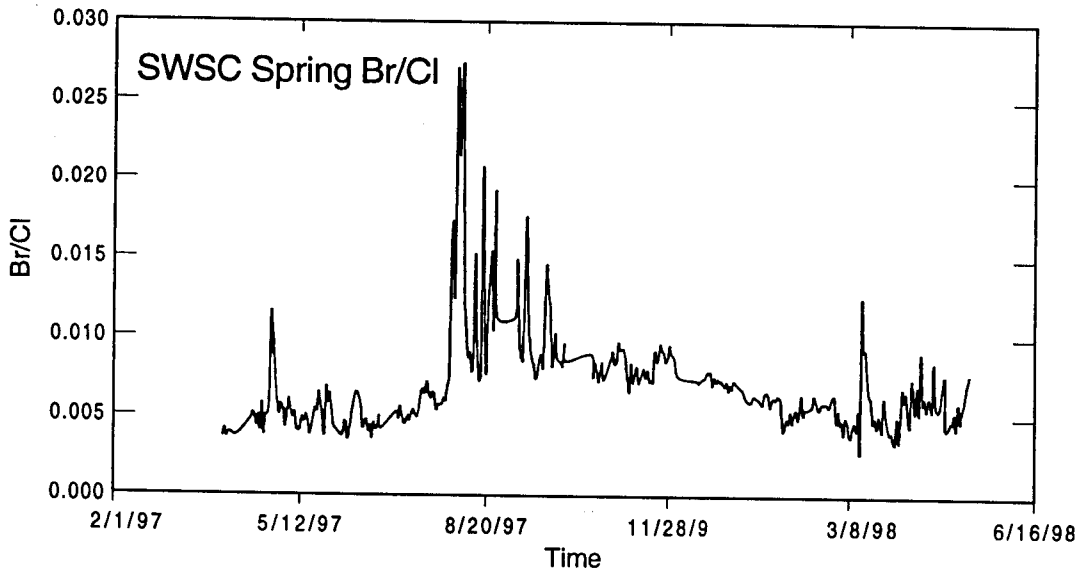

Figure 4.4.3.2-11 Br/Cl vs time for Burning Ground and SWSC springs.

Appendix D

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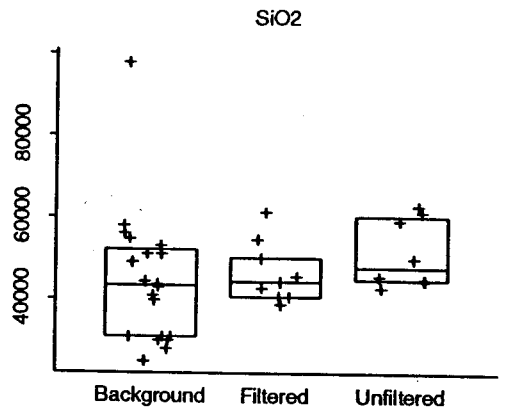
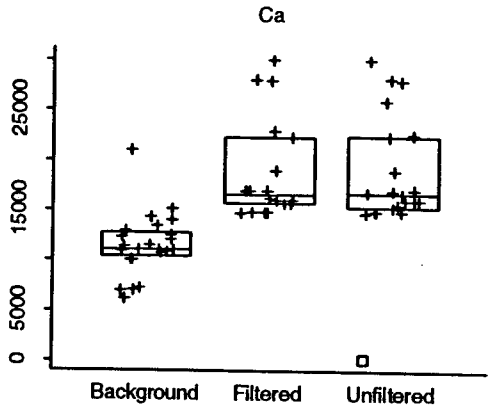
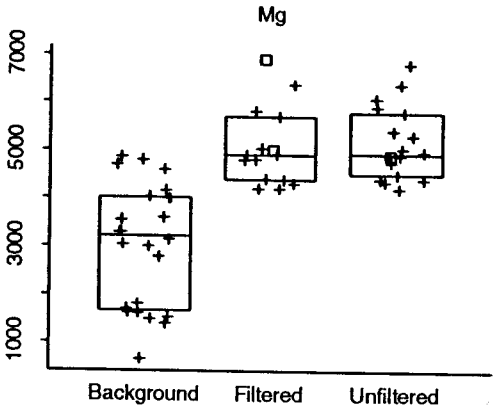
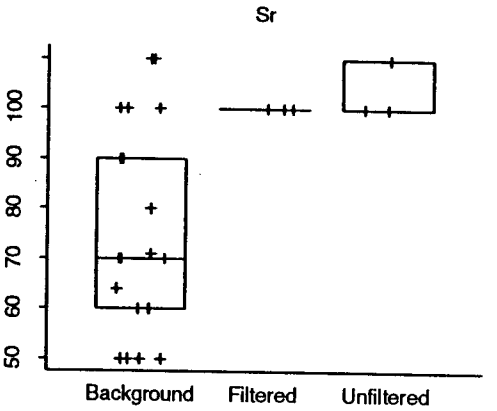
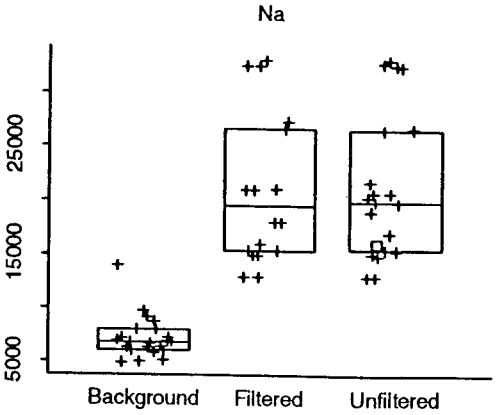










+ Detected result (ug/l)
□ Detection limit for non detected result

Boxes show median and interquartile range

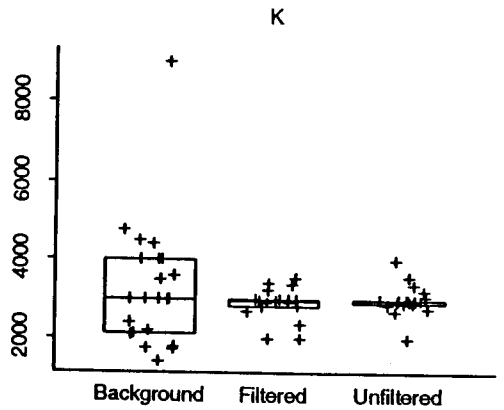
Significance level of Wilcoxon test for 260 spring data > background:

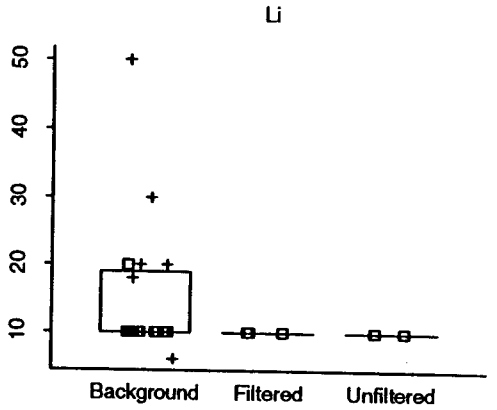
	Filtered	Unfiltered
SiO2	NS	<.05
Ca	<.001	<.001
Mg	<.001	<.001
Sr	<.05	<.05
Na	<.001	<.001

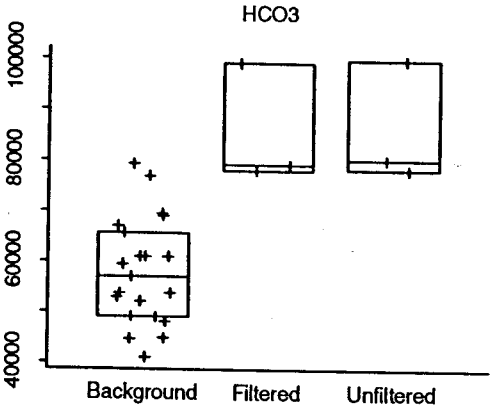
LONGMIRE PROVISIONAL BKGRD DATA SET (2-3 QTRS)

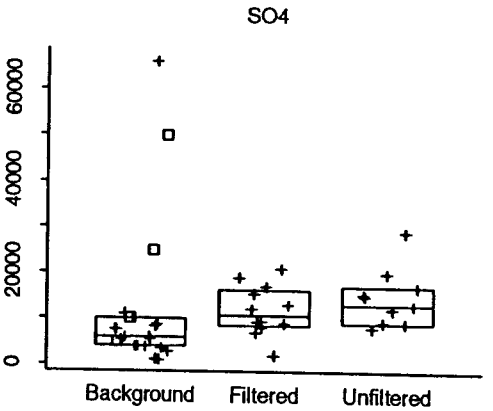
INCL. TSCHICOTA + BANDELIER SPRINGS

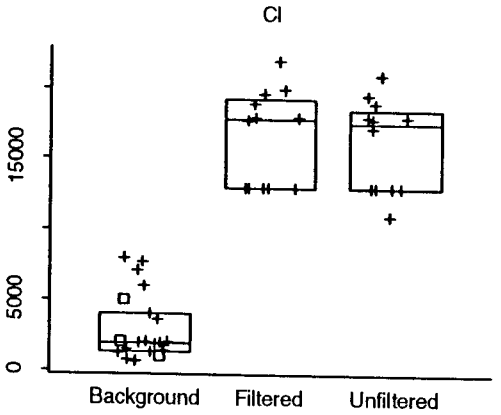
DRAFT











+ Detected result (ug/l)

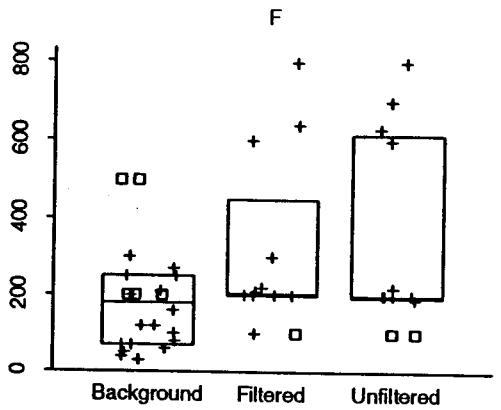
□ Detection limit for non detected result

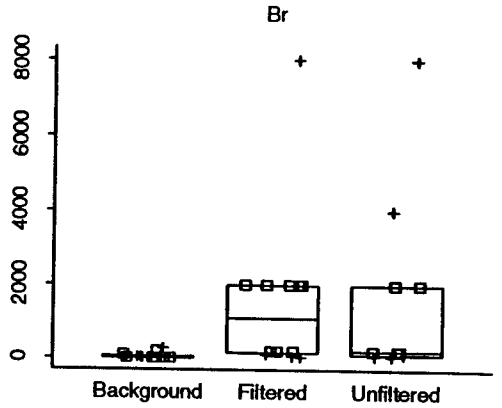
Boxes show median and interquartile range

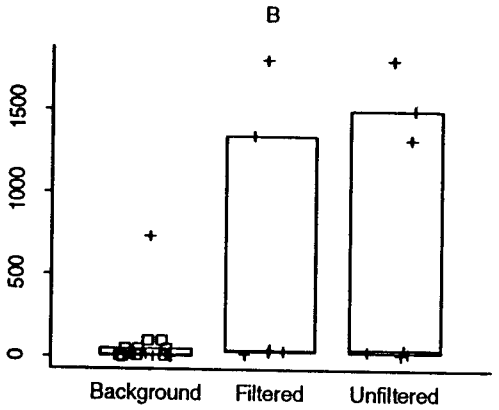
Significance level of Wilcoxon test for 260 spring data > background:

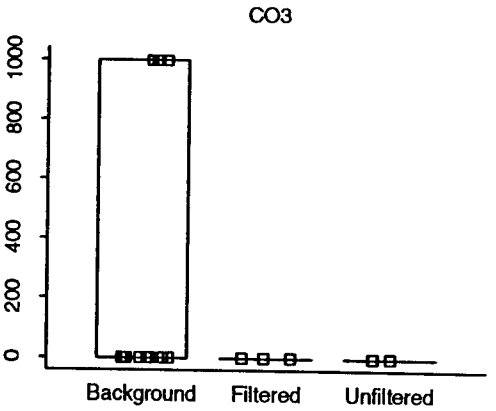
	Filtered	Unfiltered
K	NS	NS
Li	NA	NS
HCO3	<.01	<.01
SO4	<.01	<.001
Cl	<.001	<.001

