CORRESPONDENCE/MEMORANDUM

State of Wisconsin

767230

DATE: March 21, 1994

TO: Connie Antonuk - NCD

FROM: Charlene Khazae - SW/3

SUBJECT: C. M. Christiansen Data Summaries

Attached are the data summary tables for organic and inorganic analyses along with the notes on qualifiers. The sediment samples were also analyzed for dioxins and furans. I have not made a thorough review of the dioxins/furans data, however, my preliminary inspection of the package indicates that dioxins/furans contamination is present in the sediment samples. I will try to complete the data summary tables for dioxins/furans in sediment samples by next week. If you have any questions regarding these data summaries, please do not hesitate to call me at (608)267-0543.

cak

Attachments

EDL

CRQL Contract Required Quantitation Limit

J = not exact #

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: January 20, 1994

TO: Amy Parkinson - SW/3

FROM: Charlene Khazae - SW/3

SUBJECT: C. M. Christensen Residential Well Data

Attached are data summary tables for the organic and inorganic data for the residential wells for the site listed above. I have provided a list of all organic target compounds analyzed for and the Contract Required Quantitation Limits. There were no volatile organic compounds detected in the residential wells. No PCB/Pesticides were detected in the samples, however, it should be noted that the undetected values for Heptachlor and 4,4'-DDT have been qualified as "R", unusable, because of laboratory QC problems. Only the detected compounds are included on the semivolatile organic compound summary table.

All inorganic target analytes are listed on the inorganic summary table.

I have highlighted all US EPA (drinking water) and NR 140 exceedances and will explain all qualifiers for organic and inorganic data.

Please provide me with copies of all well owner notification letters for our records. If you have any questions regarding this summary, please do not hesitate to call me.

cak

Attachments

C. M. CHRISTIANSEN

Case # 20907 INORGANIC ANALYSIS OF RESIDENTIAL WELLS 9/30/93

Sample Description / Sample Location ID / Traffic Report No.	LOW WATER CRDL (ug/l)	LOW WATER IDL (ug/l)	Background S09 MEQM56	S06 MEQM53	S07 MEQM54	Dup of S07 S08 MEQM55
Aluminum	80.0	31.0	31.0 U	31.0 U	53.3 B	31.0 U
Antimony	60.0	48.0	48.0 U	48.0 U	48.0 U	48.0 U
Arsenic	5.0	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Barium	20.0	1.0	5.1 B	4.1 B	6.6 B	7.0 B
[illegible]lium	5.0	1.0	1.0 U	1.0 U	1.0 U	1.0 U
Cadmium	0.5	0.1	0.10 U	0.10 U	0.10 U	0.10 U
Calcium	1000.0	43.0	20900	25700	28800	29200.0
Chromium	10.0	10.0	10.0 U	10.0 U	10.0 U	10.0 U
Cobalt	10.0	10.0	10.0 U	10.0 U	10.0 U	10.0 U
Copper	10.0	5.0	5.0 U	5.0 U	5.0 U	5.0 U
Iron	100.0	9.0	277	104	438	405
Lead	2.0	1.0	1.6 B	1.0 U	6.4	4.6 S
Magnesium	1000.0	44.0	6850	9230	12200	12400
Manganese	10.0	2.0	2.0 U	2.0 U	24.3 J	12.8 J
Mercury	0.2	0.2	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	20.0	16.0	16.0 U	16.0 U	16.0 U	16.0 U
Potassium	2000.0	593.0	965 B	727 B	960 B	593 U
Selenium	2.0	2.0	2.0 U	2.0 U	2.0 U	2.0 U
Silver	5.0	4.0	4.0 U	4.0 U	4.0 U	4.0 U
Sodium	1000.0	72.0	3180	3590	3590	3560
[illegible]ium	2.0	2.0	2.0 U	2.0 U	2.0 U	2.0 U
Vanadium	10.0	7.0	7.0 U	7.0 U	7.0 U	7.0 U
Zinc	20.0	9.0	88.0	9.0 U	55.3	50.7

CRDL-Contract Required Detection Limit

IDL-Instrument Detection Limit

U-Undetected

B-The concentration is > than the IDL but < the CRDL.

J-The associated value is an estimated quantity. In the case of the Manganese values above, because of poor field precision.

S-The reported value was determined by the Method of Standard Addition.

C. M. CHRISTIANSEN

Case # 20907 SEMIVOLATILE ANALYSIS OF RESIDENTIAL WELLS 9/30/93

Sample Description		Bkgrd			Dup S07
Sample Location ID		S09	S06	S07	S08
Traffic Report No.	LOW WATER	ERT86	ERT83	ERT84	ERT85
Number of TIC's	CRQL (ug/l)	0	0	0	0
pH		7.0	7.0	7.0	7.0
Di-n-Butylphthalate	2.0	0.4 J		0.4 J	
bis(2-ethylhexyl)phthalate	1.0	0.9 J			

CRQL-Contract Required Quantitation Limit

J-The associated value is an estimated quantity. In all cases above, this is because the values are < the CRQL and cannot be quantified with confidence.

C. M. CHRISTIANSEN Case # 20907 - Notes on Organic Qualifiers

General Information

Six monitoring well samples, seven soils, and six sediment samples were collected for the complete Target Compound List Analyses (TCL) of volatile organic compounds (VOCs), semivolatile organic compounds, and PCB/pesticides. An additional aqueous sample was analyzed for VOCs only. Data summary tables presented will include only the detected target compounds.

Field QC

Monitoring Wells:

Water sample S02 (ERA38) was the background sample.

S05 (ERT80) and S03 (ERA39) were field duplicates.

The field rinsate sample was R01 (ERT81).

The trip blank, analyzed for VOCs only, was R02 (ERT82).

Soils:

The background soil sample was S18 (ERT96).

Soil sample S19 (ERT97) was the field duplicate of S13 (ERT91).

Sediments:

The sediment background sample was S20 (ERT98).

S25 (EHH94) was the field duplicate of S22 (EHH91).

