158858

APPENDIX A

DATA VALIDATION REPORT

AND CORRECTED FORMS I

CASE U-4835/U-4863/U-4928/U-4971

ORGANIC **DATA VALIDATION REPORT**

1.0 INTRODUCTION

Pg 2,4

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-4835/U-4863/U-4928/U-4971
Sample Numbers:	DC-GB-34, DC-G4-35, DC-G4-36, DC-IB-44, DC-I7-45, DC-I7-46, DC-I7-47, DC-03-61, and DC-GB-68
Analyses:	Semivolatiles, Pesticides/Polychlorinated Biphenyls
Collection Date:	Various

This case consists of reanalyses of nine soil samples which had negligible contaminant concentrations during the initial analyses, reported elsewhere. These reanalyses used an increased solvent volume in a new extraction to produce lower sample detection limits. The data were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis" (February 1988). Data sheets (Form I) with appropriate qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

This section discusses the various data review requirements. Some items are omitted from these data packages. The comments include specific notes on those omissions.

2.1 HOLDING TIMES

were not met.

Since these are reassays, the time between collection and extraction is ~~irrelevant~~. The requirements for the period between extraction and analysis were met.

2.2 INSTRUMENT PERFORMANCE

All requirements for instrument performance were met in both the semivolatile organic analysis (SVOA) and the pesticide/polychlorinated biphenyl (P/PCB) analysis.

2.3 INITIAL AND CONTINUING CALIBRATION

All raw data for the calibration samples were omitted. The following results are derived from the forms, only.

2.3.1 Semivolatile Organic Analyses

Two instruments were used for the SVOA. All quality control (QC) limits were met in the initial calibration of machine "B." For machine "D," the percent relative standard deviation (%RSD) of the response factor (RF) for 3-nitroaniline was 34.5, and that for 3,3'-dichlorobenzidine was 39.2, both exceeding the QC limit of 30. Therefore, all results for those chemicals analyzed using machine "D" are considered estimates and qualified "J" (if detected) or "UJ" (if not detected).

The continuing calibrations had a number of chemicals whose RF had a percent difference (%D) exceeded the QC limit of 25. These, too, are considered estimates and qualified "J" or "UJ." In one continuing calibration, the RF for 3-nitroaniline was only 0.02. Therefore, associated nondetects are considered unusable and flagged "R," possible false negatives. Table 1 summarizes all qualifications from the continuing calibrations.

TABLE 1

SEMIVOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATION

Machine	Continuing Calibration		Chemical (%D)		Samples Affected
	Date	Times[a]			
D	April 16, 1987	1316/1621	Benzoic acid (27.2)	2,4-Dinitrophenol (36.7)	DC-GB-34, DC-G4-35, and DC-G4-36
			4-Nitrophenol (60.4)	bis(2-Chloroisopropyl)ether (32.2)	
			Hexachlorocyclopentadiene (32.1)	3-Nitroaniline (34.1)	
			Hexachlorobenzene (26.8)	Pyrene (36.5)	
			Benzo(k)fluoranthene (26.2)		
D	May 7, 1987	1153/1255	Benzoic acid (25.2)	4-Nitrophenol (60.5)	DC-IB-44, DC-I7-45, DC-I7-46, and DC-I7-47
			Aniline (37.1)	4-Chloraniline (50.8)	
			2-Nitroaniline (27.3)	3-Nitroaniline (74.1)[b]	
			Benzidine (60.1)	Pyrene (43.8)	
			Butylbenzylphthalate (27.7)	3,3'-Dichlorobenzidine (36.2)	
			Benzo(k)fluoranthene		
B	May 18, 1987	1016/0921	Benzoic acid (31.5)	2,4-Dinitrophenol (33.8)	DC-03-61 and DC-GB-68
			4-Nitrophenol (47.4)	Aniline (26.2)	
			4-Nitroaniline (28.8)	3-Nitroaniline (45.0)	
			3,3'-Dichlorobenzidine (53.0)		

Notes:

[a] The times represent the two standards for acids/phenols and bases/neutrals used for calibration.

[b] Response factor was less than 0.05, so nondetected results are flagged "R" for unusable.

2.3.2 Pesticide/Polychlorinated Biphenyl Analyses

The initial and continuing calibrations for the P/PCB analyses were within QC limits. The required analytical sequence was followed.

2.4 BLANKS

Two common laboratory contaminants were found in the SVOA blanks. All sample concentrations up to 10 times the maximum blank concentration, corrected for dilution, are considered artifacts and flagged "U" for nondetected. Table 2 summarizes these qualifications. No chemicals were found in the P/PCB blanks.

2.5 SURROGATE RECOVERY

In the SVOA analyses, a single surrogate was slightly outside QC limits in two samples. No action is warranted. In the P/PCB analyses, surrogate recoveries were satisfactory.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

In the first SVOA matrix spike/matrix spike duplicate (MS/MSD), based on Sample DC-I7-46, 2,4-dinitrotoluene recoveries were 106 and 106 percent (above the QC limits of 28 to 89 percent), phenol recoveries were 95 and 91 percent (above 26 to 90 percent limits), and 1,4-dichlorobenzene recoveries were 30 and 20 percent (compared to 28 to 104 percent). In the second MS/MSD, based on Sample DC-GB-68, phenol recoveries were 88 and 103 percent (compared to 26 to 90 percent). Since none of these chemicals was found in the basic samples, no action is warranted.

In both P/PCB MS/MSD analyses, nontarget chemicals interfered with the heptachlor results. In the second one. similar interference occurred with 4,4'-DDT. All other results were satisfactory. Again, no

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TABLE 2

BLANK CONTAMINATION

Analysis	Chemical	Concentration (micrograms/kilograms)		Samples Qualified
		Blank	Action Level	
SVOA	Diethylphthalate	220	2,200	DC-GB-34, DC-G4-35, and DC-G4-36
SVOA	bis(2-Ethylhexyl)phthlate	97	970	All samples
P/PCB	None	--	--	None

2.7 FIELD DUPLICATES

No field duplicates were noted in the data package.

2.8 INTERNAL STANDARDS

The data packages omitted the summary of internal standards on Form VIII. Inspection of the raw data revealed no problems.

2.9 COMPOUND IDENTIFICATION

The SVOA raw data omitted mass spectra, so identification could not be verified. However, there is no evidence of any problems. The quantitation reports in the raw data indicates which peaks are confirmed and which are nontarget compounds.

2.10 COMPOUND QUANTITATION

Spot checks revealed no problems. The SVOA results are reported on a wet weight ("as received") basis. To convert results to the usual dry weight basis, multiply the numbers in Appendix A by the factors in Table 3.

2.11 SYSTEM PERFORMANCE

There was no evidence of sudden shifts in system performance or similar problems not noted elsewhere.

3.0 OVERALL ASSESSMENT

On the whole, these analyses produced results equivalent to Data Quality Level IV. These relatively clean samples have relatively minor problems. See Appendix A for the final validated results.

TABLE 3

WEIGHT CONVERSION FACTORS

Sample	Percent Moisture	Factor
DC-GB-34	22	1.28
DC-G4-35	24	1.32
DC-G4-36	20	1.25
DC-IB-44	22	1.28
DC-I7-45	23	1.30
DC-I7-46	20	1.25
DC-I7-47	21	1.27
DC-03-61	16	1.19
DC-GB-68	21	1.27

Laboratory Name: ECOLOGY & ENVIRONMENT INC.
Case No: 11-4835, 4863, 4928, 4971

Sample Number
DC-GB-34

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-1-87
Date Analyzed: 4-16-87
Conc/Dil Factor: 2
Percent Moisture (Decanted) 22

GPC Cleanup ☐Yes ☒No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	330	U
111-44-4	bis(-2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1, 3-Dichlorobenzene	330	U
106-46-7	1, 4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1, 2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
39638-32-9	bis(2-chloroisopropyl)Ether	330	U J
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2, 4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U J
111-91-1	bis(-2-Chloroethoxy)Methane	330	U
120-83-2	2, 4-Dichlorophenol	330	U
120-82-1	1, 2, 4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U J
88-06-2	2, 4, 6-Trichlorophenol	330	U
95-95-4	2, 4, 5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
208-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330	U
51-28-5	2, 4-Dinitrophenol	1600	U J
100-02-7	4-Nitrophenol	1600	U J
132-64-9	Dibenzofuran	330	U
121-14-2	2, 4-Dinitrotoluene	330	U
606-20-2	2, 6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	~~250~~	~~J~~ 330 U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4, 6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U J
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	52	J
84-74-2	Di-n-Butylphthalate	140	J
206-44-0	Fluoranthene	77	J
129-00-0	Pyrene	53	J J
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3, 3'-Dichlorobenzidine	660	U J
56-55-3	Benzo(a)Anthracene	45	J
117-81-7	bis(2-Ethylhexyl)Phthalate	~~110~~	~~J~~ 330 U
218-01-9	Chrysene	62	J
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	69	J
207-08-9	Benzo(k)Fluoranthene	330	U J
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	330	U
53-70-3	Dibenzo(a, h)Anthracene	330	U
191-24-2	Benzo(g, h, i)Perylene	330	U

(1)-Cannot be separated from diphenylamine

Laboratory Name Ecology and Environment, Inc.
Case No U-4835, 4863, 4928, 4971

Sample Number
DC-GB-34

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-1-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 1
Percent Moisture (decanted) 22

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or (ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	10	U
319-85-7	Beta-BHC	10	U
319-86-8	Delta-BHC	10	U
58-89-9	Gamma-BHC (Lindane)	10	U
76-44-8	Heptachlor	10	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor Epoxide	10	U
959-98-8	Endosulfan I	10	U
60-57-1	Dieldrin	21	U
72-55-9	4, 4'-DDE	21	U
72-20-8	Endrin	21	U
33213-65-9	Endosulfan II	21	U
72-54-8	4, 4'-DDD	21	U
1031-07-8	Endosulfan Sulfate	21	U
50-29-3	4 4'-DDT	21	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin Ketone	21	U
57-74-9	Chlordane	100	U
8001-35-2	Toxaphene	200	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	200	U
11096-82-5	Aroclor-1260	200	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_i 1000 V_t 4

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Laboratory Name: Ecology & Environment Inc.
Case No: 11-4835, 4863, 4928, 4971

Sample Number: DC-GB-34

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Unknown	BNA	34.50	1500 J
2.	Unknown Aliphatic Hydrocarbon		35.60	720 J
3.	Unknown Aliphatic Hydrocarbon		37.31	600 J
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Laboratory Name Ecology & Environment Inc.

Case No: U-4835, 4863, 4928, 4971

Sample Number
DC-G4-35

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 4-1-87

Date Analyzed: 4-16-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) 24

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	330 U	
111-44-4	bis(-2-Chloroethyl)Ether	330 U	
95-57-8	2-Chlorophenol	330 U	
541-73-1	1, 3-Dichlorobenzene	330 U	
106-46-7	1, 4-Dichlorobenzene	1600	
100-51-6	Benzyl Alcohol	330 U	
95-50-1	1, 2-Dichlorobenzene	330 U	
95-48-7	2-Methylphenol	330 U	
39638-32-9	bis(2-chloroisopropyl)Ether	330 U	J
106-44-5	4-Methylphenol	330 U	
621-64-7	N-Nitroso-Di-n-Propylamine	330 U	
67-72-1	Hexachloroethane	330 U	
98-95-3	Nitrobenzene	330 U	
78-59-1	Isophorone	330 U	
88-75-5	2-Nitrophenol	330 U	
105-67-9	2, 4-Dimethylphenol	330 U	
65-85-0	Benzoic Acid	1600 U	J
111-91-1	bis(-2-Chloroethoxy)Methane	330 U	
120-83-2	2, 4-Dichlorophenol	330 U	
120-82-1	1, 2, 4-Trichlorobenzene	320 J	
91-20-3	Naphthalene	330 U	
106-47-8	4-Chloroaniline	330 U	
87-68-3	Hexachlorobutadiene	330 U	
59-50-7	4-Chloro-3-Methylphenol	330 U	
91-57-6	2-Methylnaphthalene	330 U	
77-47-4	Hexachlorocyclopentadiene	330 U	J
88-06-2	2, 4, 6-Trichlorophenol	330 U	
95-95-4	2, 4, 5-Trichlorophenol	1600 U	
91-58-7	2-Chloronaphthalene	330 U	
88-74-4	2-Nitroaniline	1600 U	
131-11-3	Dimethyl Phthalate	330 U	
08-95-8	Acenaphthylene	330 U	
99-09-2	3-Nitroaniline	1600 U	J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330 U	
51-28-5	2, 4-Dinitrophenol	1600 U	J
100-02-7	4-Nitrophenol	1600 U	J
132-64-9	Dibenzofuran	330 U	
121-14-2	2, 4-Dinitrotoluene	330 U	
606-20-2	2, 6-Dinitrotoluene	330 U	
84-66-2	Diethylphthalate	330 U	
7005-72-3	4-Chlorophenyl-phenylether	330 U	
86-73-7	Fluorene	330 U	
100-01-6	4-Nitroaniline	1600 U	
534-52-1	4, 6-Dinitro-2-Methylphenol	1600 U	
86-30-6	N-Nitrosodiphenylamine (1)	330 U	
101-55-3	4-Bromophenyl-phenylether	330 U	
118-74-1	Hexachlorobenzene	330 U	J
87-86-5	Pentachlorophenol	1600 U	
85-01-8	Phenanthrene	330 U	
120-12-7	Anthracene	330 U	
84-74-2	Di-n-Butylphthalate	200 J	
206-44-0	Fluoranthene	330 U	
129-00-0	Pyrene	330 U	J
85-68-7	Butylbenzylphthalate	330 U	
91-94-1	3, 3'-Dichlorobenzidine	660 U	J
56-55-3	Benzo(a)Anthracene	330 U	
117-81-7	bis(2-Ethylhexyl)Phthalate	~~320 J~~	330 U
218-01-9	Chrysene	330 U	
117-84-0	Di-n-Octyl Phthalate	330 U	
205-99-2	Benzo(b)Fluoranthene	330 U	
207-08-9	Benzo(k)Fluoranthene	330 U	J
50-32-8	Benzo(a)Pyrene	330 U	
193-39-5	Indeno(1, 2, 3-cd)Pyrene	330 U	
53-70-3	Dibenz(a, h)Anthracene	330 U	
191-24-2	Benzo(g, h, i)Perylene	330 U	

(1)-Cannot be separated from diphenylamine

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Form I 11

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Laboratory Name Ecology and Environment, Inc.
Case No U-4835, 4863, 4928, 4971

Sample Number
DC-04-35

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-1-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 10
Percent Moisture (decanted) 24

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or (ug/Kg) (Circle One)
319-84-6	Alpha-BHC	100 U
319-85-7	Beta-BHC	100 U
319-86-8	Delta-BHC	100 U
58-89-9	Gamma-BHC (Lindane)	100 U
76-44-8	Heptachlor	100 U
309-00-2	Aldrin	100 U
1024-57-3	Heptachlor Epoxide	100 U
959-98-8	Endosulfan I	100 U
60-57-1	Dieldrin	210 U
72-55-9	4,4'-DDE	210 U
72-20-8	Endrin	210 U
33213-65-9	Endosulfan II	210 U
72-54-8	4,4'-DDD	210 U
1031-07-8	Endosulfan Sulfate	210 U
50-29-3	4,4'-DDT	210 U
72-43-5	Methoxychlor	1050 U
53494-70-5	Endrin Ketone	210 U
57-74-9	Chlordane	1050 U
8001-35-2	Toxaphene	2100 U
12674-11-2	Aroclor-1016	1050 U
11104-28-2	Aroclor-1221	1050 U
11141-16-5	Aroclor-1232	1050 U
53469-21-9	Aroclor-1242	1050 U
12672-29-6	Aroclor-1248	1050 U
11097-69-1	Aroclor-1254	600 J
11096-82-5	Aroclor-1260	2100 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4

Laboratory Name: ECOLOGY & ENVIRONMENT INC.