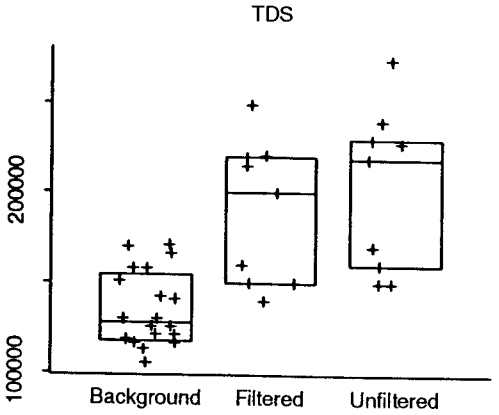
DRAFT











+ Detected result (ug/l)

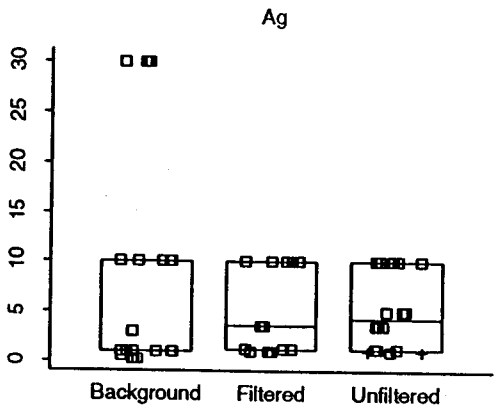
□ Detection limit for non detected result

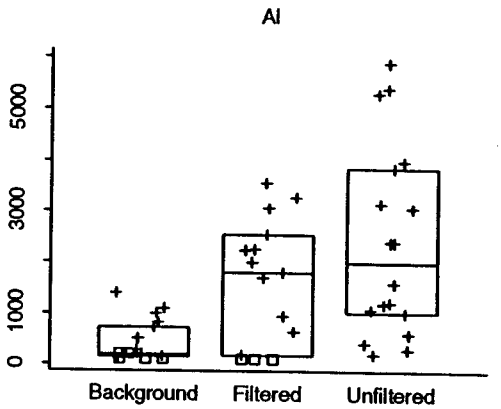
Boxes show median and interquartile range

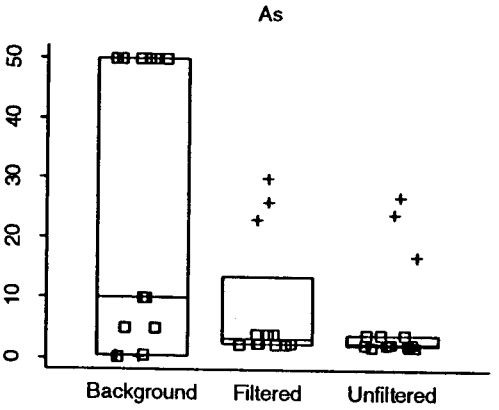
Significance level of Wilcoxon test for 260 spring data > background:

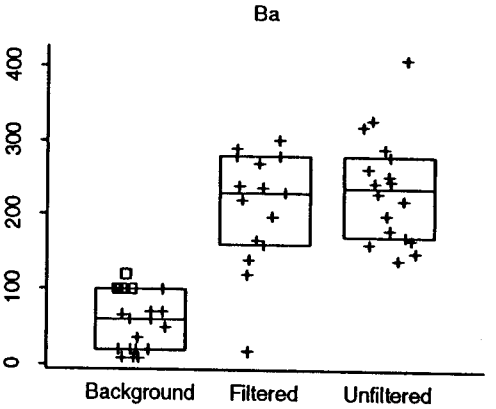
	Filtered	Unfiltered
F	<.01	<.05
Br	NS	<.1
B	<.01	<.01
CO3	NA	NA
TDS	<.001	<.001

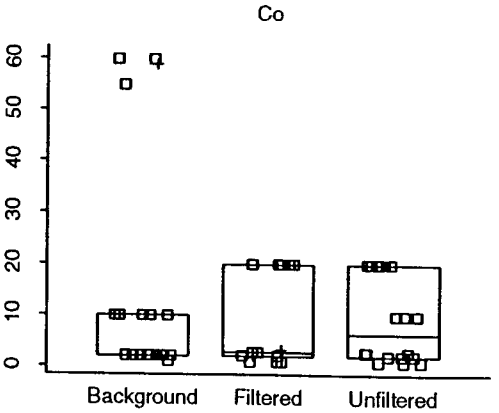
DRAFT











+ Detected result (ug/l)

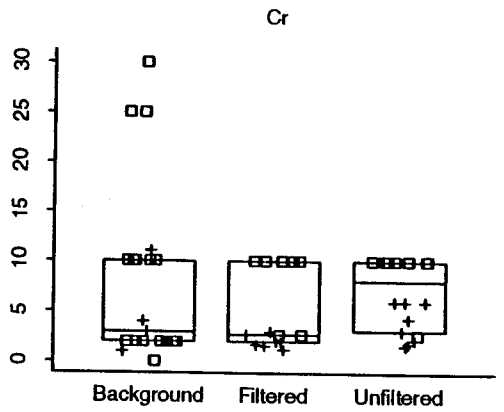
□ Detection limit for non detected result

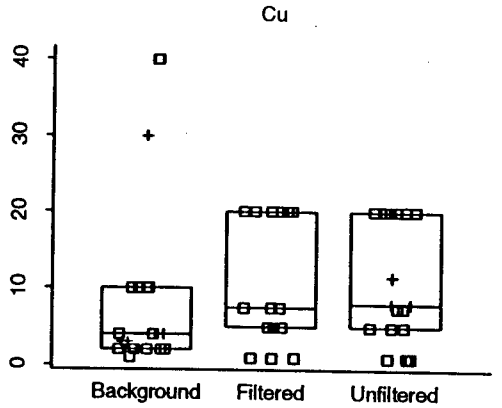
Boxes show median and interquartile range

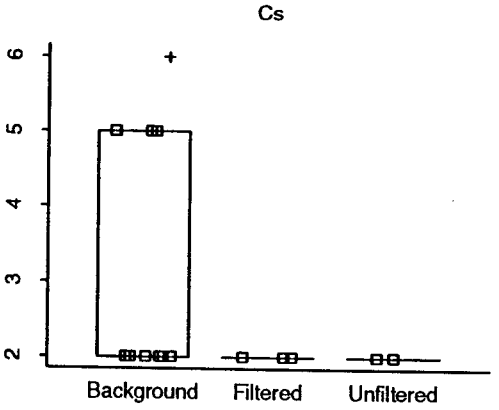
Significance level of Wilcoxon test
for 260 spring data > background:

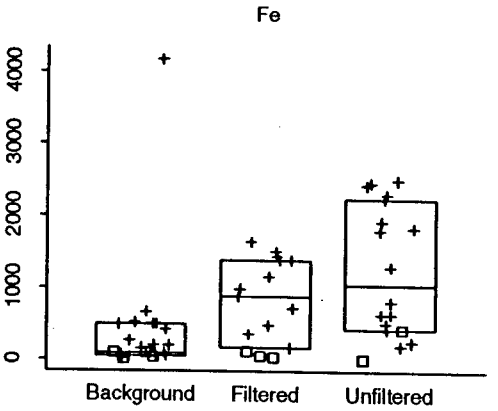
	Filtered	Unfiltered
Ag	NA	NS
Al	<.01	<.001
As	NS	NS
Ba	<.001	<.001
Co	NS	NS

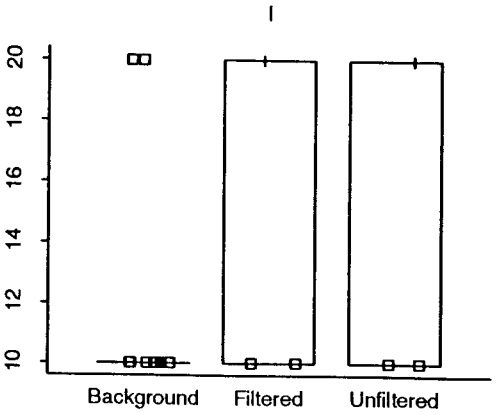
DRAFT











+ Detected result (ug/l)

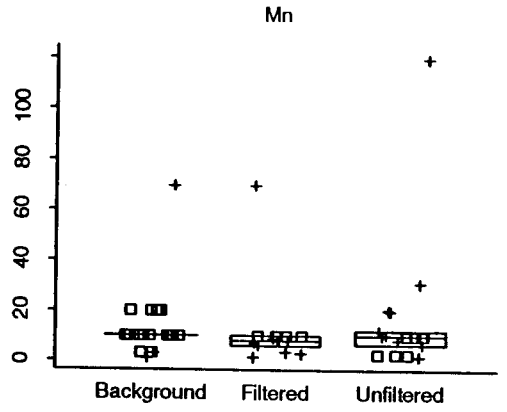
□ Detection limit for non detected result

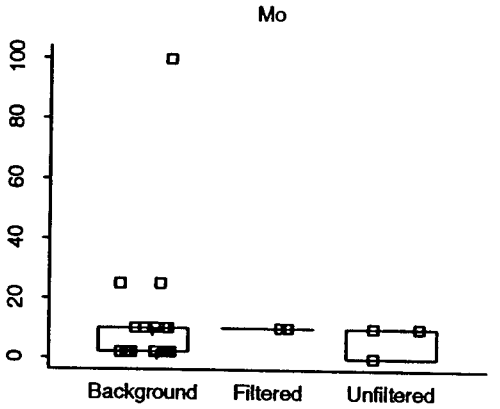
Boxes show median and interquartile range

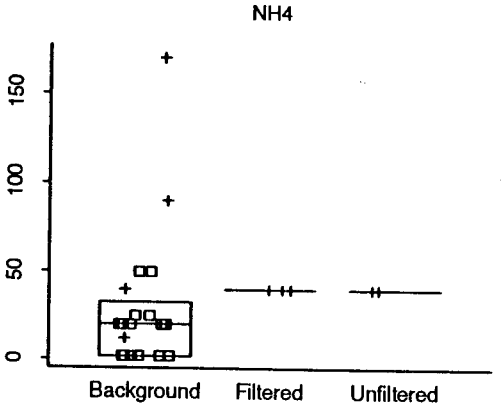
Significance level of Wilcoxon test for 260 spring data > background:

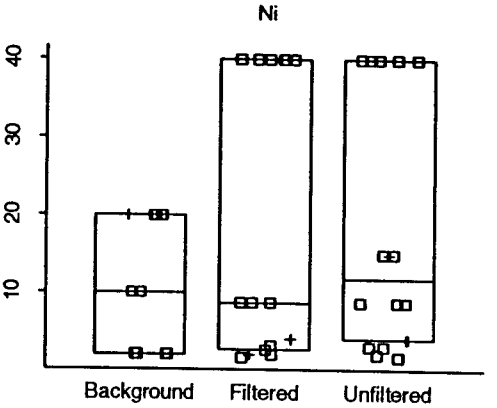
	Filtered	Unfiltered
Cr	NS	NS
Cu	NA	NS
Cs	NA	NS
Fe	<.01	<.001
I	<.1	<.1

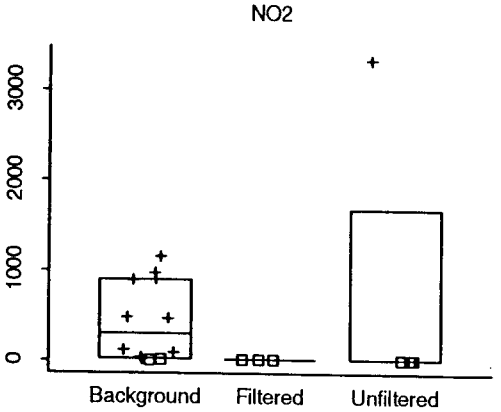
DRAFT











+ Detected result (ug/l)

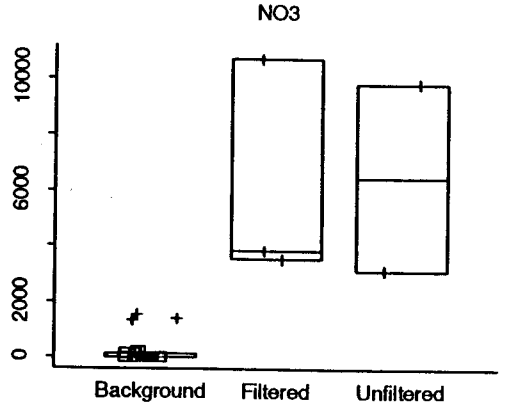
□ Detection limit for non detected result