VOCs

Monitoring Wells

Laboratory instruments must be initially calibrated using a series of standards of known concentrations. This calibration is checked throughout the analysis by using one standard of known concentrations. If the compounds of this standard are not detected within appropriate ranges of the true values, all samples associated with the standard are flagged as estimated for the compounds outside the QC limits. Positive results are estimated (J) and non-detected results are estimated (UJ) for the following compounds due to calibration outliers:

Chloroethane; 2-Butanone; and 2-Hexanone for S05 (ERT80), R01 (ERT81), and R02 (ERT82)

Acetone for all monitoring well samples.

There were two laboratory method blanks associated with the monitoring well samples. Neither contained target compounds, however, both were found to contain the tentatively identified compound (TIC) Carbon dioxide. Where this TIC appears in the field samples, it has been deemed undetected (U) by the validator if the concentration in the sample is less than 5 times the concentration in the associated blank.

Soils

Positive results are estimated (J) and non-detected results are estimated (UJ) for the following compounds due to calibration outliers:

2-Butanone; 4-Methyl-2-pentanone; and 2-Hexanone for S13 (ERT91), S18 (ERT96), S15 (ERT93), S19 (ERT97), and S14 (ERT92)

Acetone; 2-Butanone; 4-Methyl-2-pentanone; and 2-Hexanone for S12 (ERT90)

Chloromethane; Vinyl chloride; and Chloroethane for S11 (ERT89).

There were three low level and one medium level volatile laboratory method blanks associated with the soil samples. The medium level blank was free from contamination. One of the low level blanks contained no target compounds but one TIC, a second blank contained the common laboratory contaminants Methylene chloride and Acetone and two TICs, while a third blank contained Methylene chloride and one TIC. The presence of the common lab contaminants in the field samples has been qualified as undetected (U) when the sample concentration is less than 10 times the concentration in the associated blank. Likewise, the presence of the TICs in the samples are qualified as undetected (U) when the sample concentration is less than 5 times the concentration in the associated blank.

The surrogate recovery in the medium level sample S11 (ERT89) was low outside the QC limits. There were no detected compounds in this sample, therefore the undetected compounds are qualified as estimated (UJ).

Sediments

Positive results are estimated (J) and non-detected results are estimated (UJ) for the following compounds due to calibration outliers:

Chloromethane; Acetone; 1,2-Dichloroethene (total); 4-Methyl-2-pentanone; and 2-Hexanone for S21 (ERT99)

2-Butanone for all sediment samples.

There were two low level volatile laboratory method blanks associated with the sediment samples. One blank contained Tetrachloroethene. The second blank contained Tetrachloroethene, Chloroform, and the common lab contaminants Methylene chloride and Acetone. The presence of the common lab contaminants is qualified as undetected (U) when the sample concentration is less than 10 times the concentration in the associated blank. Likewise, the presence of Chloroform and Tetrachloroethene is qualified as undetected when the sample concentration is less than 5 times the concentration in the associated blank.

One of the internal standards in sediment sample S23 (EHH92) was low outside the QC limits. All compounds associated with this standard are qualified as estimated (UJ). These compounds are: 2-Hexanone; 4-Methyl-2-pentanone; Tetrachloroethene; 1,1,2,2-Tetrachlorethane; Toluene; Chlorobenzene; Ethylbenzene; Styrene; and Xylene (total).

Semivolatiles

Monitoring Wells

There was one low level semivolatile method blank associated with the monitoring wells which contained no target compounds but 5 TICs. The presence of these TICs in the field samples is qualified as undetected (U) when the sample concentration is less than 5 times the concentration in the associated blank.

The semivolatile surrogates were within the QC limits for all samples except the diluted sample S02 (ERA38DL). Positive results are estimated (J) and undetected results are estimated (UJ) for this diluted sample only.

Positive results for Pentachlorophenol in the unspiked sample S01 (ERA37) should be considered estimated (J) because the matrix spike and matrix spike duplicate for this compound were both high outside the QC limits.

Soils

All soils were analyzed at medium level for semivolatiles. In addition, some of the samples were run at different dilution factors because results for some of the target compounds exceeded the linear range of the instrument. Data tables presented combine the results from multiple runs.

Positive results are estimated (J) and non-detected results are estimated (UJ) for the following compounds due to calibration outliers:

4-Chloroaniline for S15 (ERT93), S18 (ERT96), S19 (ERT97), and diluted sample S12 (ERT90DL)

4-Chloroaniline; 3-Nitroaniline; 4-Nitrophenol; and 4-Nitroaniline for diluted samples S11 (ERT89DL) and S13 (ERT91DL).

There was one medium level semivolatile method blank associated with the soil samples which contained no target compounds but did contain 4 TICs. The presence of these TICs in the samples is qualified as undetected when the sample concentration is less than 5 times the concentration in the associated blank.

Surrogate recovery for diluted sample S11 (ERT89DL) were reported as zero %, therefore all detected compounds in this sample are qualified as estimated (J) and undetected compound results are unusable (R).

Sample S11 (ERT89) was used for the matrix spike/matrix spike duplicate (MS/MSD) audit. Recovery was low outside the QC limits for 4-Chloro-3-methylphenol. Recovery was high outside the QC limits for Acenaphthene; 2,4-Dinitrotoluene; Pentachlorophenol; and Pyrene. Both the MS and MSD reported zero % recovery for 4-Nitrophenol. In addition, the relative percent difference value for 1,4-Dichlorobenzene; 4-Chloro-3-methylphenol; and Acenaphthene were outside the QC limits. The presence of all these compounds except 4-Nitrophenol, in the unspiked sample S11 (ERT89) should be qualified as estimated (J) and non-detects as (UJ). The presence of 4-Nitrophenol in the unspiked sample is estimated (J), however, results from the undiluted, unspiked sample were not used for this report.

Internal standards were within control limits for all samples except the undiluted sample S11 (ERT89) and its MS/MSD samples, which are not being presented for this report.

Sediments

Positive results are estimated (J) and non-detected results are estimated (UJ) for the following compounds due to calibration outliers:

2-Nitroaniline; 3-Nitroaniline; 4-Nitrophenol; 4-Nitroaniline; 4,6-Dinitro-2-methylphenol; Carbazole; and 3,3'Dichlorobenzidine for sediment samples S22 (EHH91), S23 (EHH92), S24 (EHH93), and S25 (EHH94)

2,2'-Oxybis(1-chl-propane); Hexachlorocyclopentadiene; 4-Nitrophenol; 4-Nitroaniline; 4,6-Dinitro-2-methylphenol; Carbazole; and

3,3'-Dichlorobenzidine for samples S20 (ERT98) and S21 (ERT99).