Case No: U-4835, 4863, 4928, 4971

Sample Number: DC-G4-35

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 95943	1,2,4,5-Tetrachlorobenzene	BNA	17.14	1400 J
2. 608935	Pentachlorobenzene		19.46	760 J
3. –	Unknown		25.13	730 J
4. 10544500	Molecular Sulfur		26.41	8300 J
5.	Unknown	BNA	34.50	1200 J
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Laboratory Name: ECOLOGY & ENVIRONMENT INC.

Case No: U-4835, 4863, 4928, 4971

Sample Number: DC-G4-36

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 4-1-87

Date Analyzed: 4-16-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) 20

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	330 U	
111-44-4	bis(-2-Chloroethyl)Ether	330 U	
95-57-8	2-Chlorophenol	330 U	
541-73-1	1 3-Dichlorobenzene	60 J	
106-46-7	1. 4-Dichlorobenzene	2800	
100-51-6	Benzyl Alcohol	330 U	
95-50-1	1. 2-Dichlorobenzene	330 U	
95-48-7	2-Methylphenol	330 U	
39638-32-9	bis(2-chloroisopropyl)Ether	330 U	J
106-44-5	4-Methylphenol	330 U	
621-64-7	N-Nitroso-Di-n-Propylamine	330 U	
67-72-1	Hexachloroethane	330 U	
98-95-3	Nitrobenzene	330 U	
78-59-1	Isophorone	330 U	
88-75-5	2-Nitrophenol	330 U	
105-67-9	2. 4-Dimethylphenol	330 U	
65-85-0	Benzoic Acid	1600 U	J
111-91-1	bis(-2-Chloroethoxy)Methane	330 U	
120-83-2	2. 4-Dichlorophenol	330 U	
120-82-1	1. 2. 4-Trichlorobenzene	320 J	
91-20-3	Naphthalene	330 U	
106-47-8	4-Chloroaniline	330 U	
87-68-3	Hexachlorobutadiene	330 U	
59-50-7	4-Chloro-3-Methylphenol	330 U	
91-57-6	2-Methylnaphthalene	330 U	
77-47-4	Hexachlorocyclopentadiene	330 U	J
88-06-2	2. 4. 6-Trichlorophenol	330 U	
95-95-4	2. 4. 5-Trichlorophenol	1600 U	
91-58-7	2-Chloronaphthalene	330 U	
88-74-4	2-Nitroaniline	1600 U	
131-11-3	Dimethyl Phthalate	330 U	
208-96-8	Acenaphthylene	330 U	
99-09-2	3-Nitroaniline	1600 U	J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330 U	
51-28-5	2. 4-Dinitrophenol	1600 U	J
100-02-7	4-Nitrophenol	1600 U	J
132-64-9	Dibenzofuran	330 U	
121-14-2	2 4-Dinitrotoluene	330 U	
606-20-2	2. 6-Dinitrotoluene	330 U	
84-66-2	Diethylphthalate	~~270~~ J	330 U
7005-72-3	4-Chlorophenyl-phenylether	330 U	
86-73-7	Fluorene	330 U	
100-01-6	4-Nitroaniline	1600 U	
534-52-1	4. 6-Dinitro-2-Methylphenol	1600 U	
86-30-6	N-Nitrosodiphenylamine (1)	330 U	
101-55-3	4-Bromophenyl-phenylether	330 U	
118-74-1	Hexachlorobenzene	330 U	J
87-86-5	Pentachlorophenol	1600 U	
85-01-8	Phenanthrene	330 U	
120-12-7	Anthracene	330 U	
84-74-2	Di-n-Butylphthalate	180 J	
206-44-0	Fluoranthene	330 U	
129-00-0	Pyrene	330 U	J
85-68-7	Butylbenzylphthalate	330 U	
91-94-1	3. 3'-Dichlorobenzidine	660 U	J
56-55-3	Benzo(a)Anthracene	330 U	
117-81-7	bis(2-Ethylhexyl)Phthalate	~~220~~ J	330 U
218-01-9	Chrysene	330 U	
117-84-0	Di-n-Octyl Phthalate	330 U	
205-99-2	Benzo(b)Fluoranthene	330 U	
207-08-9	Benzo(k)Fluoranthene	330 U	J
50-32-8	Benzo(a)Pyrene	330 U	
193-39-5	Indeno(1 2. 3-cd)Pyrene	330 U	
53-70-3	Dibenz(a h)Anthracene	330 U	
191-24-2	Benzo(g h i)Perylene	330 U	

(1)-Cannot be separated from diphenylamine

May 93

Laboratory Name Ecology and Environment, Inc.
Case No 11-4835, 4863, 4928, 4971

Sample Number
DC-G4-36

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-1-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 5
Percent Moisture (decanted) 20

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	50 U
319-85-7	Beta-BHC	50 U
319-86-8	Delta-BHC	50 U
58-89-9	Gamma-BHC (Lindane)	50 U
76-44-8	Heptachlor	50 U
309-00-2	Aldrin	50 U
1024-57-3	Heptachlor Epoxide	50 U
959-98-8	Endosulfan I	50 U
60-57-1	Dieldrin	100 U
72-55-9	4, 4'-DDE	100 U
72-20-8	Endrin	100 U
33213-65-9	Endosulfan II	100 U
72-54-8	4, 4'-DDD	100 U
1031-07-8	Endosulfan Sulfate	100 U
50-29-3	4 4'-DDT	100 U
72-43-5	Methoxychlor	500 U
53494-70-5	Endrin Ketone	100 U
57-74-9	Chlordane	500 U
8001-35-2	Toxaphene	1000 U
12674-11-2	Aroclor-1016	500 U
11104-28-2	Aroclor-1221	500 U
11141-16-5	Aroclor-1232	500 U
53469-21-9	Aroclor-1242	500 U
12672-29-6	Aroclor-1248	500 U
11097-69-1	Aroclor-1254	230 J
11096-82-5	Aroclor-1260	1000 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4

Laboratory Name: ECOLOGY & ENVIRONMENT INC.

Case No: 11-4835, 4863, 4928, 4971

Sample Number
DC-G4-36

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 95943	1,2,4,5-Tetrachlorobenzene	BNA	17.14	1400 J
2. 608935	Pentachlorobenzene	|	19.46	770 J
3.	Unknown	|	25.13	920 J
4. 10544500	Molecular Sulfur	|	26.41	9800 J
5.	Unknown	—	34.50	1700 J
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16

Laboratory Name: Ecology & Environment Inc.
Case No: U-4835, 4863, 4928, 4971

Sample Number
DC-IB-44

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-2-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 2
Percent Moisture (Decanted) 22

GPC Cleanup ☐Yes ☒No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or (ug/Kg) (Circle One)	
108-95-2	Phenol	330	U
111-44-4	bis(-2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1. 3-Dichlorobenzene	330	U
106-46-7	1. 4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1. 2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
39638-32-9	bis(2-chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2. 4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U J
111-91-1	bis(-2-Chloroethoxy)Methane	330	U
120-83-2	2. 4-Dichlorophenol	330	U
120-82-1	1. 2. 4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U J
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2. 4. 6-Trichlorophenol	330	U
95-95-4	2. 4. 5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U J
131-11-3	Dimethyl Phthalate	330	U
-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U J

CAS Number		ug/l or (ug/Kg) (Circle One)	
83-32-9	Acenaphthene	330	U
51-28-5	2. 4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U J
132-64-9	Dibenzofuran	330	U
121-14-2	2 4-Dinitrotoluene	330	U
606-20-2	2. 6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4. 6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	42	J
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	52	J
85-68-7	Butylbenzylphthalate	330	U J
91-94-1	3. 3'-Dichlorobenzidine	660	U J
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	460	U
218-01-9	Chrysene	67	J
117-84-0	Di-n-Octyl Phthalate	41	J
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	87	J
50-32-8	Benzo(a)Pyrene	47	J
193-39-5	Indeno(1 2. 3-cd)Pyrene	330	U
53-70-3	Dibenzo(a h)Anthracene	330	U
191-24-2	Benzo(g h. i)Perylene	330	U

(1)-Cannot be separated from diphenylamine

Laboratory Name Ecology and Environment, Inc.
Case No 11-4835, 4863, 4928, 4971

Sample Number
DC-IB-44

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 4-2-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 1
Percent Moisture (decanted) 22

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	10	u
319-85-7	Beta-BHC	10	u
319-86-8	Delta-BHC	10	u
58-89-9	Gamma-BHC (Lindane)	70	u
76-44-8	Heptachlor	10	u
309-00-2	Aldrin	10	u
1024-57-3	Heptachlor Epoxide	10	u
959-98-8	Endosulfan I	10	u
60-57-1	Dieldrin	21	u
72-55-9	4, 4'-DDE	21	u
72-20-8	Endrin	21	u
33213-65-9	Endosulfan II	21	u
72-54-8	4, 4'-DDD	21	u
1031-07-8	Endosulfan Sulfate	21	u
50-29-3	4 4'-DDT	21	u
72-43-5	Methoxychlor	100	u
53494-70-5	Endrin Ketone	21	u
57-74-9	Chlordane	100	u
8001-35-2	Toxaphene	200	u
12674-11-2	Aroclor-1016	100	u
11104-28-2	Aroclor-1221	100	u
11141-16-5	Aroclor-1232	100	u
53469-21-9	Aroclor-1242	100	u
12672-29-6	Aroclor-1248	100	u
11097-69-1	Aroclor-1254	200	u
11096-82-5	Aroclor-1260	200	u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4 ~~8~~

Laboratory Name: Ecology & Environment Inc.
Case No: 11-4835, 4863, 4928, 4971

Sample Number: DC-IB-44

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Unknown Aliphatic Hydrocarbon	BNA	35.39	480 J
2.	Unknown Aliphatic Hydrocarbon		37.08	460 J
3.	Unknown		39.85	330 J
4.	Unknown		40.50	1100 J
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Laboratory Name: ECOLOGY & ENVIRONMENT INC.

Case No: 4-4835, 4863, 4928, 4971

Sample Number: DC-I7-45

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 4-2-87

Date Analyzed: 5-7-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) 23

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	330	U
111-44-4	bis(-2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1, 3-Dichlorobenzene	330	U
106-46-7	1, 4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1, 2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
39638-32-9	bis(2-chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2, 4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U J
111-91-1	bis(-2-Chloroethoxy)Methane	330	U
120-83-2	2, 4-Dichlorophenol	330	U
120-82-1	1, 2, 4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U J
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2, 4, 6-Trichlorophenol	330	U
95-95-4	2, 4, 5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U J
131-11-3	Dimethyl Phthalate	330	U
-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330	U
51-28-5	2, 4-Dinitrophenol	1600	U
100-02-7	4-Nitrophenol	1600	U J
132-64-9	Dibenzofuran	330	U
121-14-2	2 4-Dinitrotoluene	330	U
606-20-2	2, 6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U
534-52-1	4, 6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U J
85-68-7	Butylbenzylphthalate	330	U J
91-94-1	3, 3'-Dichlorobenzidine	660	U J
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	580	U
218-01-9	Chrysene	330	U
117-84-0	Di-n-Octyl Phthalate	48	J
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U J
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	330	U
53-70-3	Dibenz(a, h)Anthracene	330	U
191-24-2	Benzo(g, h, i)Perylene	330	U

(1)-Cannot be separated from diphenylamine

May 93

Form I 20

7/85

Laboratory Name Ecology and Environment, Inc.
Case No 4-4835, 4863, 4928, 4971

Sample Number
DC-I7-45

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-2-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 5
Percent Moisture (decanted) 23

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or (ug/Kg) (Circle One)
319-84-6	Alpha-BHC	52 u
319-85-7	Beta-BHC	52 u
319-86-8	Delta-BHC	52 u
58-89-9	Gamma-BHC (Lindane)	52 u
76-44-8	Heptachlor	52 u
309-00-2	Aldrin	52 u
1024-57-3	Heptachlor Epoxide	52 u
959-98-8	Endosulfan I	52 u
60-57-1	Dieldrin	100 u
72-55-9	4,4'-DDE	100 u
72-20-8	Endrin	100 u
33213-65-9	Endosulfan II	100 u
72-54-8	4,4'-DDD	100 u
1031-07-8	Endosulfan Sulfate	100 u
50-29-3	4,4'-DDT	100 u
72-43-5	Methoxychlor	520 u
53494-70-5	Endrin Ketone	100 u
57-74-9	Chlordane	520 u
8001-35-2	Toxaphene	1040 u
12674-11-2	Aroclor-1016	520 u
11104-28-2	Aroclor-1221	520 u
11141-16-5	Aroclor-1232	520 u
53469-21-9	Aroclor-1242	520 u
12672-29-6	Aroclor-1248	520 u
11097-69-1	Aroclor-1254	1600
11096-82-5	Aroclor-1260	1000 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4

21

Laboratory Name: Ecology & Environment Inc.

Case No: 4-4835, 4863, 4928, 4971

Sample Number: DC-I7-45

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1. 10544500	Molecular Sulfur	BNA	26.17	3500 J
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Laboratory Name ECOLOGY & ENVIRONMENT INC.