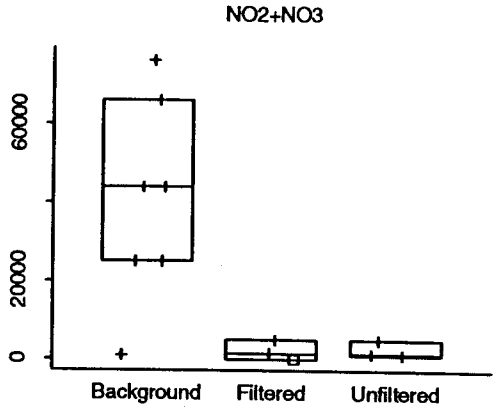
Boxes show median and interquartile range

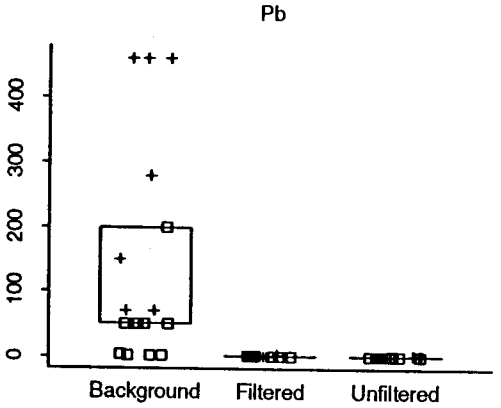
Significance level of Wilcoxon test for 260 spring data > background:

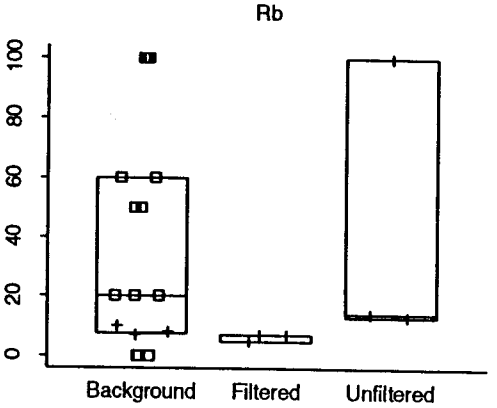
	Filtered	Unfiltered
Mn	NS	<.05
Mo	NA	NA
NH4	<.05	<.05
Ni	NS	NS
NO2	NA	NS

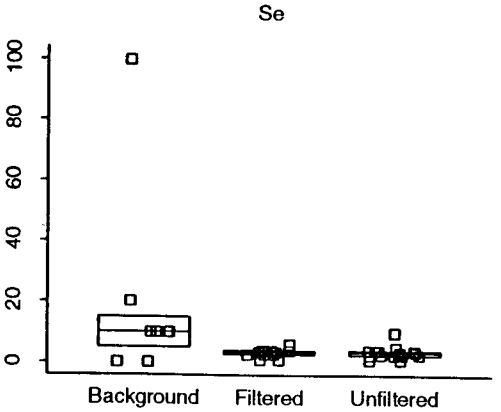
DRAFT











+ Detected result (ug/l)

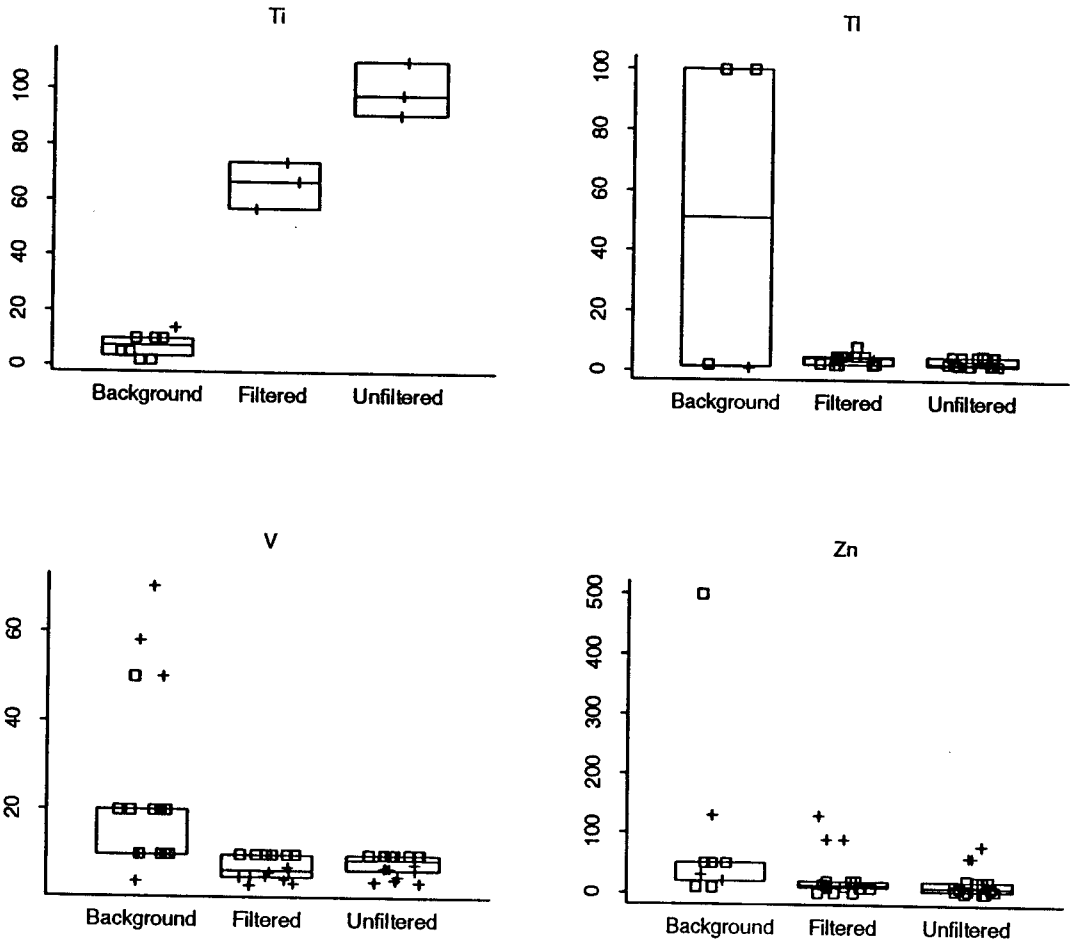
□ Detection limit for non detected result