There was one semivolatile laboratory method blank associated with the sediment samples. This blank contained the common lab contaminants Di-n-butylphthalate and bis-(2-Ethylhexyl)phthalate and 14 TICs. The presence of the phthalate esters in the field samples has been qualified as undetected (U) when the sample concentration is less than 10 times the concentration in the associated blank. Likewise, the TICs that may have appeared in the sediment samples have been qualified as undetected when the concentration is less than 5 times the concentration in the blank.

The recoveries of 4-Nitrophenol were high in both the MS and MSD. The recoveries of N-Nitroso-di-n-propylamine; 1,2,4-Trichlorobenzene; 4-Chloro-3-Methylphenol; Acenaphthlene; and 2,4-Dinitrophenol were high in the MS. The relative percent difference for N-Nitroso-di-n-proylamine; 1,4-Dichlorobenzene; 1,2,4-Trichlorobenzene; and Pyrene exceeded the QC limits. The results of the above mentioned compounds in the unspiked sample S23 (EHH92) are estimated (J) for positive results and estimated (UJ) for non-detected results.

PCB/PESTICIDES

Monitoring Wells

Surrogate recoveries were low outside the QC limits in samples S02 (ERA38), S03 (ERA39), S04 (ERT79), and S05 (ERT80). Positive results for all PCB/Pesticide compounds in these samples are estimated (J) and non-detected compound results are estimated (UJ).

Soils

A number of the soil samples were analyzed at two different dilution factors because some of the compound results exceeded the linear range of the instrument. Sample results presented in the tables reflect both dilution factors where applicable.

The retention times for a number of compounds in the performance evaluation mixture were outside the prescribed limits. Subsequently, detected target compounds in samples S14 (ERT92), S15 (ERT93), S18 (ERT96), diluted sample S18 (ERT96DL), and S19 (ERT97) are qualified as "presumptively present" (NJ), and non-detects as estimated (UJ). All positive results for Endrin in these samples is estimated (J). If Endrin is not detected, but Endrin aldehyde and/or Endrin keytone are detected, then the quantitation limit for Endrin is qualified as unusable (R). All positive results for Endrin keytone are qualified as presumptively present (NJ).

Due to calibration outliers, all detected compounds are estimated (J) and non-detected compounds are estimated (UJ) for samples S11 (ERT89), diluted sample S11 (ERT89DL), S12 (ERT90), diluted sample S12 (ERT90DL), and S13 (ERT91).

There was one laboratory PCB/Pesticide method blank associated with the soil samples which contained 9 target compounds: alpha-BHC; delta-BHC; Aldrin; Endosulphan I; Endrin; 4,4'-DDD; Endosuphan Sulphate; Endrin keytone; and gamma-Chlordane. The presence of these compounds in the field samples is qualified as undetected (U) when the sample concentration is less than 5 times the concentration of the associated blank. The high number of TCL contaminants in the lab blank may be indicative of an analytical problem within the lab.

High surrogate recoveries may be an indication of a high bias due to co-eluting interferences, therefore associated detected compounds are qualified as estimated (J) for samples S11 (ERT89), diluted sample S11 (ERT89DL), S12 (ERT90), diluted sample S12 (ERT90DL), S13 (ERT91), S14 (ERT92), S15 (ERT93), and S19 (ERT97). Low surrogate recoveries may be an indication of a low bias, therefore detected target compounds should be qualified as estimated (J) and non-detects as estimated (UJ) in sample S18 (ERT96). Because of the reported zero % recovery of surrogates in the diluted sample S18 (ERT96DL), detected target compounds are estimated (J) and non-detected compound results are unusable (R).

Sediments

All attempts at completing the final calibration check as required by the Contract Laboratory Program failed due to excessive degradation of DDT and Endrin. The lab ran all six sediment samples three times, each on a different instrument, with similar results. This would indicate that the problems were inherent to the samples and not instrument specific. The data presented are considered representative for site conditions and should be used only with professional judgement.

Surrogate recoveries were outside the QC limits for all sediment samples. Detected compound results are flagged as estimated (J) and non-detected results are estimated (UJ).

The recoveries were low for gamma-BHC in both the MS and the MSD. There was also a low recovery of 4,4'-DDT in the MSD. The relative percent difference for 4,4'-DDT exceeded the QC limits. Detected results in the unspiked sample S23 (ERT92) are qualified as estimated (J) and non-detected results are estimated (UJ).

C. M. CHRISTIANSEN Case # 20907 VOLATILE ANALYSIS OF MONIORING WELLS 9/28/93

Sample Description		BKGRD			Dup S03		Rinsate	Trip Blk
Sample Location ID	LOW	S02	S01	S03	S05	S04	R01	R02
	WATER							
Traffic Report No.	CRQL	ERA38	ERA37	ERA39	ERT80	ERT79	ERT81	ERT82
	(ug/l)							
Number of TIC's		0	9	0	0	1	0	0
Methylene Chloride	10.0						0.7 J	1 J
Acetone	10.0						26 J	27
Carbon Disulfide	10.0						1 J	
2-Hexanone	10.0		8 J					
Xylene (total)	10.0		2 J					

C. M. CHRISTIANSEN Case # 20907 SEMIVOLATILE ANALYSISS OF MONITORING WELLS 9/30/93

Sample Description		Bkgrd			Dup S03		Rinsate
Sample Location ID		S02 *	S01	S03	S05	S04	R01
	LOW						
Traffic Report No.	WATER	ERA38	ERA37	ERA39	ERT80	ERT79	ERT81
	CRQL						
Number of TIC's	(ug/l)	7	20	3	4	3	2
pH		7.0	7.0	7.0	7.0	7.0	7.0
1,[illegible]ichlorobenzene	10.0	0.4 J				0.5 J	
Naphthalene	10.0		15				
2-Methylnaphthalene	10.0		51				
Acenapthene	10.0		3 J				
Dibenzofuran	10.0		3 J				
Fluorene	10.0		3 J				
Pentachlorophenol	25.0		12 J				
bis(2-ethylhexyl)phthalate	10.0	1200 JD x5		33	71		2 J

* Sample results reflect more than one dilution factor.