Case No 11-4835, 4863, 4928, 4971

Sample Number DC-I7-46

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared 4-2-87

Date Analyzed 5-7-87

Conc./Dil Factor 2

Percent Moisture (Decanted) 20

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or (ug/Kg) (Circle One)		
108-95-2	Phenol	330	U	
111-44-4	bis(2-Chloroethyl)Ether	330	U	
95-57-8	2-Chlorophenol	330	U	
541-73-1	1,3-Dichlorobenzene	330	U	
106-46-7	1,4-Dichlorobenzene	330	U	
100-51-6	Benzyl Alcohol	330	U	
95-50-1	1,2-Dichlorobenzene	330	U	
95-48-7	2-Methylphenol	330	U	
39638-32-9	bis(2-chloroisopropyl)Ether	330	U	
106-44-5	4-Methylphenol	330	U	
621-64-7	N-Nitroso-Di-n-Propylamine	330	U	
67-72-1	Hexachloroethane	330	U	
98-95-3	Nitrobenzene	330	U	
78-59-1	Isophorone	330	U	
88-75-5	2-Nitrophenol	330	U	
105-67-9	2,4-Dimethylphenol	330	U	
65-85-0	Benzoic Acid	1600	U	J
111-91-1	bis(2-Chloroethoxy)Methane	330	U	
120-83-2	2,4-Dichlorophenol	330	U	
120-82-1	1,2,4-Trichlorobenzene	330	U	
91-20-3	Naphthalene	330	U	
106-47-8	4-Chloroaniline	330	U	J
87-68-3	Hexachlorobutadiene	330	U	
59-50-7	4-Chloro-3-Methylphenol	330	U	
91-57-6	2-Methylnaphthalene	330	U	
77-47-4	Hexachlorocyclopentadiene	330	U	
88-06-2	2,4,6-Trichlorophenol	330	U	
95-95-4	2,4,5-Trichlorophenol	1600	U	
91-58-7	2-Chloronaphthalene	330	U	
88-74-4	2-Nitroaniline	1600	U	J
[illegible]-11-3	Dimethyl Phthalate	330	U	
[illegible]-96-8	Acenaphthylene	330	U	
99-09-2	3-Nitroaniline	1600	U	J

CAS Number		ug/l or (ug/Kg) (Circle One)		
83-32-9	Acenaphthene	330	U	
51-28-5	2,4-Dinitrophenol	1600	U	
100-02-7	4-Nitrophenol	1600	U	J
132-64-9	Dibenzofuran	330	U	
121-14-2	2,4-Dinitrotoluene	330	U	
606-20-2	2,6-Dinitrotoluene	330	U	
84-66-2	Diethylphthalate	330	U	
7005-72-3	4-Chlorophenyl-phenylether	330	U	
86-73-7	Fluorene	330	U	
100-01-6	4-Nitroaniline	1600	U	
534-52-1	4,6-Dinitro-2-Methylphenol	1600	U	
86-30-6	N-Nitrosodiphenylamine (1)	330	U	
101-55-3	4-Bromophenyl-phenylether	330	U	
118-74-1	Hexachlorobenzene	330	U	
87-86-5	Pentachlorophenol	1600	U	
85-01-8	Phenanthrene	330	U	
120-12-7	Anthracene	330	U	
84-74-2	Di-n-Butylphthalate	330	U	
206-44-0	Fluoranthene	330	U	
129-00-0	Pyrene	330	U	J
85-68-7	Butylbenzylphthalate	330	U	J
91-94-1	3,3'-Dichlorobenzidine	1660	U	J
56-55-3	Benzo(a)Anthracene	330	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	490	U	—
218-01-9	Chrysene	330	U	
117-84-0	Di-n-Octyl Phthalate	330	U	
205-99-2	Benzo(b)Fluoranthene	330	U	
207-08-9	Benzo(k)Fluoranthene	330	U	J
50-32-8	Benzo(a)Pyrene	330	U	
193-39-5	Indeno(1,2,3-cd)Pyrene	330	U	
53-70-3	Dibenz(a,h)Anthracene	330	U	
191-24-2	Benzo(g,h,i)Perylene	330	U	

(1) Cannot be separated from diphenylamine

Form I 23

~~100~~ May 93

Laboratory Name Ecology and Environment, Inc.
Case No 11-4835, 4863, 4928, 4971

Sample Number
DC-I7-46

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-2-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 2
Percent Moisture (decanted) 20

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	20 u
319-85-7	Beta-BHC	20 u
319-86-8	Delta-BHC	20 u
58-89-9	Gamma-BHC (Lindane)	20 u
76-44-8	Heptachlor	20 u
309-00-2	Aldrin	20 u
1024-57-3	Heptachlor Epoxide	20 u
959-98-8	Endosulfan I	20 u
60-57-1	Dieldrin	40 u
72-55-9	4, 4'-DDE	40 u
72-20-8	Endrin	40 u
33213-65-9	Endosulfan II	40 u
72-54-8	4, 4'-DDD	40 u
1031-07-8	Endosulfan Sulfate	40 u
50-29-3	4 4'-DDT	40 u
72-43-5	Methoxychlor	200 u
53494-70-5	Endrin Ketone	40 u
57-74-9	Chlordane	200 u
8001-35-2	Toxaphene	400 u
12674-11-2	Aroclor-1016	200 u
11104-28-2	Aroclor-1221	200 u
11141-16-5	Aroclor-1232	200 u
53469-21-9	Aroclor-1242	200 u
12672-29-6	Aroclor-1248	200 u
11097-69-1	Aroclor-1254	400 u
11096-82-5	Aroclor-1260	400 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4 ~~10~~

24

Laboratory Name: Ecology & Environment Inc.

Case No: 11-4835, 4863, 4928, 4971

Sample Number: DC-I7-46

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No Semi-Volatile Compounds Found			
2.				
3.				
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Laboratory Name ECOLOGY & ENVIRONMENT INC.

Case No U-4835, 4863, 4928, 4971

Sample Number DC-I7-47

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 4-2-87

Date Analyzed 5-7-87

Conc./Dil Factor 2

Percent Moisture (Decanted) 21

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	330 U	
111-44-4	bis(-2-Chloroethyl)Ether	330 U	
95-57-8	2-Chlorophenol	330 U	
541-73-1	1 3-Dichlorobenzene	330 U	
106-46-7	1 4-Dichlorobenzene	330 U	
100-51-6	Benzyl Alcohol	330 U	
95-50-1	1 2-Dichlorobenzene	330 U	
95-48-7	2-Methylphenol	330 U	
39638-32-9	bis(2-chloroisopropyl)Ether	330 U	
106-44-5	4-Methylphenol	330 U	
621-64-7	N-Nitroso-Di-n-Propylamine	330 U	
67-72-1	Hexachloroethane	330 U	
98-95-3	Nitrobenzene	330 U	
78-59-1	Isophorone	330 U	
88-75-5	2-Nitrophenol	330 U	
105-67-9	2 4-Dimethylphenol	330 U	
65-85-0	Benzoic Acid	1600 U	J
111-91-1	bis(2-Chloroethoxy)Methane	330 U	
120-83-2	2 4-Dichlorophenol	330 U	
120-82-1	1 2 4-Trichlorobenzene	330 U	
91-20-3	Naphthalene	330 U	
106-47-8	4-Chloroaniline	330 U	J
87-68-3	Hexachlorobutadiene	330 U	
59-50-7	4-Chloro-3-Methylphenol	330 U	
91-57-6	2-Methylnaphthalene	330 U	
77-47-4	Hexachlorocyclopentadiene	330 U	
88-06-2	2 4 6-Trichlorophenol	330 U	
95-95-4	2 4 5-Trichlorophenol	1600 U	
91-58-7	2-Chloronaphthalene	330 U	
88-74-4	2-Nitroaniline	1600 U	J
1[illegible]-11-3	Dimethyl Phthalate	330 U	
[illegible]96-8	Acenaphthylene	330 U	
99-09-2	3-Nitroaniline	1600 U	J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330 U	
51-28-5	2 4-Dinitrophenol	1600 U	
100-02-7	4-Nitrophenol	1600 U	J
132-64-9	Dibenzofuran	330 U	
121-14-2	2 4 Dinitrotoluene	330 U	
606-20-2	2 6-Dinitrotoluene	330 U	
84-66-2	Diethylphthalate	330 U	
7005-72-3	4-Chlorophenyl-phenylether	330 U	
86-73-7	Fluorene	330 U	
100-01-6	4-Nitroaniline	1600 U	
534-52-1	4 6-Dinitro-2-Methylphenol	1600 U	
86-30-6	N-Nitrosodiphenylamine (1)	330 U	
101-55-3	4-Bromophenyl-phenylether	330 U	
118-74-1	Hexachlorobenzene	330 U	
87-86-5	Pentachlorophenol	1600 U	
85-01-8	Phenanthrene	330 U	
120-12-7	Anthracene	330 U	
84-74-2	Di-n-Butylphthalate	330 U	
206-44-0	Fluoranthene	330 U	
129-00-0	Pyrene	330 U	J
85-68-7	Butylbenzylphthalate	330 U	J
91-94-1	3 3-Dichlorobenzidine	660 U	J
56-55-3	Benzo(a)Anthracene	330 U	
117-81-7	bis(2-Ethylhexyl)Phthalate	340 U	
218-01-9	Chrysene	330 U	
117-84-0	Di-n-Octyl Phthalate	330 U	
205-99-2	Benzo(b)Fluoranthene	330 U	
207-08-9	Benzo(k)Fluoranthene	330 U	J
50-32-8	Benzo(a)Pyrene	330 U	
193-39-5	Indeno(1 2 3-cd)Pyrene	330 U	
53-70-3	Dibenz(a h)Anthracene	330 U	
191-24-2	Benzo(g h i)Perylene	330 U	

(1)-Cannot be separated from diphenylamine

Form I 26

~~108~~ May 93 7 85

Laboratory Name Ecology and Environment, Inc.
Case No U-4835, 4863, 4928, 4971

Sample Number
DC-I7-47

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)
Date Extracted/Prepared: 4-2-87
Date Analyzed: 5-7-87
Conc/Dil Factor: 1
Percent Moisture (decanted) 21

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	10 U
319-85-7	Beta-BHC	20 U
319-86-8	Delta-BHC	10 U
58-89-9	Gamma-BHC (Lindane)	10 U
76-44-8	Heptachlor	10 U
309-00-2	Aldrin	10 U
1024-57-3	Heptachlor Epoxide	10 U
959-98-8	Endosulfan I	10 U
60-57-1	Dieldrin	20 U
72-55-9	4,4'-DDE	20 U
72-20-8	Endrin	20 U
33213-65-9	Endosulfan II	20 U
72-54-8	4,4'-DDD	20 U
1031-07-8	Endosulfan Sulfate	20 U
50-29-3	4,4'-DDT	20 U
72-43-5	Methoxychlor	100 U
53494-70-5	Endrin Ketone	20 U
57-74-9	Chlordane	100 U
8001-35-2	Toxaphene	200 U
12674-11-2	Aroclor-1016	100 U
11104-28-2	Aroclor-1221	100 U
11141-16-5	Aroclor-1232	100 U
53469-21-9	Aroclor-1242	100 U
12672-29-6	Aroclor-1248	100 U
11097-69-1	Aroclor-1254	200 U
11096-82-5	Aroclor-1260	200 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4

Laboratory Name: Ecology & Environment Inc.
Case No: H-4835, 4863, 4928, 4971

Sample Number
DC-I7-47

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No Semi-Volatile Compounds			
2.				
3.				
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Laboratory Name: Ecology & Environment Inc.

Case No: 4-4835, 4863, 4928, 4971

Sample Number: DC-03-61

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 4-9-87

Date Analyzed: 5-18-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) 16

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	360	
111-44-4	bis(-2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1, 3-Dichlorobenzene	330	U
106-46-7	1, 4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1, 2-Dichlorobenzene	48	J
95-48-7	2-Methylphenol	330	U
39638-32-9	bis(2-chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2, 4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	1600	U J
111-91-1	bis(-2-Chloroethoxy)Methane	330	U
120-83-2	2, 4-Dichlorophenol	330	U
120-82-1	1, 2, 4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2, 4, 6-Trichlorophenol	330	U
95-95-4	2, 4, 5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
3-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330	U
51-28-5	2, 4-Dinitrophenol	1600	U J
100-02-7	4-Nitrophenol	1600	U J
132-64-9	Dibenzofuran	330	U
121-14-2	2, 4-Dinitrotoluene	330	U
606-20-2	2, 6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U J
534-52-1	4, 6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	27000	
85-01-8	Phenanthrene	330	U
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3, 3'-Dichlorobenzidine	660	U J
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	200	~~J~~ 330 U
218-01-9	Chrysene	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1, 2, 3-cd)Pyrene	330	U
53-70-3	Dibenzo(a, h)Anthracene	330	U
191-24-2	Benzo(g, h, i)Perylene	330	U

(1)-Cannot be separated from diphenylamine

HG

~~TG~~ 21 May 93

Laboratory Name Ecology and Environment, Inc.

Case No U-4835, 4863, 4928, 4971

Sample Number DC-03-61

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 4-9-87

Date Analyzed: 5-11-87

Conc/Dil Factor: 50

Percent Moisture (decanted) 16 -

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or (ug/Kg) (Circle One)
319-84-6	Alpha-BHC	400 U
319-85-7	Beta-BHC	400 U
319-86-8	Delta-BHC	400 U
58-89-9	Gamma-BHC (Lindane)	400 U
76-44-8	Heptachlor	400 U
309-00-2	Aldrin	400 U
1024-57-3	Heptachlor Epoxide	400 U
959-98-8	Endosulfan I	400 U
60-57-1	Dieldrin	800 U
72-55-9	4,4'-DDE	800 U
72-20-8	Endrin	800 U
33213-65-9	Endosulfan II	800 U
72-54-8	4,4'-DDD	800 U
1031-07-8	Endosulfan Sulfate	800 U
50-29-3	4,4'-DDT	800 U
72-43-5	Methoxychlor	4000 U
53494-70-5	Endrin Ketone	800 U
57-74-9	Chlordane	4000 U
8001-35-2	Toxaphene	8000 U
12674-11-2	Aroclor-1016	4000 U
11104-28-2	Aroclor-1221	4000 U
11141-16-5	Aroclor-1232	4000 U
53469-21-9	Aroclor-1242	4000 U
12672-29-6	Aroclor-1248	4000 U
11097-69-1	Aroclor-1254	8000 U
11096-82-5	Aroclor-1260	8000 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 4 ~~1.7~~

30

Laboratory Name: Ecology & Environment Inc.
Case No: 11-4835, 4863, 4928, 4971

Sample Number
DC-03-61

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Chloronitrobenzene Isomer	BNA	13.69	710 J
2.	Chloronitrobenzene Isomer		13.85	800 J
3.	Tetrachlorophenol Isomer		19.10	450 J
4. 10544500	Molecular Sulfur		25.49	3000 J
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Laboratory Name: ECOLOGY & ENVIRONMENT INC.