Boxes show median and interquartile range

Significance level of Wilcoxon test for 260 spring data > background:

	Filtered	Unfiltered
NO3	<.01	<.01
NO2+NO3	NS	NS
Pb	NS	NS
Rb	NS	<.1
Se	NA	NS

DRAFT



+ Detected result (ug/l)

□ Detection limit for non detected result

Boxes show median and interquartile range

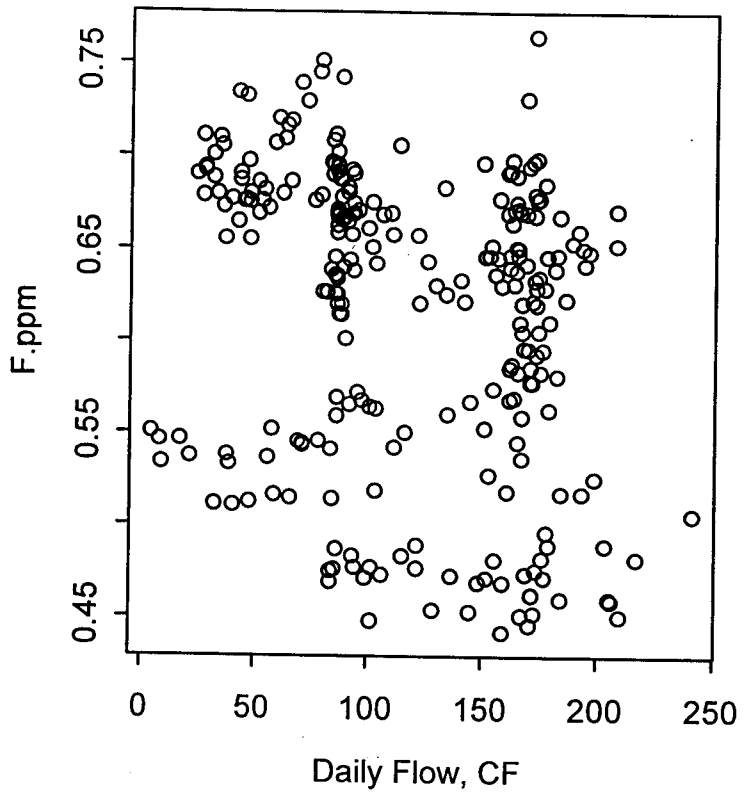
Significance level of Wilcoxon test
for 260 spring data > background:

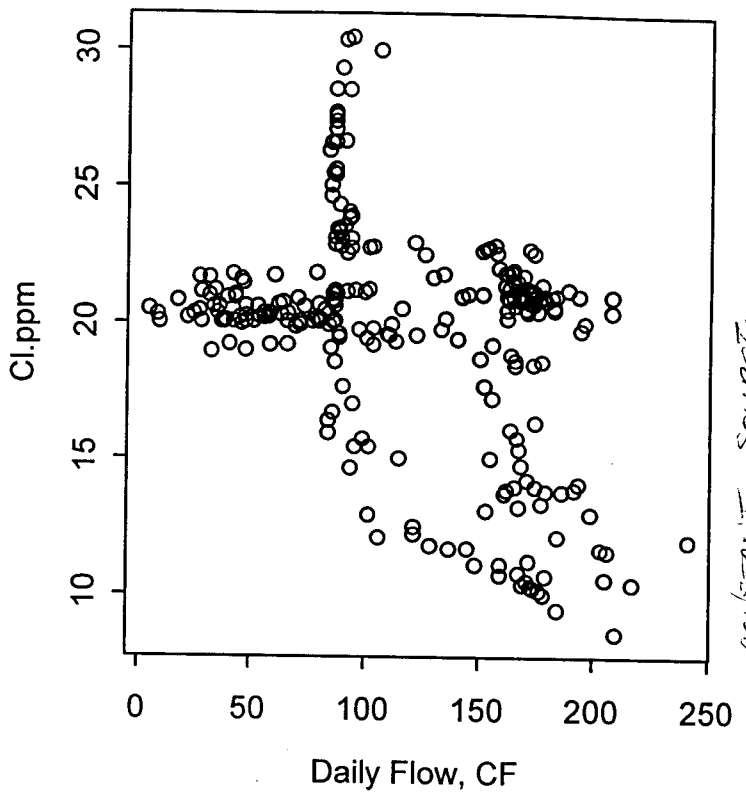
	Filtered	Unfiltered
Ti	<.01	<.01
Tl	NS	NA
V	NS	NS
Zn	NS	NS