C. M. CHRISTIANSEN Case # 20907 PCB/PESTICIDE ANALYSIS OF MONITORING WELLS 9/30/93

Sample Description		Bkgrd			Dup S03		
Sample Location ID	LOW	S02	S01	S03	S05	S04	S05
	WATER						
Traffic Report No.	CRQL	ERA38	ERA37	ERA39	ERT80	ERT79	ERT81
	(ug/l)						
pH		7.0	7.0	7.0	7.0	7.0	7.0
alpha-BHC	0.05			0.0052 PJ	0.0041 PJ	0.0049 PJ	0.0020 PJ
gamma-Chlordane	0.05		0.0064 PJ				

VOLATILE ANALYSIS OF SOIL		TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location
		10	S18	10	S12	10	S13	10	S19	10	S14
C. M. CHRISTIANSEN		pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #
			ERT96		ERT90		ERT91		ERT97		ERT92
Case # 20907											
	LOW	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description
9/30/93	SOIL	80	Background	80		92		89	Dup of S13	78	
	CRQL										
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
Methylene Chloride	10.0	12.5	31			10.9	32	11.2	41	12.8	35
Acetone	10.0	12.5	34	12.5	160 BJ	10.9	56	11.2	63	12.8	150
2-Butanone	10.0			12.5	6 J	10.9	2 J	11.2	2 J	12.8	5 J

VOLATILE ANALYSIS OF SOIL		TIC's	Location
		10	S15
C. M. CHRISTIANSEN		pH	Traffic Rpt #
			ERT93
Case # 20907			
	LOW	% Solid	Description
9/30/93	SOIL	78	
	CRQL		
	(ug/Kg)	corrected CRQL	Sample Concentration
Methylene Chloride	10.0	12.8	24
Acetone	10.0	12.8	130
2-Butanone	10.0	12.8	4 J

VOLATILE ANALYSIS OF SOIL		TIC's 10	Location S11
C. M. CHRISTIANSEN		pH	Traffic Rpt # ERT89
Case # 20907			
	MEDIUM	% Solid	Description
9/30/93	SOIL	45	
	CRQL		
	(ug/Kg)	corrected CRQL	Sample Concentration
Methylene Chloride	1200		
Acetone	1200		
2-Butanone	1200		

SEMIVOLATILE ANALYSIS OF SOIL		TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location
		8	S18	3	S11	20	S12 *	20	S13 *	20	S19
C. M. CHRISTIANSEN		pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #
		4.0	ERT96	4.2	ERT89DL	4.8	ERT90	4.6	ERT91	4.8	ERT97
Case # 20907											
	MEDIUM	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description
9/30/93	SOIL	79	Background	45	Diluted	80		92		89	Dup of S13
	CRQL										
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
Acenapthene	10000					12500	1900 J	10870	1100 J	11236	970 J
Fluorene	10000									11236	360 J
N-Nitrosodiphenylamine (1)	10000					12500	42000	10870	29000	11236	19000
Pentachlorophenol	25000	31646	11000 J	55555556	87000000 Dx1000J	1562500	3000000 Dx50	1358700	1400000 Dx50		
Phenanthrene	10000			22222222	2100000 Dx1000J					11236	690 J
Fluoranthene	10000					12500	1200 J	10870	26000	11236	22000
Pyrene	10000					12500	6900 J	10870	21000	11236	16000
Benzo(a)anthracene	10000					12500	770 J	10870	3000 J	11236	2600 J
Chrysene	10000					12500	2100 J	10870	6800 J	11236	6000 J
bis(2-ethylhexyl)phthalate	10000					12500	1500 J	10870	800 J	11236	490 J
Benzo(b)fluoranthene	10000							10870	3000 J	11236	2400 J
Benzo(k)fluoranthene	10000							10870	2500 J	11236	2000 J

SEMIVOLATILE ANALYSIS OF SOIL		TIC's	Location	TIC's	Location
		2	S14 *	20	S15
		pH	Traffic Rpt #	pH	Traffic Rpt #
C. M. CHRISTIANSEN		4.5	ERT92	4.4	ERT93
Case # 20907					
	MEDIUM	% Solid	Description	% Solid	Description
9/30/93	SOIL	78		78	
	CRQL				
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
Acenapthene	10000				
Fluorene	10000				
N-Nitrosodiphenylamine (1)	10000	12821	18000		
Pentachlorophenol	25000	1602564	2300000 Dx50	32051	36000
Phenanthrene	10000				
Fluoranthene	10000	12821	9000 J	12821	11000 J
Pyrene	10000	12821	17000	12821	19000
Benzo(a)anthracene	10000				
Chrysene	10000	12821	5700 J	12821	6000 J
bis(2-ethylhexyl)phthalate	10000	12821	14000		
Benzo(b)fluoranthene	10000	12821	3300 J	12821	2100 J
Benzo(k)fluoranthene	10000			12821	1200 J

* Sample results and corrected CRQLs reflect more than one dilution factor.