Case No: U-4835, 4863, 4928, 4971

Sample Number: DC-GB-68

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 4-9-87

Date Analyzed: 5-18-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) 21

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☐Yes

Continuous Liquid - Liquid Extraction ☐Yes

CONCENTRATIONS REPORTED "AS RECEIVED"

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	330	U
111-44-4	bis(-2-Chloroethyl)Ether	330	U
95-57-8	2-Chlorophenol	330	U
541-73-1	1, 3-Dichlorobenzene	330	U
106-46-7	1, 4-Dichlorobenzene	330	U
100-51-6	Benzyl Alcohol	330	U
95-50-1	1, 2-Dichlorobenzene	330	U
95-48-7	2-Methylphenol	330	U
39638-32-9	bis(2-chloroisopropyl)Ether	330	U
106-44-5	4-Methylphenol	330	U
621-64-7	N-Nitroso-Di-n-Propylamine	330	U
67-72-1	Hexachloroethane	330	U
98-95-3	Nitrobenzene	330	U
78-59-1	Isophorone	330	U
88-75-5	2-Nitrophenol	330	U
105-67-9	2, 4-Dimethylphenol	330	U
65-85-0	Benzoic Acid	660	U J
111-91-1	bis(-2-Chloroethoxy)Methane	330	U
120-83-2	2, 4-Dichlorophenol	330	U
120-82-1	1, 2, 4-Trichlorobenzene	330	U
91-20-3	Naphthalene	330	U
106-47-8	4-Chloroaniline	330	U
87-68-3	Hexachlorobutadiene	330	U
59-50-7	4-Chloro-3-Methylphenol	330	U
91-57-6	2-Methylnaphthalene	330	U
77-47-4	Hexachlorocyclopentadiene	330	U
88-06-2	2, 4, 6-Trichlorophenol	330	U
95-95-4	2, 4, 5-Trichlorophenol	1600	U
91-58-7	2-Chloronaphthalene	330	U
88-74-4	2-Nitroaniline	1600	U
131-11-3	Dimethyl Phthalate	330	U
3-96-8	Acenaphthylene	330	U
99-09-2	3-Nitroaniline	1600	U J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	330	U
51-28-5	2, 4-Dinitrophenol	1600	U J
100-02-7	4-Nitrophenol	1600	U J
132-64-9	Dibenzofuran	330	U
121-14-2	2 4-Dinitrotoluene	330	U
606-20-2	2, 6-Dinitrotoluene	330	U
84-66-2	Diethylphthalate	330	U
7005-72-3	4-Chlorophenyl-phenylether	330	U
86-73-7	Fluorene	330	U
100-01-6	4-Nitroaniline	1600	U J
534-52-1	4, 6-Dinitro-2-Methylphenol	1600	U
86-30-6	N-Nitrosodiphenylamine (1)	330	U
101-55-3	4-Bromophenyl-phenylether	330	U
118-74-1	Hexachlorobenzene	330	U
87-86-5	Pentachlorophenol	1600	U
85-01-8	Phenanthrene	59	J
120-12-7	Anthracene	330	U
84-74-2	Di-n-Butylphthalate	330	U
206-44-0	Fluoranthene	330	U
129-00-0	Pyrene	330	U
85-68-7	Butylbenzylphthalate	330	U
91-94-1	3, 3'-Dichlorobenzidine	660	U J
56-55-3	Benzo(a)Anthracene	330	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~160~~	~~J~~ 330 U
218-01-9	Chrysene	330	U
117-84-0	Di-n-Octyl Phthalate	330	U
205-99-2	Benzo(b)Fluoranthene	330	U
207-08-9	Benzo(k)Fluoranthene	330	U
50-32-8	Benzo(a)Pyrene	330	U
193-39-5	Indeno(1 2, 3-cd)Pyrene	330	U
53-70-3	Dibenz(a h)Anthracene	330	U
191-24-2	Benzo(g, h, i)Perylene	330	U

(1)-Cannot be separated from diphenylamine

Form I 32

7 85

JW HB ~~JRG~~ Mg 9/13

Laboratory Name Ecology and Environment, Inc.
Case No 11-4835, 4863, 4928, 4971

Sample Number
DC-GB-68

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 4-9-87
Date Analyzed: 5/2-87
Conc/Dil Factor: 2
Percent Moisture (decanted) - 21

GPC Cleanup ☐Yes ☑No
Separatory Funnel Extraction ☐Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or (ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	16	u
319-85-7	Beta-BHC	16	u
319-86-8	Delta-BHC	16	u
58-89-9	Gamma-BHC (Lindane)	16	u
76-44-8	Heptachlor	16	u
309-00-2	Aldrin	16	u
1024-57-3	Heptachlor Epoxide	16	u
959-98-8	Endosulfan I	16	u
60-57-1	Dieldrin	32	u
72-55-9	4,4'-DDE	32	u
72-20-8	Endrin	32	u
33213-65-9	Endosulfan II	32	u
72-54-8	4,4'-DDD	32	u
1031-07-8	Endosulfan Sulfate	32	u
50-29-3	4,4'-DDT	32	u
72-43-5	Methoxychlor	160	u
53494-70-5	Endrin Ketone	32	u
57-74-9	Chlordane	160	u
8001-35-2	Toxaphene	320	u
12674-11-2	Aroclor-1016	160	u
11104-28-2	Aroclor-1221	160	u
11141-16-5	Aroclor-1232	160	u
53469-21-9	Aroclor-1242	160	u
12672-29-6	Aroclor-1248	160	u
11097-69-1	Aroclor-1254	320	u
11096-82-5	Aroclor-1260	320	u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s _____ or W_s 30 V_t 1000 V_i 1 ~~1.0~~

33

Laboratory Name: Ecology & Environment Inc.

Case No: U-4835, 4863, 4928, 4971

Sample Number: DC-GB-68

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Unknown Aliphatic Hydrocarbon	BNA	34.73	1100 J
2.	Unknown Aliphatic Hydrocarbon	BNA	36.44	1200 J
3.				
4.				
5.				
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30.				

~~138~~

34

DRAFT

SEDIMENT

DIOXIN
RESULTS
(NEGATIVE)

APPENDIX A

DATA VALIDATION REPORT
AND **ANALYSIS RESULTS**

CASE 3060-00335

ORGANIC **DATA VALIDATION REPORT**

1.0 INTRODUCTION

page 1 only

Site:	Sauget Landfill
Laboratory:	Envirodyne Engineers, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	3060-00335
Sample Numbers:	DC-SD-1 through DC-SD-10
Analysis:	2,3,7,8-Tetrachlorodibenzo-p-dioxin
Collection Date:	5 November 1986

These 10 sediment samples were analyzed for 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) by a gas chromatography/mass spectroscopy method referred to as "WA84-A002" of "IFB September 15, 1983." This method is substantially the same as Method 8280, except the latter analyzes for all isomers of polychlorinated dioxins and furans with 2,3,7,8-substitution, instead of the single chemical. The data were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis" (February 1988), with necessary modifications (such as only one calibration compound) to fit the assay method as reported.

2.0 DATA REVIEW REQUIREMENTS

This section discusses the various data review requirements.

2.1 HOLDING TIMES

All holding time requirements were met.

2.2 INSTRUMENT PERFORMANCE

Instrument performance was satisfactory. Each batch of samples included a column performance sample. The required resolution is no more than 25 percent overlap, and the worst run had 19 percent; most were less than 10 percent.

2.3 CALIBRATION

Initial and routine calibrations were satisfactory.

2.4 BLANKS

A blank was included with each batch of samples. None contained any TCDD.

2.5 SURROGATES

Results on the surrogates in each sample were satisfactory.

2.6 MATRIX SPIKES

The matrix spike result was satisfactory.

2.7 DUPLICATES

There was no field duplicate. The laboratory duplicate results were the same: no TCDD detected.

2.8 INTERNAL STANDARD

Internal standards were neither required nor used.

2.9 COMPOUND IDENTIFICATION

TCDD was identified using a gas chromatography window and certain mass ratios. Results were satisfactory in all samples containing TCDD, the laboratory standards and spike.

2.10 COMPOUND QUANTIFICATION

Compound quantification was satisfactory. This method involves using the actual sample signal/noise ratio to calculate the sample detection limit. Samples DC-SD-1 through DC-SD-6 had enough noise that they missed the detection limit target of 1 microgram/kilogram (μg/kg). Therefore, the laboratory reextracted and reassayed those samples to produce lower limits. Although this reextraction was after the usual holding period, the delay does not affect the data. Although these samples were cleaned by a more rigorous method, two of them (DC-SD-4 and DC-SD-6) still had enough noise to produce detection limits of about 1.5 μg/kg. However, the practical quantitation limit in Method 8280 is 2 μg/kg, so these results are considered satisfactory.

2.11 SYSTEMS PERFORMANCE

The analytical systems performed consistently.

3.0 OVERALL EVALUATION

These analyses produced results equivalent to Data Quality Level V. No TCDD was detected in any samples, at the detection limits given in the Appendix A.

ENVIRODYNE ENGINEERS

12161 Lackland Road,
St. Louis, Missouri 63146
(314) 434-6960

REPORT OF ANALYSIS

CLIENT: Mary Ann Spidalette
Ecology & Environment
111 W. Jackson Blvd.
Chicago, IL 60604

REPORT DATE: November 24, 1986
SAMPLE ANALYZED: 10 Soil Samples for Dioxin Analysis

DATE RECEIVED: November 5, 1986
PROJ. #: 3060-00335
P.O. #: 24483-5C

SAMPLE	ANALYSIS	RESULT
DC-SD-1	2,3,7,8-TCDD(ng/gm)	< 1.00
DC-SD-2	2,3,7,8-TCDD(ng/gm)	< 0.56
DC-SD-3	2,3,7,8-TCDD(ng/gm)	< 0.72
DC-SD-4	2,3,7,8-TCDD(ng/gm)	< 1.55
DC-SD-5	2,3,7,8-TCDD(ng/gm)	< 0.93
DC-SD-6	2,3,7,8-TCDD(ng/gm)	< 1.50
DC-SD-7	2,3,7,8-TCDD(ng/gm)	< 0.34
DC-SD-8	2,3,7,8-TCDD(ng/gm)	<0.092
DC-SD-9	2,3,7,8-TCDD	< 0.017
DC-SD-10	2,3,7,8-TCDD	< 0.11

See reverse side for "STANDARD CLAUSES".

APPROVED:

SURF H_2O

ORG + INORG

APPENDIX A

DATA VALIDATION REPORT AND **CORRECTED FORMS I**

CASE U-4431/U-4441

ORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

page 7

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-4431/U-4441
Sample Numbers:	DC-SW-1 through DC-SW-13
Analyses:	Volatiles, Semivolatiles, and Pesticides/Polychlorinated Biphenyls
Collection Date:	November 5 and 6, 1986

The data for these 13 water samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis" (February 1988). Data sheets (Form I) with appropriate qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

This section discusses the various data review requirements. Some items are omitted from these data packages. The comments include specific notes on those omissions.

2.1 HOLDING TIMES

All holding time requirements were met.

2.2 INSTRUMENT PERFORMANCE

In the volatile organic analyses (VOA) and semivolatile organic analyses (SVOA), all requirements for gas chromatography/mass spectroscopy (GC/MS) tuning were met.

In the pesticide/polychlorinated biphenyl analyses (P/PCB), all requirements were met except for the final evaluation sample, run just after the last sample. In this run, the total breakdown of endrin and 4,4'-DDT was 25 percent, above the quality control (QC) limit of 20 percent. Since none of the P/PCB targets was found in the samples run since the last successful evaluation mixture, no action is warranted.

2.3 INITIAL AND CONTINUING CALIBRATION

All raw data for the calibration samples were omitted. The following results are derived from the Forms VI and VII only.

2.3.1 Volatile Organic Analyses

In the initial calibration for the VOA, the response factor (RF) for 2-butanone averaged only 0.003, and that for 2-chloroethylvinylether, 0.04. Therefore, all positive results for these chemicals are considered estimates (flagged "J") and all negative results are considered unusable (flagged "R"), as possible false negatives.

During the continuing calibrations, a number of chemicals had an RF for which the percent difference (%D) from the initial calibration exceeded the QC criterion of 25 percent. Results for these chemicals are considered estimates and flagged "J" (if detected) or "UJ" (if not detected). These chemicals are detailed on Table 1.

TABLE 1

VOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATION

Continuing Calibration		Chemical (%D)		Samples Affected
Date	Time			
November 10, 1986	1030	Chloroethane (76.1)	Acetone (35.0)	DC-SW-1, DC-SW-2, DC-SW-3, and DC-SW-4
		2-Butanone (29.2)	Vinyl acetate (41.2)	
		2-Chloroethylvinylether (276)		
November 10, 1986	2202	Bromomethane (38.3)	2-Butanone (29.1)	DC-SW-5, DC-SW-6, DC-SW-7, DC-SW-8, DC-SW-9, and DC-SW-10
		Vinyl acetate (39.1)	2-Chloroethylvinylether (107)	
		Styrene (25.2)		
November 11, 1986	1214	Chloroethane (67.4)	Acetone (42.8)	DC-SW-11, DC-SW-12, and DC-SW-13
		Trichlorofluoromethane (27.8)	Carbon disulfide (31.7)	
		2-Butanone (25.2)	Carbon tetrachloride (30.2)	
		Vinyl acetate (32.5)	cis-1,3-Dichloropropene (25.9)	
		2-Chloroethylvinylether (313)	Chlorobenzene (26.2)	
		Styrene (28.7)		

TABLE 2

SEMIVOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATIONS

Continuing Calibration		Chemical (%D)		Samples Affected
Date	Times[a]			
November 18, 1986	1253/1041	Benzoic acid (25.9)	2,4-Dinitrophenol (34.5)	DC-SW-1, DC-SW-4, DC-SW-5, DC-SW-6, DC-SW-7, DC-SW-8, DC-SW-9, and DC-SW-10
		4-Nitrophenol (39.5)	Pentachlorophenol (28.3)	
		Benzyl alcohol (31.2)	bis-(2-Chloroisopropyl)ether (27.0)	
November 19, 1986	1204/1104	4-Nitrophenol (28.9)	bis(2-Chloroisopropyl)ether (30.4)	DC-SW-2, DC-SW-3, DC-SW-11, DC-SW-12, and DC-SW-13
		N-Nitroso-di-n-propylamine (28.3)		

Note:

[a] The times represent the two standards, acids/phenols and bases/neutrals, used for calibration.

2.3.2 Semivolatile Organic Analyses

All initial calibration results were within QC limits. A number of chemicals exceeded the %D limit in the continuing calibrations, and results for these chemcials were flagged "J" or "UJ." Table 2 lists these chemicals.

2.3.3 Pesticide/Polychlorinated Biphenyl Analyses

The initial and continuing calibrations for the P/PCB analyses were within QC limits. The required analytical sequence was followed.

2.4 BLANKS

A number of common laboratory chemicals and some other chemicals, including nontarget chemicals (tentatively identified compounds [TIC]) were found in the various blanks run during these assays. These include one field blank, designated DC-SW-11. All sample concentrations up to 5 times the maximum blank concentration (10 times for common laboratory contaminants), corrected for dilution, are considered artifacts and flagged "U" for nondetected. These qualifications are detailed in Table 3.

2.5 SURROGATE RECOVERY

Does this need to be explained?

Recovery of surrogates in the VOA was satisfactory. In the SVOA, recoveries for all surrogates in all samples except DC-SW-12 were within QC limits. In that sample, the recoveries for the three base/neutral surrogates ranged from 0 to 6 percent. This is apparently a matrix effect; this sample contains high concentrations of hydrocarbons, mostly TICs, which interfere with recovery of those chemicals which are highly soluble in hydrocarbons. All positive base/neutral results for sample DC-SW-12 are considered estimates (flagged "J") and all nondetects are unusable (flagged "R"), since the target chemical may be present but is masked by the interference from the matrix.

In the P/PCB analyses, some surrogates were diluted out, but the rest were satisfactory.