Martin

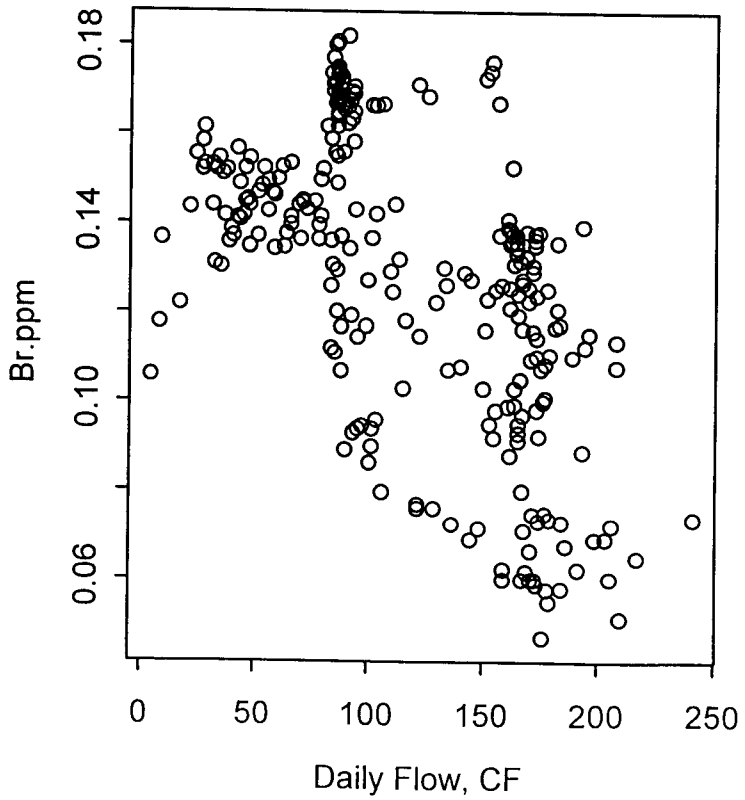
DRAFT

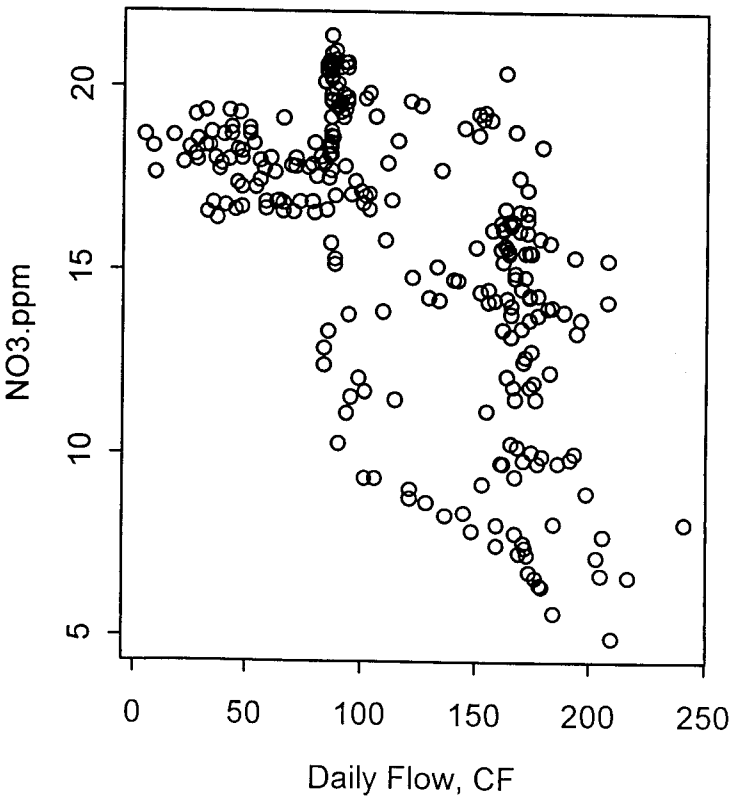
(1)





CONSTANT SOURCE



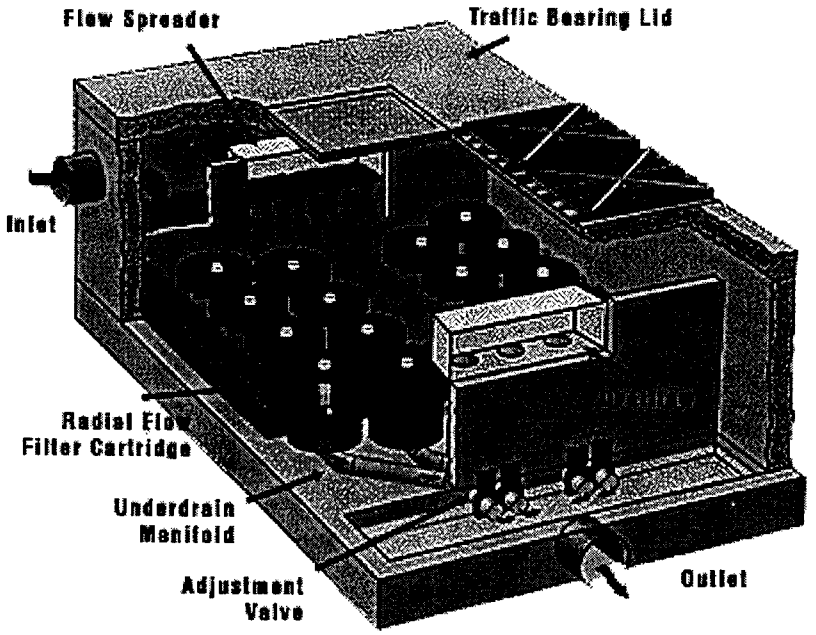


Product Information

Our Full Line of Products

Stormwater Management offers the ***Storm Filter*** ™ in three different configurations: **Cast-In-Place** units for treating flows larger than 1.0 cfs, **Precast** units for treating flows less than 1 cfs, and **Linear** units for treating small flows.

The Precast ***Storm Filter*** ™



No matter which option you choose, the Stormwater Management ***Storm Filter*** ™ offers the following benefits:

- It is recognized as a Best Management Practice (BMP) and meets various regulatory agency requirements for removing stormwater pollutants.
- Offers a variety of media to remove site specific pollutants.
- Is suitable for streets and highways; transit facilities; residential, retail and commercial developments; business and industrial sites; and maintenance facilities.
- Is uniquely effective for constrained sites and treatment of high stormwater flows.
- Requires simple, predictable and inexpensive maintenance.
- Uses less than 10% of land compared to ponds and swales.
- High treatment efficiency — removes up to 90% of all solids, 85% of oils and greases and 91% of solubilized heavy metals.
- Independent 3 year study has average first flush removal rates of: TSS 98%; Soluble Metals 93%.
- High treatment capability — can treat flows from 0.13 to 8.0 cfs and greater.
- Saves up to 10 times the cost of traditional stormwater treatment methods.