PCB/PESTICIDE ANALYSIS OF SOIL		TIC's	Location S18	TIC's	Location S11 *	TIC's	Location S12 *	TIC's	Location S13	TIC's	Location S19
C. M. CHRISTIANSEN		pH 4.0	Traffic Rpt # ERT96	pH 4.2	Traffic Rpt # ERT89	pH 4.8	Traffic Rpt # ERT90	pH 4.6	Traffic Rpt # ERT91	pH 4.8	Traffic Rpt # ERT97
Case # 20907											
	LOW	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description
9/30/93	SOIL	79	Background	45		80		92		89	Dup of S13
	CRQL										
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
alpha-BHC	1.7					21	7.8 BJP				
beta-BHC	1.7			37778	4600 BPJDx10000	210	730 PDx100	185	140 JP		
delta-BHC	1.7			3778	4600 BPJ	21	170 BPJ				
gamma-BHC (Lindane)	1.7									191	9.0 JPN
Heptachlor	1.7							185	11 JP		
Aldrin	1.7			3778	13000 BP	21	290 BPJ				
Heptachlor epoxide	1.7	22	1.4 JPN			21	180 PJ	185	400 PJ	191	110 JPN
Endosulfan I	1.7					21	220 BPJ	185	370 BJ	191	84 BJNP
Dieldrin	3.3			7333	1800 JP	41	210 PJ			371	48 JPN
4,4'-DDE	3.3					41	200 PJ	359	58 JP		
Endrin	3.3			7333	4900 BJP						
4,4'-DDD	3.3			7333	18000 BP	41	190 BPJ				
Endosulfan sulphate	3.3			7333	3000 BJP						
4,4'-DDT	3.3					41	220 PJ	359	200 JP	371	86 JPN
Methoxychlor	17.0					213	660 PJ	1848	58 JP		
Endrin keytone	3.3			7333	4400 BJP	41	290 BJ				
Endrin aldehyde	3.3					41	190 PJ				
alpha-Chlordane	1.7					21	150 PJ				
gamma-Chlordane	1.7			3778	7800 BJ	21	150 BPJ				

Rest

PCB/PESTICIDE ANALYSIS OF SOIL		TIC's	Location S14	TIC's	Location S15
C. M. CHRISTIANSEN		pH 4.5	Traffic Rpt # ERT92	pH 4.4	Traffic Rpt # ERT93
Case # 20907					
9/30/93	LOW SOIL CRQL (ug/Kg)	% Solid 78	Description	% Solid 78	Description
		corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
alpha-BHC	1.7				
beta-BHC	1.7	218	320 PNJ	218	69 JPN
delta-BHC	1.7				
gamma-BHC (Lindane)	1.7				
Heptachlor	1.7				
Aldrin	1.7			218	410 BPNJ
Heptachlor epoxide	1.7	218	160 JPN	218	680 PNJ
Endosulfan I	1.7			218	840 BNJ
Dieldrin	3.3			423	570 PNJ
4,4'-DDE	3.3	423	480 PNJ		
Endrin	3.3	423	500 BPNJ	423	340 BJN
4,4'-DDD	3.3	423	390 BJPN		
Endosulfan sulphate	3.3	423	510 BPNJ		
4,4'-DDT	3.3			423	330 JPN
Methoxychlor	17.0				
Endrin keytone	3.3			423	170 BJPN
Endrin aldehyde	3.3	423	490 PNJ		
alpha-Chlordane	1.7	218	240 PNJ		
gamma-Chlordane	1.7	218	810 BNJ	218	1100 BPNJ

Note - All soil samples for PCB/Pesticide analysis have been diluted.

* Sample results and corrected CRQLs reflect more than one dilution factor.

VOLATILE ANALYSIS OF SEDIMENT		TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location
		0	S20	0	S21	0	S22	0	S25	0	S23
C. M. CHRISTIANSEN		pH	Traffic Rpt # ERT98	pH	Traffic Rpt # ERT99	pH	Traffic Rpt # EHH91	pH	Traffic Rpt # EHH94	pH	Traffic Rpt # EHH92
Case # 20907											
	LOW	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description
9/30/93	SOIL	10	Background	35		53		54	Dup of S22	46	
	CRQL										
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
Methylene Chloride	10.0	100	180 B								
Acetone	10.0	100	660 B	28.6	300 J	18.9	95 B	18.5	90 B	21.7	96 B
2-Butanone	10.0			28.6	83 J	18.9	13 J				
Tetrachloroethene	10.0	100	52 JB	28.6	12 JB						
Toluene	10.0										

VOLATILE ANALYSIS OF SEDIMENT		TIC's	Location
		0	S24
C. M. CHRISTIANSEN		pH	Traffic Rpt # EHH93
Case # 20907			
	LOW	% Solid	Description
9/30/93	SOIL	18	
	CRQL		
	(ug/Kg)	corrected CRQL	Sample Concentration
Methylene Chloride	10.0		
Acetone	10.0	55.6	230 B
2-Butanone	10.0		
	10.0	55.6	70 B
Toluene	10.0	55.6	15 J

SEMIVOLATILE ANALYSIS OF SEDIMENT		TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location	TIC's	Location
		20	S20	8	S21	0	S22	21	S25	0	S23
C. M. CHRISTIANSEN		pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #
		6.6	ERT98	7.3	ERT99	6.9	EHH91	7.2	EHH94	6.7	EHH92
Case # 20907											
	LOW	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description
9/30/93	SOIL	10	Background	35		53		54	Dup of S22	46	
	CRQL										
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
4-Methylphenol	330	3300	320 J	943	200 J					717	150 J
Naphthalene	330	3300	390 J	943	76 J					717	98 J
2-Methylnaphthalene	330					623	120 J	611	120 J	717	48 J
Fluorene	330					623	98 J	611	85 J	717	43 J
Pentachlorophenol	800			2286	1400 J	1509	1300 J	1481	1600 J	1739	70 J
Phenanthrene	330	3300	270 J	943	320 J	623	640	611	560 J	717	230 J
Anthracene	330	3300	300 J	943	67 J	623	56 J	611	72 J	717	43 J
Fluoranthene	330			943	590 J	623	220 J	611	240 J	717	390 J
Pyrene	330	3300	190 J	943	630 J	623	370 J	611	340 J	717	350 J
Benzo(a)anthracene	330			943	290 J	623	110 J	611	100 J	717	100 J
Chrysene	330			943	390 J	623	200 J	611	230 J	717	290 J
Benzo(b)fluoranthene	330			943	540 J	623	98 J	611	180 J	717	290 J
Benzo(k)fluoranthene	330					623	160 J				
Benzo(a)Pyrene	330	3300	480 J	943	270 J	623	150 J	611	170 J	717	180 J
Ideno(1,2,3-cd)pyrene	330			943	210 J	623	95 J	611	72 J	717	100 J
B[illegible]g,h,i)perylene	330			943	230 J	623	170 J	611	80 J	717	180 J