TABLE 3

BLANK CONTAMINATION

Analysis	Chemical	Concentration (micrograms/liter)		Samples Qualified
		Blank	Action Level	
VOA	Methylene chloride	3	30	All samples
VOA	Acetone	12	120	All samples except DC-SW-2
VOA	Chloroform	25	125	DC-SW-1, DC-SW-12, and DC-SW-13
VOA	Hexene isomer (17.4)[a]	3	15	All samples
VOA	Hexene isomer (21.4)	10	50	All samples
SVOA	Di-n-Butylphthalate	18	180	All samples
SVOA	1,3-Tetradecadiene (27.7)	6	30	All samples
SVOA	Unknown (30.9)	4.7	24	All samples except DC-SW-1, DC-SW-5, DC-SW-9, and DC-SW-12
SVOA	Unknown (35.0)	40	200	All samples except DC-SW-12
P/PCB	None	--	--	None

Notes:

[a] Nontarget compound; number is approximate retention time in minutes.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

All results for the matrix spike/matrix spike duplicate (MS/MSD) samples in the VOA were satisfactory. In the SVOA for the MS/MSD based on the field blank (DC-SW-11), recoveries of 2,4-dinitrotoluene were 110 and 120 percent, above the QC limits of 24 to 96 percent. In the P/PCB MS/MSD, based on sample DC-SW-1, recoveries of 4,4'-DDT were 116 and 128 percent, compared to 38 to 127 percent. Since none of these recoveries are greatly out of their criteria and none of these chemicals was found in the parent samples, no action is warranted.

2.7 FIELD DUPLICATES

There were no field duplicates in these samples.

2.8 INTERNAL STANDARDS

The data package omitted the summary of internal standards on Form VIII. Inspection of the raw data revealed no problems.

2.9 COMPOUND IDENTIFICATION

The VOA and SVOA raw data omitted mass spectra, so identification could not be verified. The raw data show that the analysts were careful to confirm identity. The few detected P/PCB target compounds were properly identified.

2.10 COMPOUND QUANTITATION

Spot checks revealed no problems. The data package omitted the SVOA Form I for sample DC-SW-11. This was recreated from the accompanying raw data.

2.11 SYSTEM PERFORMANCE

There was no evidence of sudden shifts in system performance or similar problems.

3.0 OVERALL ASSESSMENT

On the whole, these analyses produced results equivalent to Data Quality Level IV. The only significant problems were with sample DC-SW-12, which samplers reported had a "high oil content." On analysis, this sample contained a large number of volatile and semivolatile target compounds in low concentration plus many nontarget semivolatile compounds, all hydrocarbons or oxygenated hydrocarbons, in higher concentrations. These nontarget compounds may mask some target chemicals (that is, there may be false negatives). However, there is no evidence of any false positives.

Sample Number
DC-SW-1

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431
Lab Sample ID No. 9641
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: C Wojtowicz
Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-10-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u J
75-09-2	Methylene Chloride	~~5u~~ 6B U
67-64-1	Acetone	~~10u~~ 12B UJ
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	~~5u~~ 27 U
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HVS May 93

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name: Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-1

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylpheno	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2. 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2. 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~B/U 10u~~ 15 B 4
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2 3-cd)Pyrene	10u
53-70-3	Dibenz(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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May 93

Form I

7 85

Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-1

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4 ul

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Laboratory Name ecology and environment, inc.

Case No. u-4431

Sample Number DC-SW-1

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1. -	Hexene isomer	VOA	17.4 min	~~2.7 B~~	U
2. -	Hexane isomer	VOA	21.4 min	~~9.9 B~~	U
3.					
4. 21964498	1,13-TETRADECADIENE	BNA	27.7	~~7.8 B~~	U
5. -	UNKNOWN	BNA	35.1	~~41 B~~	U
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
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HS III May 93

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Sample Number
DC-SW-2

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.

Case No: U-4431

Lab Sample ID No: 9642

QC Report No:

Sample Matrix: Water

Contract No: IL-3140

Data Release Authorized By: C Krajtowicz

Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-10-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u J
75-09-2	Methylene Chloride 5	~~5u~~ ~~38 J~~ u
67-64-1	Acetone	10u J
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

YE May 93

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name: Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-2

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-19-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u J
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2. 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l or ug/Kg) (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2. 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 26B 4
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	~~10u~~ 4 J
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2. 3-cd)Pyrene	10u
53-70-3	Dibenzo(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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HE May 9

Laboratory Name ecology and environment, inc.

Case No DC-SW-2

Sample Number DC-SW-2

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 1 10

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4 µl

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Laboratory Name ecology and environment, inc.

Case No 4-4431

Sample Number
DC-SW-2

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	Hexene isomer	VOA	17.4 min	~~2.8 B~~	4
2.	Hexane isomer	VOA	21.4 min	~~10 B~~	4
3.					
4. 21964498	1,13-TETRADECADIENE	BNA	27.6	~~16 B~~	4
5. –	UNKNOWN	BNA	30.1	~~H~~	4
6. –	UNKNOWN	BNA	35.0	~~96 B~~	4
7.					
8.					
9.					
10.					
11.					
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29.					
30					

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Sample Number
DC-SW-3

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.

Case No: U-4431

Lab Sample ID No: 9643

QC Report No:

Sample Matrix: Water

Contract No: IL-3140

Data Release Authorized By: C Stoytowicz

Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-10-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		(ug/l) or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u J
75-09-2	Methylene Chloride 5	~~5u 3BJ~~ 5u SW 4
67-64-1	Acetone 10	~~10u 7BJ~~ 10u SW WS
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		(ug/l) or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

May 93

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name: Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-3

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-19-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u J
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ cw 25 ~~B~~ U
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	~~10u~~ cw 2J
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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Form I

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Laboratory Name ecology and environment, inc.

Case No V-4431

Sample Number DC-SW-3

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 1 10

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4 µl

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-3

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1. –	Hexene isomer	VOA	17.4 min	~~2.8 B~~	U
2. –	Hexane isomer	VOA	21.4 min	~~10 B~~	U
3.					
4. 21964498	1,13-TETRADECADIENE	BNA	27.6	~~22 B~~	U
5. –	UNKNOWN	BNA	30.9	~~22~~	U
6. –	UNKNOWN	BNA	35.0	~~89 B~~	U
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
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May 93

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Sample Number
DC-SW-4

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431
Lab Sample ID No. 9644
QC Report No:
Sample Matrix: Water
Contract No: IL 3140
Data Release Authorized By: C Sojtowicz
Date Sample Received: 11-6-86

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared:
Date Analyzed: 11-10-86
Conc/Dil Factor: 1 pH –
Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u J
75-09-2	Methylene Chloride	5 ~~5u~~ ~~3BJ~~ 4
67-64-1	Acetone	10 ~~10u~~ ~~4BJ~~ UJ
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name: Ecology & Environment

Case No: U-4431- U-4441

Sample Number: DC-SW-4

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	~~50u~~ 9 J
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 18 J
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2, 3-cd)Pyrene	10u
53-70-3	Dibenzo(a,h)Anthracene	10u
191-24-2	Benzo(g,h,i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Form I

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-4

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 1 10

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	3.6	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4 µl

Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-4

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	Hexene isomer	VOA	17.4 min	~~2.8 B~~	4
2.	Hexane isomer	VOA	21.4 min	~~9.8 B~~	4
3.					
4. 21964498	1,13-TETRADECADIENE	BNA	27.6	~~9.9 B~~	4
5. -	UNKNOWN	BNA	30.9	~~7.7~~	4
6. -	UNKNOWN	BNA	35.0	~~57 B~~	4
7. 96800	2-[BIS(1-METHYLETHYL)AMINO]ETHANOL	BNA	11.1	32	
8.					
9.					HE
10.					May
11.					
12.					93
13.					
14.					
15.					
16.					
17.					
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24.					
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27.					
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29.					
30					

Sample Number
DC-SW-5

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.

Case No: U-4431

Lab Sample ID No. 9645

QC Report No:

Sample Matrix: Water

Contract No: IL-3140

Data Release Authorized By: C Stoytowicz

Date Sample Received: 11-6-86

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-11-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10uJ
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	5 5u ~~3BJ~~ U
67-64-1	Acetone	~~10u~~ 12B UJ
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10uJ
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5uJ
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HE May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-5

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2. 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 15 B
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2. 3-cd)Pyrene	10u
53-70-3	Dibenzo(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-5

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 10

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	0.50	U
319-85-7	Beta-BHC	0.50	U
319-86-8	Delta-BHC	0.50	U
58-89-9	Gamma-BHC (Lindane)	0.50	U
76-44-8	Heptachlor	0.50	U
309-00-2	Aldrin	0.50	U
1024-57-3	Heptachlor Epoxide	0.50	U
959-98-8	Endosulfan I	0.50	U
60-57-1	Dieldrin	1.0	U
72-55-9	4,4'-DDE	1.0	U
72-20-8	Endrin	1.0	U
33213-65-9	Endosulfan II	1.0	U
72-54-8	4,4'-DDD	1.0	U
1031-07-8	Endosulfan Sulfate	1.0	U
50-29-3	4,4'-DDT	1.0	U
72-43-5	Methoxychlor	5.0	U
53494-70-5	Endrin Ketone	1.0	U
57-74-9	Chlordane	5.0	U
8001-35-2	Toxaphene	10	U
12674-11-2	Aroclor-1016	5.0	U
11104-28-2	Aroclor-1221	5.0	U
11141-16-5	Aroclor-1232	5.0	U
53469-21-9	Aroclor-1242	5.0	U
12672-29-6	Aroclor-1248	5.0	U
11097-69-1	Aroclor-1254	34	
11096-82-5	Aroclor-1260	10	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-5

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Hexene isomer	VOA	17.5 min	~~2.9 B~~ U
2.	Hexane isomer	VOA	21.5 min	~~9.7 B~~ U
3.				
4. 21964498	1,13-TETRADECADIENE	BNA	27.6	~~4.3 B~~ U
5. -	UNKNOWN	BNA	35.0	~~48 B~~ U
6.				
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Sample Number
DC-SW-6

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431
Lab Sample ID No. 9646
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: C Stojowicz
Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-11-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride 5	5u ~~3BJ~~ u
67-64-1	Acetone	10u ~~11B~~ u
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

HE
May 93

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-6

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l or ug/Kg) (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2. 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 16B U
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3 -Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2. 3-cd)Pyrene	10u
53-70-3	Dibenz(a h)Anthracene	10u
191-24-2	Benzo(g h. i)Perylene	10u

(1)-Cannot be separated from diphenylamine

HB May 93

Laboratory Name ecology and environment, inc.

Case No V-4431

Sample Number DC-SW-6

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 10

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	0.50	U
319-85-7	Beta-BHC	0.50	U
319-86-8	Delta-BHC	0.50	U
58-89-9	Gamma-BHC (Lindane)	0.50	U
76-44-8	Heptachlor	0.50	U
309-00-2	Aldrin	0.50	U
1024-57-3	Heptachlor Epoxide	0.50	U
959-98-8	Endosulfan I	0.50	U
60-57-1	Dieldrin	1.0	U
72-55-9	4, 4'-DDE	1.0	U
72-20-8	Endrin	1.0	U
33213-65-9	Endosulfan II	1.0	U
72-54-8	4, 4'-DDD	1.0	U
1031-07-8	Endosulfan Sulfate	1.0	U
50-29-3	4, 4'-DDT	1.0	U
72-43-5	Methoxychlor	5.0	U
53494-70-5	Endrin Ketone	1.0	U
57-74-9	Chlordane	5.0	U
8001-35-2	Toxaphene	10	U
12674-11-2	Aroclor-1016	5.0	U
11104-28-2	Aroclor-1221	5.0	U
11141-16-5	Aroclor-1232	5.0	U
53469-21-9	Aroclor-1242	5.0	U
12672-29-6	Aroclor-1248	5.0	U
11097-69-1	Aroclor-1254	44	
11096-82-5	Aroclor-1260	10	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-6

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	Hexene isomer	VOA	17.4 min	~~2.9 B~~	U
2.	Hexane isomer	VOA	21.5 min	~~9.9 B~~	U
3.					
4. 2196449B	1,13-TETRADECADIENE	BNA	27.6	~~9.8 B~~	U
5. -	UNKNOWN	BNA	30.9	~~6.5~~	U
6. -	UNKNOWN	BNA	35.0	~~50 B~~	U
7.					
8.					
9.					
10.					
11.					
12.					
13.					
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30					

HG May 93

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Sample Number
DC-SW-7

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431
Lab Sample ID No. 9647
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: C Stojtowicz
Date Sample Received: 11-6-86

Volatile Compounds

Concentration: Low Medium (Circle One)
Date Extracted/Prepared:
Date Analyzed: 11-11-86
Conc/Dil Factor: 1 pH –
Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	S ~~5u~~ ~~3BJ~~ U
67-64-1	Acetone	~~10u~~ ~~13B~~ U
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

May 93

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-7

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) –

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	~~10u~~ 1 J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 19 ~~8~~ 4
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Form I 34

1 ~~38~~ Mag.

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-7

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86 11-13-86

Conc/Dil Factor: 10 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-7

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	Hexene isomer	VOA	17.5 min	~~2.7 B~~	U
2.	Hexane isomer	VOA	21.5 min	~~9.4 B~~	U
3.					
4. 2M64498	1,13-TETRADECADIENE	BNA	27.7	~~77 B~~	U
5. –	UNKNOWN	BNA	35.0	~~62 B~~	U
6.					
7.					
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HS May 93

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Sample Number
DC-SW-8

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431
Lab Sample ID No: 9648
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: C Stojowicz
Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-11-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	~~5u~~ 6B U
67-64-1	Acetone	~~10u~~ 13B U
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

May 93

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-8

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) –

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-95-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2, 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 19 ~~8~~ 4
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Mcu

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-8

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86 11-13-86

Conc/Dil Factor: 10 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-8

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	Hexene isomer	VOA	17.5 min	~~2.7 B~~	U
2.	Hexane isomer	VOA	21.5 min	~~9.6 B~~	U
3.					
4. 21964498	1,13-TETRADECADIENE	BNA	27.5	~~28 B~~	U
5. -	UNKNOWN	BNA	30.9	~~32~~	U
6. -	UNKNOWN	BNA	35.1	~~76 B~~	U
7.					
8.					
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Sample Number
DC-SW-9

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.