Storm Filter ™ Stormwater Filter Media Options

Media	Oil & Grease	Soluble Metals	Trash & Debris	TSS	Total N / P	Soluble N / P
CSF®	●	●	●	●	◑	○
Pleated Fabric	○	○	●	●	●	○
Perlite	●	○	●	●	◑	○
Zeolite	○	◑	●	◑	◑	●
GAC	●	○	●	○	○	○

● Excellent Removal

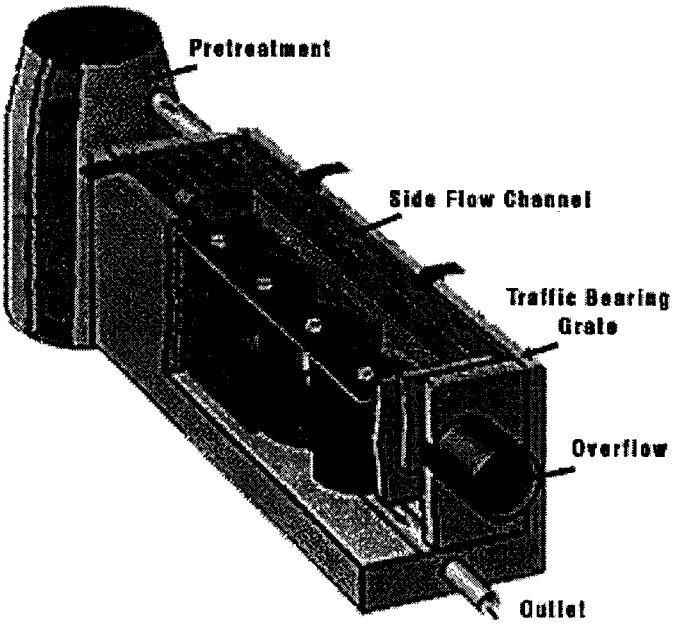
◑ Good Removal

○ Not Applicable

In many cases, we recommend using a combination of media to effectively remove stormwater pollutants. For example, if TSS and phosphorus are pollutants of concern, we would use the Pleated Fabric with Zeolite media.

Please call our office at 800-548-4667 for more information.

Introducing the Linear *Storm Filter* ™



The Linear ***Storm Filter*** ™ (see Figure 1) is particularly advantageous where small flows are being treated or there is little available hydraulic head to spare. The unit can be configured in between parking area wheel stops such that runoff sheet flow enters into the filter.

The Linear ***Storm Filter*** ™ consists of one or two precast concrete channels that are 10 or 20 feet in length and 2'9" in width. These units treat peak water quality design flows ranging from 0.13 cfs to 0.27 cfs. The Linear ***Storm Filter*** ™ s are installed flush with finished grade and function similar to a catch basin or trench drain. The top of the unit is grated for easy access.

Typically, the Linear ***Storm Filter*** ™ is installed as the primary receiver of runoff similar to a grated catch basin but is equipped with side channels to provide for pretreatment. The grates are traffic-bearing lids so they can be installed in parking lots, and for all practical purposes, take up no land area.

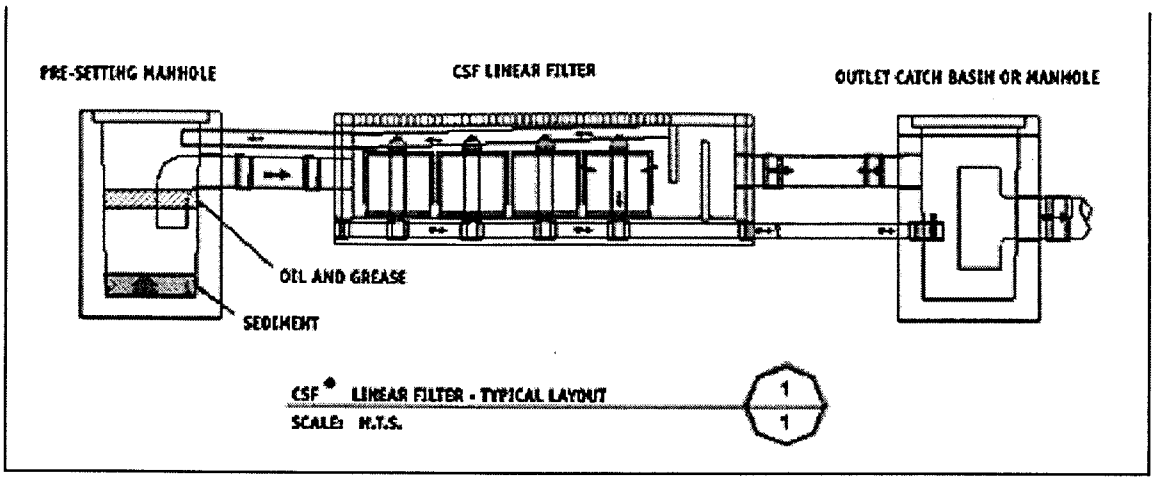
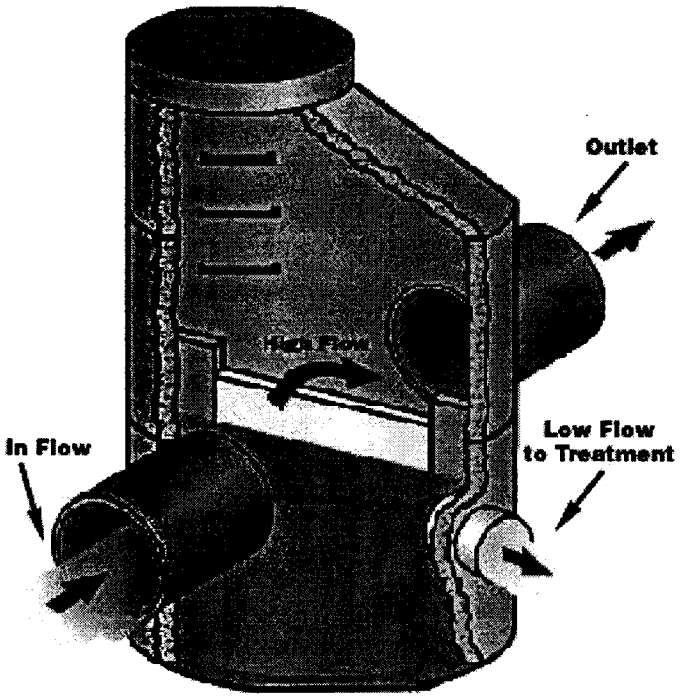


Figure 1. Click to see full size.

For more information regarding the new Linear ***Storm Filter*** ™ , please contact us at info@stormwatermgt.com

Also Introducing the *StormGate*™ High Flow Bypass



Fits in any Standard Size Manhole!

The ***StormGate***™ High Flow Bypass enhances water quality facility operation by directing more polluted low flows to the stormwater facilities while allowing for the bypassing of extreme flows. The ***StormGate***™ can be used in conjunction with the ***Storm Filter*** ™ , sedimentation manholes, oil water separators and other structural and non-structural water quality Best Management Practices.

For more information, download the ***StormGate***™ brochure in the Publications and Literature section.

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