SEMIVOLATILE ANALYSIS OF SEDIMENT		TIC's 19	Location S24
C. M. CHRISTIANSEN		pH 6.4	Traffic Rpt # EHH93
Case # 20907			
9/30/93	LOW SOIL CRQL (ug/Kg)	% Solid 18	Description
		corrected CRQL	Sample Concentration
4-Methylphenol	330		
Naphthalene	330		
2-Methylnaphthalene	330		
Fluorene	330		
Pentachlorophenol	800		
Phenanthrene	330		
Anthracene	330		
Fluoranthene	330		
Pyrene	330		
Benzo(a)anthracene	330		
Chrysene	330		
Benzo(b)fluoranthene	330		
Benzo(k)fluoranthene	330		
Benzo(a)Pyrene	330	1833	120 J
Ideno(1,2,3-cd)pyrene	330	1833	130 J
B .g,h,i)perylene	330	1833	190 J

PCB/PESTICIDE ANALYSIS OF SEDIMENT		TIC's	Location S20 +	TIC's	Location S21 +	TIC's	Location S22 *	TIC's	Location S25 +	TIC's	Location S23 +
C. M. CHRISTIANSEN		pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #	pH	Traffic Rpt #
		6.6	ERT98	7.3	ERT99	6.9	EHH91	7.2	EHH94	6.7	EHH92
Case # 20907											
	LOW	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description	% Solid	Description
9/30/93	SOIL	10	Background	35		53		54	Dup of S22	46	
	CRQL										
	(ug/Kg)	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration	corrected CRQL	Sample Concentration
Endrin	3.3							6.1	7.2 PJ		
4,4'-DDT	3.3					6.2	6.9 PJ	6.1	9.6 PJ		
Endrin aldehyde	3.3			9.4	9.3 PJ	6.2	7.8 J	6.1	11 PJ		

PCB/PESTICIDE ANALYSIS OF SEDIMENT		TIC's	Location S24 *
C. M. CHRISTIANSEN		pH	Traffic Rpt #
		6.4	EHH93
Case # 20907			
	LOW	% Solid	Description
9/30/93	SOIL	18	
	CRQL		
	(ug/Kg)	corrected CRQL	Sample Concentration
Endrin	3.3		
4,4'-DDT	3.3		
Endrin aldehyde	3.3	18.3	26 PJ

* Sample was reanalyzed due to laboratory QC problems; no PCB/Pesticides were detected in the reanalyzed sample.

+ Sample was rerun at a higher dilution factor because of laboratory QC problems; no PCB/Pesticides were detected in diluted sample.

DATA QUALIFIER DEFINITIONS (ORGANIC)

U -The material was analyzed for, but not detected. The associated numerical value is the sample quantitation limit.

J -The associated numerical value is an estimated quantity.

R -The data are unusable (compound may or may not be present). Resampling and reanalysis is necessary for verification.

N -Presumtive evidence of presence of material.

NJ -Presumtive evidence of the presence of the material at an estimated quantity.

UJ -The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

D -The sample has been diluted.

E -The concentration of the compound has exceeded the linear range of the instrument.

X -In the pesticide fraction, denotes manually entered data.

P -This is a lab generated qualifier that essentially means "estimated". An example of when this is used is for pesticides that are run on a dual column and the two values do not agree within 25%. As with all PCB/Pesticide data, the lower of the two values is reported, but qualified as estimated (P).

C. M. CHRISTIANSEN Case # 20907 - Notes on Inorganic Qualifiers

General Information

Six monitoring well samples, seven soil samples, and six sediment samples were collected for the complete Target Analyte List (TAL) low level analysis of metals.

Field QC

Monitoring Wells:

The background monitoring well was S02 (MEQM48).

Samples S03 (MEQM49) and S05 (MEQM51) were labeled as field duplicates.

R01 (MEQM52) was a field rinsate.

Soils:

Soil sample S18 (MEQM66) was a background sample.

Sample S19 (MEQM67) was the field duplicate of S13 (MEQM61).

Sediments:

The background sediment sample was S20 (MEQM68).

Sediment field duplicates were S22 (MEQM70) and S25 (MEQM73).

Monitoring Wells

The validator's narrative indicates that all inorganic QC audits were within required limits for all monitoring well samples.

Soils

The laboratory duplicates for Aluminum, Iron, and Manganese were outside the QC limits, therefore results for these analytes are estimated (J) due to poor precision.

For the matrix spike audit, the recovery for Antimony was 45.8% and the recovery for Manganese was 136.7%. All Sb data are estimated (UJ) due to a possible elevation of the detection limit. All Mn data are estimated (J) due to a high bias.

Sediments

The matrix spike recovery for Antimony was low outside the QC limits. In addition, the laboratory prep blank and the continuing calibration blank were both found to contain Antimony. The Sb results on S22 (MEQM70) is estimated (J) due to low bias and contamination. The remaining Sb results are estimated (UJ) due to a possible elevation of the detection limit.

The serial dilution audit for Zinc was outside the control limits, therefore, all Zn data are estimated (J) due to interference.

Two continuing calibration blanks were found to contain Beryllium. All Be data except S24 (MEQM72) are estimated (J) due to contamination.

C. M. CHRISTIANSEN Case # 20907 INORGANIC ANALYSIS OF MONITORING WELLS

Sample Description	LOW	LOW	Background			DUP of SO3		Rinsate
Sample Location ID	WATER	WATER	SO2	SO1	SO3	SO5	SO4	RO1
	CRDL	IDL						
Traffic Report No.	(ug/l)	(ug/l)	MEQM48	MEQM47	MEQM49	MEQM51	MEQM50	MEQM52
Aluminum	200	74.0	74.0 U	74.0 U	81.4 B	74.0 U	86.1 B	84.6 B
Antimony	60	20.0	20.0 U	20.0 U	31.0 B	20.0 U	20.0 U	20.0 U
Arsenic	10	3.0	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Barium	200	8.0	39.3 B	100 B	666	35.8 B	35.7 B	8.0 U
Beryllium	5	1.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
C[illegible]ium	5	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
C[illegible]um	5000	240.0	28100	47500	111000	15100	14900	240 U
Chromium	10	5.0	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U	4.0 U
Cobalt	50	4.0	5.0 U	5.0 U	10.5 B	5.0 U	5.0 U	5.0 U
Copper	25	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Iron	100	5.0	30.0 B	593	30200	19.8 B	27.3 B	5.0 U
Lead	3	2.0	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
Magnesium	5000	173.0	10000	17100	11600	5190	5110	173 U
Manganese	15	1.0	57.1	1170	8290	219	217	1.0 U
Mercury	0.2	0.2	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Nickel	40	11.0	11.0 U	11.0 U	11.0 U	11.0 U	11.0 U	11.0 U
Potassium	5000	827.0	1590 B	2320 B	15700	1630 B	1700 B	427 U
Selenium	5	4.0	4.0 U	4.0 U	6.0	4.0 U	4.0 U	4.0 U
Silver	10	3.0	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U
Sodium	5000	216.0	45200	5520	12400	3390 B	3380 B	437 B
Thallium	10	4.0	10.2	4.0 U	5.8 B	4.0 U	4.0 U	4.0 U
Vanadium	50	3.0	3.0 U	3.0 U	6.9 B	3.0 U	3.0 U	3.0 U
Z[illegible]	20	3.0	4.4 B	3.1 B	4.8 B	4.2 B	6.1 B	3.0 U