Case No: U-4431

Lab Sample ID No. 9649

QC Report No:

Sample Matrix: Water

Contract No: IL-3140

Data Release Authorized By: [signature]

Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-11-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	~~5u~~ 5B U
67-64-1	Acetone	~~10u~~ 11B U
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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May 93

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-SW-9

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2. 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2. 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 19 B
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1. 2. 3-cd)Pyrene	10u
53-70-3	Dibenzo(a. h)Anthracene	10u
191-24-2	Benzo(g. h. i)Perylene	10u

(1)-Cannot be separated from diphenylamine

May 1

Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-9

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86 11-13-86

Conc/Dil Factor: 10 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4, 4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4, 4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4, 4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

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~~3.95~~

✓

Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-9

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Hexene isomer	VOA	17.5 min	~~2.7~~ B 4
2.	Hexane isomer	VOA	21.5 min	~~9.2~~ B 4
3.				
4. 21964498	1,13-TETRADECADIENE	BNA	27.6	~~15~~ B 4
5. -	UNKNOWN	BNA	35.1	~~64~~ B 4
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Sample Number
DC-SW-10

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431
Lab Sample ID No. 9650
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: [signature]
Date Sample Received: 11-6-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-11-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	~~5u~~ 78 U
67-64-1	Acetone	~~10u~~ 11B U
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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Laboratory Name Ecology & Environment

Case No. U-4431- U-4441

Sample Number
DC-SW-10

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-18-86

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u J
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u J
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2 4 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u
606-20-2	2. 6-Dinitrotoluene	10u
84-66-2	Diethylphthalate	10u
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u J
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate ~~10u~~ 20B	u
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u
56-55-3	Benzo(a)Anthracene	10u
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate ~~10u~~	1J
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2. 3-cd)Pyrene	10u
53-70-3	Dibenz(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Mag 9

Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-10

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86 11-13-86

Conc/Dil Factor: 10 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-4431

Sample Number DC-SW-10

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	Hexene isomer	VOA	17.4 min	~~27~~ B	4
2.	Hexane isomer	VOA	21.4 min	~~9.3~~ B	4
3.					
4. 21964498	1,13-TETRADECADIENE	BNA	27.7	~~7.3~~ B	4
5. -	UNKNOWN	BNA	30.9	~~7.8~~	4
6. +	UNKNOWN	BNA	35.0	~~70~~ B	4
7.					
8.					
9.					
10.					Mag
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48

Sample Number
DC-SW-11

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.

Case No: U-4431 / U4441

Lab Sample ID No. 9680

QC Report No:

Sample Matrix: Water

Contract No: IL-3140

Data Release Authorized By: C Stojtowicz

Date Sample Received: 11-7-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 11-11-86

Conc/Dil Factor: 1 pH –

Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10u	
74-83-9	Bromomethane	10u	
75-01-4	Vinyl Chloride	10u	
75-00-3	Chloroethane	10u J	
75-09-2	Methylene Chloride	~~5u~~ 6B	U
67-64-1	Acetone	~~10u~~ 17B	UJ
75-15-0	Carbon Disulfide	5u	
75-35-4	1, 1-Dichloroethene	5u	
75-34-3	1, 1-Dichloroethane	5u	
156-60-5	Trans-1, 2-Dichloroethene	5u	
67-66-3	Chloroform	~~5u~~ 25	
107-06-2	1, 2-Dichloroethane	5u	
78-93-3	2-Butanone	~~10u~~ R	
71-55-6	1, 1, 1-Trichloroethane	5u	
56-23-5	Carbon Tetrachloride	5u J	
108-05-4	Vinyl Acetate	10u J	
75-27-4	Bromodichloromethane	5u	

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u J
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u J
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

May 9/3

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

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DC-SW-11

Reconstructed Form 1
Semivolatiles

Di-n-Butylphthalate = 16 µg/L ~~B~~ U

All other targets = 10/50 µg/L U

Harry V. Elliott
18 Aug 93

Laboratory Name ecology and environment, inc.

Case No U-4441

Sample Number DC-SW-11

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-4431 / U-4441

Sample Number DC-SW-11

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Hexene isomer	VOA	17.4 min	~~2.7 B~~ 4
2.	Hexane isomer	VOA	21.4 min	~~9.1 B~~ 4
3.				
4. 21964498	1,13-TETRADECADIENE	BNA	27.6	~~8.2 B~~ 4
5. –	UNKNOWN	BNA	30.9	4.7
6. –	UNKNOWN	BNA	35.0	~~49 B~~ 4
7.				
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HVS May 93

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Sample Number
DC-SW-12

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431/U-4441
Lab Sample ID No: 9681
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: C Stojtowicz
Date Sample Received: 11-7-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared:
Date Analyzed: 11-11-86
Conc/Dil Factor: 1 pH –
Percent Moisture: (Not Decanted) –

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u J
75-09-2	Methylene Chloride 5	~~5u~~ ~~40J~~ 4
67-64-1	Acetone	~~10u~~ 20 UJ
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	~~5u~~ 8J
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	~~5u~~ 33
56-23-5	Carbon Tetrachloride	5u J
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	~~5u~~ 6
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	~~5u~~ 1J
10061-01-5	cis-1, 3-Dichloropropene	5u J
110-75-8	2-Chloroethylvinylether	~~10u~~ R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	~~10u~~ 6 J
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	~~5u~~ 2J
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	~~5u~~ 2J

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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boratory Name

se No: U-4431 / U-4441

Sample Number
DC-SW-12

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

ncentration: (Low) Medium (Circle One)

te Extracted/Prepared: 11-10-86

te Analyzed: 11-19-86

nc/Dil Factor: 5 10

rcent Moisture (Decanted) —

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

AS umber		ug/l or ug/Kg (Circle One)		
08-95-2	Phenol	100	U	
11-44-4	bis(2-Chloroethyl)Ether	~~50~~	~~U~~	R
5-57-8	2-Chlorophenol	100	U	
41-73-1	1 3-Dichlorobenzene	~~50~~	~~U~~	R
06-46-7	1. 4-Dichlorobenzene	~~50~~	~~U~~	R
00-51-6	Benzyl Alcohol	~~50~~	~~U~~	R
5-50-1	1. 2-Dichlorobenzene	~~50~~	~~U~~	R
5-48-7	2-Methylphenol	100	U	
9638-32-9	bis(2-chloroisopropyl)Ether	~~50~~	~~U~~	R
06-44-5	4-Methylphenol	100	U	
21-64-7	N-Nitroso-Di-n-Propylamine	~~50~~	~~U~~	R
7-72-1	Hexachloroethane	~~50~~	~~U~~	R
8-95-3	Nitrobenzene	~~50~~	~~U~~	R
8-59-1	Isophorone	~~50~~	~~U~~	R
8-75-5	2-Nitrophenol	100	U	
05-67-9	2. 4-Dimethylphenol	100	U	
5-85-0	Benzoic Acid	500	U	
11-91-1	bis(2-Chloroethoxy)Methane	~~50~~	~~U~~	R
20-83-2	2. 4-Dichlorophenol	100	U	
20-82-1	1. 2. 4-Trichlorobenzene	~~50~~	~~U~~	R
1-20-3	Naphthalene	~~50~~	~~U~~	R
06-47-8	4-Chloroaniline	~~50~~	~~U~~	R
7-68-3	Hexachlorobutadiene	~~50~~	~~U~~	R
9-50-7	4-Chloro-3-Methylphenol	100	U	
1-57-6	2-Methylnaphthalene	3	J	
7-47-4	Hexachlorocyclopentadiene	~~50~~	~~U~~	R
8-06-2	2. 4. 6-Trichlorophenol	100	U	
5-95-4	2. 4. 5-Trichlorophenol	500	U	
1-58-7	2-Chloronaphthalene	~~50~~	~~U~~	R
8-74-4	2-Nitroaniline	~~250~~	~~U~~	R
3 11-3	Dimethyl Phthalate	~~50~~	~~U~~	R
6-6	Acenaphthylene	~~50~~	~~U~~	R
9-09-2	3-Nitroaniline	~~250~~	~~U~~	R

CAS Number		ug/l or ug/Kg (Circle One)		
83-32-9	Acenaphthene	~~50~~	~~U~~	R
51-28-5	2. 4-Dinitrophenol	500	U	
100-02-7	4-Nitrophenol	500	UJ	
132-64-9	Dibenzofuran	~~50~~	~~U~~	R
121-14-2	2 4-Dinitrotoluene	~~50~~	~~U~~	R
606-20-2	2. 6-Dinitrotoluene	~~50~~	~~U~~	R
84-66-2	Diethylphthalate	~~50~~	~~U~~	R
7005-72-3	4-Chlorophenyl-phenylether	~~50~~	~~U~~	R
86-73-7	Fluorene	~~50~~	~~U~~	R
100-01-6	4-Nitroaniline	~~500~~	~~U~~	R
534-52-1	4. 6-Dinitro-2-Methylphenol	500	U	
86-30-6	N-Nitrosodiphenylamine (1)	~~50~~	~~U~~	R
101-55-3	4-Bromophenyl-phenylether	~~50~~	~~U~~	R
118-74-1	Hexachlorobenzene	~~50~~	~~U~~	R
87-86-5	Pentachlorophenol	500	U	
85-01-8	Phenanthrene	4	J	
120-12-7	Anthracene	~~50~~	~~U~~	R
84-74-2	Di-n-Butylphthalate 50	~~5~~	~~BJ~~	U
206-44-0	Fluoranthene	~~50~~	~~U~~	R
129-00-0	Pyrene	~~50~~	~~U~~	R
85-68-7	Butylbenzylphthalate	12	J	
91-94-1	3. 3'-Dichlorobenzidine	~~100~~	~~U~~	R
56-55-3	Benzo(a)Anthracene	~~50~~	~~U~~	R
117-81-7	bis(2-Ethylhexyl)Phthalate	7	J	
218-01-9	Chrysene	~~50~~	~~U~~	R
117-84-0	Di-n-Octyl Phthalate	36	J	
205-99-2	Benzo(b)Fluoranthene	~~50~~	~~U~~	R
207-08-9	Benzo(k)Fluoranthene	~~50~~	~~U~~	R
50-32-8	Benzo(a)Pyrene	~~50~~	~~U~~	R
193-39-5	Indeno(1 2. 3-cd)Pyrene	~~50~~	~~U~~	R
53-70-3	Dibenz(a h)Anthracene	~~50~~	~~U~~	R
191-24-2	Benzo(g h i)Perylene	~~50~~	~~U~~	R

(1)-Cannot be separated from diphenylamine

May 93

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Laboratory Name ecology and environment, inc.

Case No U-4441

Sample Number DC-SW-12

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared: 11-10-86

Date Analyzed: 11-12-86

Conc/Dil Factor: 150

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	7.5 u
319-85-7	Beta-BHC	7.5 u
319-86-8	Delta-BHC	7.5 u
58-89-9	Gamma-BHC (Lindane)	7.5 u
76-44-8	Heptachlor	7.5 u
309-00-2	Aldrin	7.5 u
1024-57-3	Heptachlor Epoxide	7.5 u
959-98-8	Endosulfan I	7.5 u
60-57-1	Dieldrin	15 u
72-55-9	4, 4'-DDE	15 u
72-20-8	Endrin	15 u
33213-65-9	Endosulfan II	15 u
72-54-8	4, 4'-DDD	15 u
1031-07-8	Endosulfan Sulfate	15 u
50-29-3	4, 4'-DDT	15 u
72-43-5	Methoxychlor	75 u
53494-70-5	Endrin Ketone	15 u
57-74-9	Chlordane	75 u
8001-35-2	Toxaphene	150 u
12674-11-2	Aroclor-1016	75 u
11104-28-2	Aroclor-1221	75 u
11141-16-5	Aroclor-1232	75 u
53469-21-9	Aroclor-1242	75 u
12672-29-6	Aroclor-1248	75 u
11097-69-1	Aroclor-1254	150 u
11096-82-5	Aroclor-1260	150 u

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 15,000 V_i 4

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~~283~~

Laboratory Name ecology and environment, inc.

Case No. U-4431 / U-4441

Sample Number DC-SW-12

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	Hexene isomer	VOA	17.4 min	~~2.2 B~~ 4
2.	Hexane isomer	VOA	21.5 min	~~7.1 B~~ 4
3.				
4.	UNKNOWN HYDROCARBON	BNA	16.3	64
5.	UNKNOWN HYDROCARBON		18.1	2200
6.	UNKNOWN HYDROCARBON		19.7	4100
7. 118467	8-AMINO-2-NAPHTHALENOL		20.1	240
8.	UNKNOWN HYDROCARBON		21.2	1500
9.	UNKNOWN HYDROCARBON		22.7	360
10.	UNKNOWN HYDROCARBON		24.1	100
11.	UNKNOWN HYDROCARBON		25.4	150
12. 140034	12-(ACETYLOXY)-9-OCTADECENOIC ACID, METHYL ESTER		25.8	250
13.	UNKNOWN HYDROCARBON		26.3	64
14.	UNKNOWN HYDROCARBON		26.7	240
15. 21964498	1,13-TETRADECADIENE		27.8	~~74 B~~ U
16. 56554495	OCTADECENOIC ACID, METHYL ESTER		28.0	180
17. 5129613	16-METHYL HEPTADECANOIC ACID, METHYL ESTER		28.3	670
18.	UNKNOWN HYDROCARBON		28.4	110
19.	UNKNOWN HYDROCARBON		28.8	170
20.	UNKNOWN HYDROCARBON		29.5	620
21.	UNKNOWN HYDROCARBON		30.4	200
22.	UNKNOWN HYDROCARBON		30.6	720
23.	UNKNOWN HYDROCARBON		31.7	330
24.				
25.				
26.				
27.				
28.				
29.				
30				

HD

Mag

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Sample Number
DC-SW-13

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: ecology and environment, inc.
Case No: U-4431 / U-4441
Lab Sample ID No: 9682
QC Report No:
Sample Matrix: Water
Contract No: U-3140
Data Release Authorized By: [signature]
Date Sample Received: 11-7-86

Volatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared:
Date Analyzed: 11-11-86
Conc/Dil Factor: 1 pH -
Percent Moisture: (Not Decanted) -

CAS Number		(ug/l) or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride 5	~~5u 4BJ~~ U
67-64-1	Acetone 10	~~10u 68J~~ UJ
75-15-0	Carbon Disulfide	5u J
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	~~5u~~ 3J
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	~~5u~~ 7U
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	10u R
71-55-6	1, 1, 1-Trichloroethane	~~5u~~ 41
56-23-5	Carbon Tetrachloride	~~5u~~ 31 J
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		(ug/l) or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	~~[illegible]~~ 16
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u J
110-75-8	2-Chloroethylvinylether	10u R
75-25-2	Bromoform	5u
108-10-1	4-Methyl-2-Pentanone	10u
591-78-6	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u J
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u J
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and placed or attached to the data summary report

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Appendix A

DATA VALIDATION REPORT
AND Corrected Form Is

Case Numbers U-4431 and U4441

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Numbers:	U-4431 and U-4441
Sample Numbers:	DC-SW-01 through DC-SW-13
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	November 5 and November 6, 1986

The data for these 13 samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form I~~s~~) with appropriate data validation qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample (ICS) results, laboratory control sample (LCS) results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the ICS. The raw data were reviewed, and the results are within acceptable QC limits.

The cyanide initial calibration was not found in the data package. Therefore, any positive cyanide results could not be verified. However, since all cyanide results are undetected, the data are acceptable.

2.2 HOLDING TIMES

All holding time requirements were met.

2.3 CALIBRATIONS

Calibrations are acceptable and meet QC requirements for initial and continuing calibration checks, with the exception of cyanide as indicated in Section 2.1.

2.4 BLANKS

All blank sample results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLES

The ICSs analyzed by inductively coupled plasma (ICP) generally meet the QC requirements. The laboratory failed to report the results on the appropriate form; however, the raw data were reviewed, and the results are within the acceptable limits.

2.6 LABORATORY CONTROL SAMPLES

The LCS prepared and analyzed with the sample batch are within acceptable QC limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample results are within acceptable QC limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike percent recovery (%R) for selenium (46 %R) is below the lower QC limit of 75 %R. All selenium sample results for all samples in this sample delivery group are considered

estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. These results are biased low due to the low spike recoveries.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine the extent of matrix interference in graphite furnace analyses, a post-digestion spike (PDS) was analyzed for each sample. Initially, the sample digest was analyzed, followed by a second analysis to which a known amount of analyte was added. The %R of the spike indicates the extent of matrix interference and bias. The following samples have PDS recoveries less than the lower QC limit of 85 %R.

Analyte	Samples
Arsenic	DC-SW-11
Selenium	DC-SW-08, DC-SW-09, DC-SW-10, and DC-SW-11

The results for the analytes and sample numbers listed above are considered estimated and qualified "UJ." These sample results are biased low.

2.10 SAMPLE RESULT VERIFICATION

For the following samples, the laboratory incorrectly reported the results listed. The results are reported in micrograms per liter (μg/L).

Sample	Analyte	Incorrect Result	Correct Result
DC-SW-02	Barium	200 μg/L	200U μg/L
DC-SW-08	Tin	40 μg/L	40U μg/L
DC-SW-12	Arsenic	10U μg/L	240 μg/L
	Barium	200U μg/L	250 μg/L

3.0 OVERALL ASSESSMENT

Generally, the data are acceptable Level IV data with the exceptions noted in Section 2.0 and the corrections made in Section 2.10. The data are qualified due to matrix interference, possibly caused by high organic content. This matrix interference may contribute to false negatives or biased low data. The qualified data are biased low and may be used for scoring.

Form I

Sample No.
DC-SW-1

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431 / U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9641 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200		U	P	13.	Magnesium	NR		
2.	Antimony	60		U	P	14.	Manganese	15	-	U P
3.	Arsenic	10	-	U	F	15.	Mercury	0.2		U P CV
4.	Barium	200		U	P	16.	Nickel	40		U P
5.	Beryllium	5		U	P	17.	Potassium	NR		
6.	Cadmium	5	-	U	P	18.	Selenium	5	R	U F UJ
7.	Calcium	NR				19.	Silver	10		U P
8.	Chromium	10		U	P	20.	Sodium	NR		
9.	Cobalt	50		U	P	21.	Thallium	10	-	U F
10.	Copper	25	-	U	P	22.	Tin	40	-	U F
11.	Iron	255	-		P	23.	Vanadium	50		U P
12.	Lead	5		U	F	24.	Zinc	20	-	U P
Cyanide		10		U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rotstein

Form I

Sample No.
DC-SW-2

Date 12·26·86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9642 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	464		P	13.	Magnesium	NR			
2.	Antimony	60	U	P	14.	Manganese	97		P	
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~	CV
4.	Barium	200	U	P	16.	Nickel	46		P	
5.	Beryllium	5	U	P	17.	Potassium	NR			
6.	Cadmium	5	U	P	18.	Selenium	5	R U	F	UJ
7.	Calcium	NR			19.	Silver	10	U	P	
8.	Chromium	14		P	20.	Sodium	NR			
9.	Cobalt	50	U	P	21.	Thallium	10	U	F	
10.	Copper	51		P	22.	Tin	40	U	F	
11.	Iron	937		P	23.	Vanadium	50	U	P	
12.	Lead	6.4		F	24.	Zinc	186		P	
	Cyanide	10	U			Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Pohrbach

Form I

Sample No.
DC-SW-3

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9643 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	95		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	46		P	22.	Tin	40	U	F
11.	Iron	350		P	23.	Vanadium	50	U	P
12.	Lead	5	U	F	24.	Zinc	73		P
	Cyanide	10	U			Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-4

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9644 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	1090			P	13.	Magnesium	NR			
2.	Antimony	60		U	P	14.	Manganese	188			P
3.	Arsenic	10		U	F	15.	Mercury	8.6			~~P~~ CV
4.	Barium	200		U	P	16.	Nickel	40		U	P
5.	Beryllium	5		U	P	17.	Potassium	NR			
6.	Cadmium	5		U	P	18.	Selenium	5	R	U	F UJ
7.	Calcium	NR				19.	Silver	10		U	P
8.	Chromium	10		U	P	20.	Sodium	NR			
9.	Cobalt	50		U	P	21.	Thallium	10		U	F
10.	Copper	660			P	22.	Tin	40		U	F
11.	Iron	1510			P	23.	Vanadium	50		U	P
12.	Lead	77			F	24.	Zinc	404			P
Cyanide		10		U		Percent Solids (%)					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager: Bruce H Rohrbach

Form I

Sample No.
DC-SW-5

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9645 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	204		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	66		P
3.	Arsenic	10	U	P	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	239		P	22.	Tin	40	U	F
11.	Iron	495		P	23.	Vanadium	50	U	P
12.	Lead	17		F	24.	Zinc	302		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rotenberg

Form I

Sample No.
DC-SW-6

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9646 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	9080			P	13.	Magnesium	NR			
2.	Antimony	60		U	P	14.	Manganese	222			P
3.	Arsenic	31			F	15.	Mercury	0.2		U	~~P~~ CV
4.	Barium	7130			P	16.	Nickel	1500			P
5.	Beryllium	5		U	P	17.	Potassium	NR			
6.	Cadmium	25			P	18.	Selenium	5	R	U	F UJ
7.	Calcium	NR				19.	Silver	10		U	P
8.	Chromium	99			P	20.	Sodium	NR			
9.	Cobalt	50		U	P	21.	Thallium	10		U	F
10.	Copper	17900			P	22.	Tin	60			F
11.	Iron	24500			P	23.	Vanadium	50		U	P
12.	Lead	1300			F	24.	Zinc	10300			P
Cyanide		10		U		Percent Solids (%)					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page, Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Pokrbach

~~12~~

Form I

Sample No.
DC-SW-7

Date 12-26-86.

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9647 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200		U	P	13.	Magnesium	NR		
2.	Antimony	60		U	P	14.	Manganese	141	-	P
3.	Arsenic	10		U	F	15.	Mercury	1.9	-	~~P~~ CV
4.	Barium	200		U	P	16.	Nickel	83	-	P
5.	Beryllium	5		U	P	17.	Potassium	NR		
6.	Cadmium	5		U	P	18.	Selenium	5	R U F	UJ
7.	Calcium	NR				19.	Silver	10	U P	
8.	Chromium	10		U	P	20.	Sodium	NR		
9.	Cobalt	50		U	P	21.	Thallium	10	- U F	
10.	Copper	226	-		P	22.	Tin	40	U F	
11.	Iron	528	-		P	23.	Vanadium	50	U P	
12.	Lead	710	-		F	24.	Zinc	537	-	P
Cyanide		10		U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Burnett Rotenberg

Form I

Sample No.
DC-SW-8

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9648 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	767		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	234		P
3.	Arsenic	10	U	F	15.	Mercury	0.2		~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	84		P	22.	Tin	40	U	F
11.	Iron	2790		P	23.	Vanadium	50	U	P
12.	Lead	30		F	24.	Zinc	247		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bernett Rohrbach

Form I

Sample No.
DC-SW-9

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9649 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	5000		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	196		P
3.	Arsenic	10	U	F	15.	Mercury	0.26		~~P~~ CV
4.	Barium	274		P	16.	Nickel	189		P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	8.1		P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	12		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	619		P	22.	Tin	40	U	F
11.	Iron	7470		P	23.	Vanadium	50	U	P
12.	Lead	89		F	24.	Zinc	1090		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Pokstad

Form I

Sample No.
DC-SW-10

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9650 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	1190		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	28		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	57		P	22.	Tin	40	U	F
11.	Iron	1570		P	23.	Vanadium	50	U	P
12.	Lead	36		F	24.	Zinc	185		P
	Cyanide	10	U			Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H. Rohrbach

Form I

Sample No.
DC-SW-11

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9680 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	323		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	15	U	P
3.	Arsenic	10	U	F UJ	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	25	U	P	22.	Tin	40	U	F
11.	Iron	100	U	P	23.	Vanadium	50	U	P
12.	Lead	5	U	F	24.	Zinc	20	U	P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager [signature]

Form I

Sample No.
DC-SW-12

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9681 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	354		P	13.	Magnesium	NR		
2.	Antimony	115		P	14.	Manganese	68		P
3.	Arsenic	240 ~~10~~ cpf	~~U~~	F	15.	Mercury	0.59		~~P~~ CV
4.	Barium	250 ~~200~~ cpf	~~U~~	P	16.	Nickel	2600		P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	75		P	18.	Selenium	5	U	F uJ
7.	Calcium	NR			19.	Silver	16		P
8.	Chromium	81		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	7030		P	22.	Tin	499		F
11.	Iron	2040		P	23.	Vanadium	50	U	P
12.	Lead	3060		F	24.	Zinc	1450		P
	Cyanide	10	U			Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager [signature]

Form I

Sample No.
DC-SW-13

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9682 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	294		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	252	P	
3.	Arsenic	10	U	F	15.	Mercury	0.2	~~P~~ CV	
4.	Barium	200	U	P	16.	Nickel	667	P	
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	23		P	18.	Selenium	5	U F	UJ
7.	Calcium	NR			19.	Silver	10	U P	
8.	Chromium	65		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U F	
10.	Copper	2410		P	22.	Tin	40	U F	
11.	Iron	724		P	23.	Vanadium	50	U P	
12.	Lead	76		F	24.	Zinc	480	P	
Cyanide		10		U	Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager [signature]

GW
DONT HAVE
ORG DATA

Appendix A

FONT?

DATA VALIDATION REPORT
AND **Corrected Form Is**

Case Numbers U-5109, U-5119, and U-5129

ADD
ORGANIC TO
ALL P 1 OF
REPORTS

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Numbers:	U-5109, U-5119, and U-5129
Sample Numbers:	DC-GW-01 through DC-GW-22
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	March 17 through March 19, 1987

The data for these 22 samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form Is) with appropriate data validation qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample (ICS) results, laboratory control sample (LCS) results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the ICS; however, the raw data were reviewed, and the results are within acceptable QC limits.

The barium raw data for samples DC-GW-10 through DC-GW-17 were not found in the report package. Since, the barium results for these samples cannot be verified, They are considered estimated and qualified "UJ" if undetected and "J" if positive.

The cyanide initial calibration curve was not found in the data package. Therefore, all positive cyanide results are considered estimated and qualified "J", since the results cannot be verified. The undetected results are acceptable.

2.2 HOLDING TIMES

All holding time requirements were met.

2.3 CALIBRATIONS

Calibrations are acceptable and meet QC requirements for initial and continuing calibration checks.

2.4 BLANKS

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLES

The ICSs analyzed by inductively coupled plasma (ICP) generally meet the QC requirements. The laboratory failed to report the results on the appropriate form; however, the raw data were reviewed, and the results are within acceptable limits.

2.6 LABORATORY CONTROL SAMPLES

The LCSs prepared and analyzed with the sample batch are within acceptable QC limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample results are within acceptable QC limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike percent recoveries (%R) for antimony (70 %R), cadmium (74 %R), and lead (60 %R) are below the lower QC limit of 75 %R. All antimony, cadmium, and lead sample results for all samples in this sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. These results are biased low due to the low spike recoveries.

The spike for selenium was not recovered (0 %R) in the matrix spike sample analysis. All selenium results are less than the CRDL and are therefore considered unusable and qualified "R." The results are highly suspect, since the potential for false negatives exists.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine the extent of matrix interference in graphite furnace analyses, a post-digestion spike (PDS) was analyzed for each sample. Initially, the sample digest was analyzed, followed by a second analysis to which a known amount of analyte was added. The %R of the PDS indicates the extent of matrix interference and bias. The following samples have PDS recoveries less than the lower QC limit of 85 %R.

Analyte	Samples
Arsenic	DC-GW-15
Lead	DC-GW-01, DC-GW-08, DC-GW-09, DC-GW-10, DC-GW-12, DC-GW-13, DC-GW-14, DC-GW-15 and DC-GW-16
Thallium	DC-GW-01, DC-GW-02, DC-GW-04, DC-GW-07, DC-GW-08, DC-GW-09, DC-GW-10, DC-GW-12 DC-GW-13, DC-GW-14, DC-GW-15, DC-GW-18, and DC-GW-19
Tin	DC-GW-01, DC-GW-02, DC-GW-03, DC-GW-05, DC-GW-07, DC-GW-08, DC-GW-18, DC-GW-19 DC-GW-20, and DC-GW-21

The results for the analytes and sample numbers listed above are considered estimated and qualified "UJ." These sample results are biased low.

Most of the selenium PDS results were below the QC limit; however, since the results are already considered unusable due to matrix spike results, no further action is required.

2.10 SAMPLE RESULT VERIFICATION

Arsenic sample results for DC-GW-01, DC-GW-02, and DC-GW-11, and the lead results for samples DC-GW-11 and DC-GW-21 were above the calibration range and required dilutions. The dilution results are reported on the Form Is and are acceptable.

In an attempt to reduce the matrix effect, the laboratory performed dilutions on numerous graphite furnace sample analyses. The quantitation limits for undetected results are increased by the dilution factor. Unless the result is qualified on the basis of PDS (see Section 2.9), all results are acceptable at the higher quantitation limit.

For the following samples, the laboratory incorrectly reported the results listed. The Form Is in Appendix A have been changed to reflect the correct results in micrograms per liter (μg/L).

Sample	Analyte	Incorrect Result	Correct Result
DC-GW-08	Tin	40U μg/L	400 μg/L
DC-GW-09	Manganese	6,630 μg/L	6,620 μg/L
	Zinc	4.31 μg/L	4,310 μg/L
DC-GW-13	Tin	400U μg/L	4000U μg/L
DC-GW-15	Iron	1,150 μg/L	115 μg/L
DC-GW-16	Iron	1,110 μg/L	110 μg/L

3.0 OVERALL ASSESSMENT

Generally, the data are acceptable Level IV data with the qualifiers noted in Section 2.0. The data are qualified due to matrix interference, possibly caused by high organic content. This matrix interference may contribute to false negatives or data that are biased low. The selenium results are unusable for scoring or risk assessment. The other qualified data are biased low and may be used for scoring.

Form I

Sample No.
DC-GW-01.

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1970 QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	1320	P
3.	Arsenic	64	F	15.	Mercury	0.2 U	CV
4.	Barium	384	P	16.	Nickel	64	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	40 U	F UJ
11.	Iron	8960	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	25	P

Cyanide 1560 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-02

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1971 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	1600	P	
3.	Arsenic	82		F	15.	Mercury	0.2 U	CV	
4.	Barium	482		P	16.	Nickel	74	P	
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	50 U	F	R
7.	Calcium	NR			19.	Silver	10 U	P	
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U	F	UJ
10.	Copper	25 U		P	22.	Tin	40 U	F	UJ
11.	Iron	54,000		P	23.	Vanadium	50 U	P	
12.	Lead	5 U	R	F UJ	24.	Zinc	326	P	

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-03

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1972 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	522	P
3.	Arsenic	18			F	15.	Mercury	0.2 U	CV
4.	Barium	200	U		P	16.	Nickel	40 U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10 U	F
10.	Copper	25	U		P	22.	Tin	40 U	F UJ
11.	Iron	15,800			P	23.	Vanadium	50 U	P
12.	Lead	5	U	R	F UJ	24.	Zinc	26	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager MN

Form I

Sample No.
DC-GW-04

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1973 QC REPORT NO.