		Location	Traffic Rpt #	Location	Traffic Rpt #	Location	Traffic Rpt #	Location	Traffic Rpt #
		S18	MEQM66	S11	MEQM59	S12	MEQM60	S13	MEQM61
	LOW SOIL CRDL (mg/Kg)	% Solid 82.1	Background	% Solid 48.2		% Solid 79.6		% Solid 92.6	
Analyte		corrected CRDL	sample concentration	corrected CRDL	sample concentration	corrected CRDL	sample concentration	corrected CRDL	sample concentration
Aluminum	40	48.7	13500 J*	83.0	4330 J*	50.3	9280 J*	43.2	6570 J*
Antimony	12	14.6	4.9 UJN	24.9	8.3 UJN	15.1	5.0 UJN	13.0	4.3 UJN
Arsenic	2	2.4	3.5	4.1	5.1	2.5	3.2	2.2	3.2
Barium	40	48.7	95.1	83.0	21.9 B	50.3	69.3	43.2	31.5 B
Beryllium	1	1.2	0.35 B	2.1	0.41 U	1.3	0.26 B	1.1	0.22 U
Cadmium	1	1.2	0.49 U	2.1	0.83 U	1.3	0.50 U	1.1	0.43 U
Calcium	1000	1218.0	1470	2074.7	756 B	1256.3	3110	1079.9	2020
Chromium	2	2.4	23.8	4.1	12.4	2.5	15.9	2.2	14.7
Cobalt	10	12.2	7.1 B	20.7	2.1 B	12.6	6.0 B	10.8	6.2 B
Copper	5	6.1	9.0	10.4	18.1	6.3	17.8	5.4	21.9
Iron	20	24.4	16000 J*	41.5	14700 J*	25.1	12700 J*	21.6	11200 J*
Lead	1	1.2	5.1 *	2.1	20.7 *	1.3	13.8 *	1.1	3.5 *
Magnesium	1000	1218.0	2720	2074.7	1090 B	1256.3	2060	1079.9	2860
Manganese	3	3.7	503 JN*	6.2	64.5 JN*	3.8	134 JN*	3.2	134 JN*
Mercury	0.2	0.2	0.12 U	0.4	0.21 U	0.3	0.13 U	0.2	0.11 U
Nickel	8	9.7	13.2	16.6	11.2 B	10.1	16.0	8.6	13.7
Potassium	1000	1218.0	623 B	2074.7	317 B	1256.3	405 B	1079.9	400 B
Selenium	1	1.2	1.3 *	2.1	1.7 U*	1.3	1.2 B*	1.1	0.86 U*
Silver	2	2.4	0.73 U	4.1	1.2 U	2.5	1.1 B	2.2	0.65 U
Sodium	1000	1218.0	89.6 B	2074.7	124 U	1256.3	96.6 B	1079.9	107 B
Thallium	2	2.4	0.97 U	4.1	1.7 U	2.5	1.0 U	2.2	0.86 U
Vanadium	10	12.2	34.9	20.7	9.0 B	12.6	23.9	10.8	23.8
Zinc	4	4.9	43.5	8.3	19.9	5.0	40.4	4.3	45.8

		Location	Traffic Rpt #	Location	Traffic Rpt #	Location	Traffic Rpt #
		S19	MEQM67	S14	MEQM62	S15	MEQM63
	LOW SOIL CRDL (mg/Kg)	% Solid 88.8	DUP of S13	% Solid 70.5		% Solid 75.9	
Analyte		corrected CRDL	sample concentration	corrected CRDL	sample concentration	corrected CRDL	sample concentration
Aluminum	40	45.0	6470 *J	56.7	11200 J*	52.7	11900 *J
Antimony	12	13.5	4.5 UNJ	17.0	5.7 UJN	15.8	5.3 UNJ
Arsenic	2	2.3	3.5	2.8	2.6 B	2.6	2.8
Barium	40	45.0	25.7 B	56.7	94	52.7	49.7 B
Beryllium	1	1.1	0.23 U	1.4	0.28 U	1.3	0.26 U
Cadmium	1	1.1	0.45 U	1.4	0.57 U	1.3	0.53 U
Calcium	1000	1126.1	2270	1418.4	2060	1317.5	2330
Chromium	2	2.3	15.9	2.8	22.7	2.6	19.3
Cobalt	10	11.3	5.1 B	14.2	6.9 B	13.2	7.3 B
Copper	5	5.6	27.8	7.1	21.5	6.6	22.6
Iron	20	22.5	10300 *J	28.4	13000 J*	26.4	14100 J*
Lead	1	1.1	5.3 *	1.4	32.7 *	1.3	28.8 *
Magnesium	1000	1126.1	2540	1418.4	2980	1317.5	3240
Manganese	3	3.4	124 N*J	4.3	139 JN*	4.0	180 JN*
Mercury	0.2	0.2	0.11 U	0.3	0.14 U	0.3	0.13 U
Nickel	8	9.0	11.8	11.3	16.6	10.5	14.2
Potassium	1000	1126.1	382 B	1418.4	846 B	1317.5	684 B
Selenium	1	1.1	0.90 U*	1.4	1.1 U*	1.3	1.1 U*
Silver	2	2.3	0.68 U	2.8	1.0 B	2.6	0.79 U
Sodium	1000	1126.1	114 B	1418.4	146 B	1317.5	119 B
Thallium	2	2.3	0.90 U	2.8	1.1 U	2.6	1.1 U
Vanadium	10	11.3	19.1	14.2	29.7	13.2	27.8
Zinc	4	4.5	32.4	5.7	130	5.3	34.3

C. M. CHRISTIANSEN Case # 20907 INORGANIC ANALYSIS OF SEDIMENT

		Location	Traffic Rpt #	Location	Traffic Rpt #	Location	Traffic Rpt #
		S20	MEQM68	S21	MEQM69	S22	MEQM70
	LOW SOIL CRDL (mg/Kg)	% Solid 9.7	Background	% Solid 35.9		% Solid 50.4	
Analyte		corrected CRDL	sample concentration	corrected CRDL	sample concentration	corrected CRDL	sample concentration
Aluminum	40	412.4	2520	111.4	12600	79.4	5670
Antimony	12	123.7	34.6 UJN	33.4	9.1 UJN	23.8	9.6 BNJ
Arsenic	2	20.6	4.5 B	5.6	3.4 B	4.0	1.8 B
Barium	40	412.4	29.5 B	111.4	110	79.4	47.0 B
Beryllium	1	10.3	0.70 BJ	2.8	0.42 BJ	2.0	0.24 BJ
Cadmium	1	10.3	7.0 U	2.8	1.8 U	2.0	1.3 U
Calcium	1000	10309.3	6040 B	2785.5	4330	1984.1	2440
Chromium	2	20.6	41.5	5.6	33.7	4.0	16.0
Cobalt	10	103.1	6.8 U	27.9	9.1 B	19.8	4.5 B
Copper	5	51.5	13.3 B	13.9	25.8	9.9	13.7
Iron	20	206.2	3760	55.7	17500	39.7	9180
Lead	1	10.3	20.2	2.8	46.3	2.0	13.3
Magnesium	1000	10309.3	1030 B	2785.5	3870	1984.1	2080
Manganese	3	30.9	198	8.4	254	6.0	129
Mercury	0.2	2.1	0.94 U	0.6	0.28 U	0.4	0.20 U
Nickel	8	82.5	16.4 B	22.3	20.9 B	15.9	8.5 B
Potassium	1000	10309.3	522 U	2785.5	756 B	1984.1	290 B
Selenium	1	10.3	2.3 U	2.8	0.71 B	2.0	0.70 B
Silver	2	20.6	4.7 U	5.6	1.2 U	4.0	0.91 U
Sodium	1000	10309.3	617 B	2785.5	206 B	1984.1	146 B
Thallium	2	20.6	2.1 U	5.6	0.55 U	4.0	0.39 U
Vanadium	10	103.1	27.2 U	27.9	56.5	19.8	29.2
Zinc	4	41.2	89.6 JE*	11.1	91.4 JE*	7.9	240 JE*

		Location	Traffic Rpt #	Location	Traffic Rpt #	Location	Traffic Rpt #
		S25	MEQM73	S23	MEQM71	S24	MEQM72
	LOW SOIL CRDL (mg/Kg)	% Solid 61.4	DUP of S22	% Solid 41.2		% Solid 16.5	
Analyte		corrected CRDL	sample concentration	corrected CRDL	sample concentration	corrected CRDL	sample concentration
Aluminum	40	65.1	5200	97.1	4570	242.4	1860
Antimony	12	19.5	5.2 UJN	29.1	8.2 UNJ	72.7	20.2 UJN
Arsenic	2	3.3	1.7 B	4.9	2.1 B	12.1	1.7 B
Barium	40	65.1	41.5 B	97.1	89.8 B	242.4	116 B
Beryllium	1	1.6	0.26 BJ	2.4	0.17 BJ	6.1	0.36 U
Cadmium	1	1.6	1.1 U	2.4	1.7 U	6.1	4.1 U
Calcium	1000	1628.7	2320	2427.2	3170	6060.6	13000
Chromium	2	3.3	14.3	4.9	15.8	12.1	7.1 B
Cobalt	10	16.3	3.9 B	24.3	4.1 B	60.6	4.0 U
Copper	5	8.1	12.8	12.1	13.2	30.3	16.9 B
Iron	20	32.6	8390	48.5	7520	121.2	6810
Lead	1	1.6	13.6	2.4	23.8	6.1	31.1
Magnesium	1000	1628.7	1990	2427.2	1810 B	6060.6	1640 B
Manganese	3	4.9	121	7.3	159	18.2	707
Mercury	0.2	0.3	0.16 U	0.5	0.24 U	1.2	0.58 U
Nickel	8	13.0	9.0 B	19.4	8.9 B	48.5	7.3 U
Potassium	1000	1628.7	315 B	2427.2	241 B	6060.6	485 B
Selenium	1	1.6	0.36 U	2.4	0.58 B	6.1	1.3 U
Silver	2	3.3	0.71 U	4.9	1.1 U	12.1	2.8 U
Sodium	1000	1628.7	114 B	2427.2	163 B	6060.6	407 B
Thallium	2	3.3	0.33 U	4.9	0.49 U	12.1	1.2 U
Vanadium	10	16.3	26.2	24.3	24.0 B	60.6	15.8 U
Zinc	4	6.5	179 JE*	9.7	53.9 JE*	24.2	109 JE*

DATA QUALIFIER DEFINITIONS (INORGANIC):

U -The material was analyzed for, but none was detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

J -The associated value is an estimated quantity.

R -The data are unusable. (Note: Analyte may or may not be present.)

UJ -The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise.

B -The concentration is greater than the instrument detection limit (IDL) but less than the contract required detection limit (CRDL).

S -The reported value was determined by the Method of Standard Addition (MSA).

* -Duplicate analysis was not within control limits.

W -Post-digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

E -The reported value is estimated because of the presence of interference.

N -Spiked sample recovery not within control limits.

+ -Correlation coefficient for the MSA is less than 0.995.

-Duplicate injection precision not met.

Particle size anal.
TOC
% 0.1
Dioxin Data
PCB data
Locations of Samples