Elements Identified and Measured

Concentration: Low Medium

Matrix: Water X Soil Sludge Other

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	1090		P
3.	Arsenic	100		F	15.	Mercury	0.2 U		CV
4.	Barium	358		P	16.	Nickel	40 U		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F UJ
10.	Copper	25 U		P	22.	Tin	4000 U		F
11.	Iron	20,000		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	22		P

Cyanide 10 U Percent Solids (%)

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager

Form I

Sample No.
DC-GW-05

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1974 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	1640	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	5.0 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	571	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	313	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-06

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1975 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	13,200	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	336	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	4000 U	F
11.	Iron	11,300	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	48	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-07

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1976 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	266	P
3.	Arsenic	11	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	36,700	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	172	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-03

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1977 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	2600		P
3.	Arsenic	11		F	15.	Mercury	0.2 U		CV
4.	Barium	200 U		P	16.	Nickel	40 U		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F UJ
10.	Copper	25 U		P	22.	Tin	~~40 U~~ 400U		F UJ
11.	Iron	36,500		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	171		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-09

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1978 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	~~6630~~ 6620	P	
3.	Arsenic	15		F	15.	Mercury	0.2 U	CV	
4.	Barium	200 U		P	16.	Nickel	112	P	
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U	F	R
7.	Calcium	NR			19.	Silver	10 U	P	
8.	Chromium	13		P	20.	Sodium	NR		
9.	Cobalt	148		P	21.	Thallium	10 U	F	UJ
10.	Copper	25 U		P	22.	Tin	4000 U	F	
11.	Iron	41,200		P	23.	Vanadium	50 U	P	
12.	Lead	5 U	R	F UJ	24.	Zinc	~~4,3~~ 4310	P	

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No. DC-GW-10

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2001 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	907		P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P UJ	16.	Nickel	241		P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F UJ
10.	Copper	25	U		P	22.	Tin	400	U	F
11.	Iron	29600			P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	57		P

Cyanide 480 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR : Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-11

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2002 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	11,800	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	8020	P
3.	Arsenic	8490	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P UJ	16.	Nickel	17200	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	70 R	P J	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	24	P	20.	Sodium	NR	
9.	Cobalt	758	P	21.	Thallium	10 U	F
10.	Copper	2410	P	22.	Tin	4000 U	F
11.	Iron	104,000	P	23.	Vanadium	50 U	P
12.	Lead	28 R	F J	24.	Zinc	6840	P

Cyanide 21 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR : Not requested

Lab Manager _____

Form I

Sample No.
DC-GW-12

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2003 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	1030	P
3.	Arsenic	26			F	15.	Mercury	0.2 U	CV
4.	Barium	200	U		P UJ	16.	Nickel	40 U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	10 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10 U	F UJ
10.	Copper	25	U		P	22.	Tin	400 U	F
11.	Iron	34,900			P	23.	Vanadium	50 U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	25	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-13

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2004 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR		
2.	Antimony	60	U	R P UJ	14.	Manganese	1800		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	CV
4.	Barium	200	U	P UJ	16.	Nickel	40	U	P
5.	Beryllium	5.0	U	P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F UJ
10.	Copper	25	U	P	22.	Tin	~~400 U~~ 4000U		F
11.	Iron	100	U	P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R F UJ	24.	Zinc	24		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Not requested

Lab Manager [signature]

Form I

Sample No. DC-GW-14

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. V-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2005 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR		
2.	Antimony	60	U R	P UJ	14.	Manganese	2230		P
3.	Arsenic	10	U	F	15.	Mercury	1.4		CV
4.	Barium	219		P J	16.	Nickel	40	U	P
5.	Beryllium	5.0	U	P	17.	Potassium	NR		
6.	Cadmium	5.0	U R	P UJ	18.	Selenium	50	U	F R
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F UJ
10.	Copper	25	U	P	22.	Tin	4000	U	F
11.	Iron	1280		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U R	F UJ	24.	Zinc	31		P

Cyanide 157 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-15

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2006 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	63		R	P J	14.	Manganese	242		P
3.	Arsenic	10	U		F UJ	15.	Mercury	2.1		CV
4.	Barium	200	U		P UJ	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F UJ
10.	Copper	25	U		P	22.	Tin	400	U	F
11.	Iron	~~1150~~ 115			P	23.	Vanadium	50	U	P
12.	Lead	50	U	R	F UJ	24.	Zinc	42		P

Cyanide 101 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-16

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. V-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2007 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	103	P
3.	Arsenic	10	U		F	15.	Mercury	0.2 U	CV
4.	Barium	200	U		P UJ	16.	Nickel	40 U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10 U	F
10.	Copper	25	U		P	22.	Tin	400 U	F
11.	Iron	~~110~~	110		P	23.	Vanadium	50 U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	24	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: not requested

Lab Manager _____

Form I

Sample No.
DC-GW-17

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2008 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	15	U	P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P UJ	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F
10.	Copper	25	U		P	22.	Tin	40	U	F
11.	Iron	100	U		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	20	U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Not requested

Lab Manager [signature]

Form I

Sample No. DC-GW-18

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. V-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2034 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	1280		P
3.	Arsenic	10	U		F	15.	Mercury	0.2 U		CV
4.	Barium	331			P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F UJ
10.	Copper	25	U		P	22.	Tin	40	U	F UJ
11.	Iron	21,900			P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	24		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-19

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2035 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	7240	P
3.	Arsenic	14			F	15.	Mercury	0.2 U	CV
4.	Barium	610			P	16.	Nickel	349	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	22		R	P J	18.	Selenium	5.04	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	24			P	20.	Sodium	NR	
9.	Cobalt	588			P	21.	Thallium	10 U	F UJ
10.	Copper	25	U		P	22.	Tin	40 U	F UJ
11.	Iron	247,000			P	23.	Vanadium	93	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	1910	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-20

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2036 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	6850	P
3.	Arsenic	12			F	15.	Mercury	0.2 U	CV
4.	Barium	580			P	16.	Nickel	328	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	22		R	P J	18.	Selenium	5.0 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	23			P	20.	Sodium	NR	
9.	Cobalt	572			P	21.	Thallium	10 U	F
10.	Copper	25	U		P	22.	Tin	40 U	F UJ
11.	Iron	241,000			P	23.	Vanadium	94	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	1820	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager MRC

Form I

Sample No.
PC-GW-21

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2037 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	286		P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F
10.	Copper	25	U		P	22.	Tin	400	U	F UJ
11.	Iron	100	U		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	26		P

Cyanide 350 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-22

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2038 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	15	U	P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F
10.	Copper	25	U		P	22.	Tin	40	U	F
11.	Iron	100	U		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	20	U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

GW DONT HAVE ORG DATA

Appendix A

FONT?

DATA VALIDATION ~~FORM~~ REPORT AND **Corrected Form Is**

Case Numbers U-5171 and U-5180

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Numbers:	U-5171 and U-5180
Sample Numbers:	DC-GW-44 through DC-GW-48 and DC-GW-50 through DC-GW-56
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	March 25 and March 26, 1987

The data for these 12 samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form Is) with appropriate data validation qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample (ICS) results, laboratory control sample (LCS) results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the ICS. The raw data were reviewed, and the results are within acceptable QC limits.

The cyanide initial calibration was not found in the data package. Therefore, all positive cyanide results are considered estimated and qualified "J," since the results cannot be verified. All undetected cyanide results are acceptable.

The laboratory incorrectly listed the following sample numbers on the Form Is. The corresponding correct number is given below.

Incorrect Sample Number	Correct Sample Number
DC-BW-44	DC-GW-44
DC-BW-45	DC-GW-45
DC-BW-46	DC-GW-46
DC-BW-47	DC-GW-47
DC-BW-48	DC-GW-48
DC-BW-50	DC-GW-50
DC-BW-51	DC-GW-51

The validity of the data is unaffected and the Form Is have been corrected (see Appendix A).

2.2 HOLDING TIMES

All holding time requirements were met.

2.3 CALIBRATIONS

The percent recovery (%R) for the arsenic initial calibration verification check performed on May 12, 1987 is above the QC limit of 110 %R. However an acceptable continuing calibration was analyzed prior to and after the samples in this case; therefore, the data are unaffected and acceptable. ~~on this basis.~~

2.4 BLANKS

All blank sample results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLES

The ICSs analyzed by inductively coupled plasma (ICP) generally meet the QC requirements. The laboratory failed to report the results on the appropriate form; however, the raw data were reviewed, and the results are within the acceptable limits.

2.6 LABORATORY CONTROL SAMPLES

The LCSs prepared and analyzed with the sample batch are within acceptable QC limits, except for antimony which has a %R above the acceptable limit of 120 %R. Since this indicates the potential for data to be biased high, and all samples analyzed with this LCS are undetected, the data are unaffected and acceptable. ~~on this basis.~~

2.7 DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample results are within acceptable QC limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike %Rs for lead (45 %R) and zinc (70 %R) are below the lower QC limit of 75 %R. All lead and zinc sample results for all samples in this sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. These results may be biased low due to the low spike recoveries.

The spike for selenium was not recovered (0 %R) in the matrix spike sample analysis. All selenium results are less than the CRDL and are therefore considered unusable and qualified "R." The results are highly suspect, since the potential for false negatives exists.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine the extent of matrix interference in graphite furnace analyses, a post-digestion spike (PDS) was analyzed for each sample. Initially, the sample digest was analyzed, followed by a second analysis to which a known amount of analyte was added. The %R of the spike indicates the extent of

matrix interference and bias. The following samples have PDS recoveries less than the lower QC limit of 85 %R.

Analyte	Samples
Lead	DC-GW-44, DC-GW-45, DC-GW-46, DC-GW-47, DC-GW-48, and DC-GW-56
Thallium	DC-GW-46
Tin	DC-GW-44, DC-GW-45, DC-GW-46, DC-GW-47, DC-GW-48, DC-GW-50, DC-GW-54, and DC-GW-55

The results for the analytes and sample numbers listed above are considered estimated and qualified "UJ." These sample results are biased low.

Most of the selenium PDS results were below the QC limit; however, since the results are already considered unusable due to matrix spike results, no further action is required.

2.10 SAMPLE RESULT VERIFICATION

All sample results are correctly quantitated and reported.

3.0 OVERALL ASSESSMENT

Generally, the data are acceptable Level IV data with the exceptions noted in Section 2.0. The data are qualified due to matrix interference, possibly caused by high organic content. This matrix interference may contribute to false negatives or biased low data. The selenium results are unusable for scoring or risk assessment. The other qualified data are biased low and may be used for scoring.

Form I

Sample No. DC-~~BW~~G-44

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2240 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2190	P
3.	Arsenic	34	F	15.	Mercury	0.2 U	CV
4.	Barium	440	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,800	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	45 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager MK

Form I

Sample No.
DC-GW-45

Date 7/20/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2241 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	6840	P
3.	Arsenic	41	F	15.	Mercury	0.2 U	CV
4.	Barium	[123]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	20,800	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	24 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-BW-46

Date 7/20/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2242 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	11,200	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[27]	P	16.	Nickel	[18]	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	120	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	15,500	P	23.	Vanadium	[18]	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	102 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-47

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2243 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	3530	P
3.	Arsenic	48	F	15.	Mercury	0.2 U	CV
4.	Barium	[194]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	26,900	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	41 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-BW-48

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2244 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	3570	P
3.	Arsenic	45	F	15.	Mercury	0.2 U	CV
4.	Barium	201	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	27,500	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	62 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-~~BW~~GW-50

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2246 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2640	P
3.	Arsenic	35	F	15.	Mercury	0.2 U	CV
4.	Barium	[168]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	11,800	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	39 R	P J

Cyanide 14 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager MK

Form I

Sample No.
DC-BW-51

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2247 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	15 U	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	[91]	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	[10] R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-52

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2305 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1060	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[73]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	2990	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	4140 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager M. [illegible]

Form I

Sample No.
DC-GW-53

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2306 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	665	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[89]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	[10]	P	22.	Tin	400 U	F
11.	Iron	4600	P	23.	Vanadium	50 U	P
12.	Lead	12 R	F J	24.	Zinc	2000 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-54

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4571, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2307 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1660	P
3.	Arsenic	11	F	15.	Mercury	0.24	CV
4.	Barium	292	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	115	P	22.	Tin	40 U	F UJ
11.	Iron	21,600	P	23.	Vanadium	50 U	P
12.	Lead	18 R	F J	24.	Zinc	377 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager M. [illegible]

Form I

Sample No.
PC-GW-55

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2308 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	257	P
3.	Arsenic	26	F	15.	Mercury	0.2 U	CV
4.	Barium	[117]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,600	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	1,350 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-56

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2309 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200U	P	13.	Magnesium	NR	
2.	Antimony	60U	P	14.	Manganese	1950	P
3.	Arsenic	10U	F	15.	Mercury	0.2U	CV
4.	Barium	300	P	16.	Nickel	40U	P
5.	Beryllium	5.0U	P	17.	Potassium	NR	
6.	Cadmium	5.0U	P	18.	Selenium	50U R	F R
7.	Calcium	NR		19.	Silver	10U	P
8.	Chromium	10U	P	20.	Sodium	NR	
9.	Cobalt	50U	P	21.	Thallium	10U	F
10.	Copper	25U	P	22.	Tin	400U	F
11.	Iron	17,400	P	23.	Vanadium	50U	P
12.	Lead	5.0U R	F UJ	24.	Zinc	20U R	P UJ

Cyanide 10U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

GW
ORG + INORG

APPENDIX A

CORRECTED FORMS I

CASE U-5920

DATA VALIDATION REPORT

1.0 INTRODUCTION

p5,6

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5920
Sample Numbers:	DC-GW-34A, DC-GW-38A, DC-GW-39A, DC-GW-40A, DC-GW-41A, DC-GW-43A, and DC-GW-57
Analyses:	Volatiles, Semivolatiles, Pesticides/Polychlorinated Biphenyls
Collection Date:	July 14, 1987

The data for these seven water samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis" (February 1988). Data sheets (Form I) with appropriate qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

This section discusses the various data review requirements. Some items are omitted from these data packages. The comments include specific notes on these omissions.

2.1 HOLDING TIMES

All holding time requirements for the initial assays were met. Some samples were reassayed late, which did not appear to adversely affect results.

2.2 INSTRUMENT PERFORMANCE

In the volatile organic analyses (VOA) and semivolatile organic analyses (SVOA), all gas chromatography/mass spectroscopy requirements were met. In the pesticide/polychlorinated biphenyl (P/PCB) analyses, all requirements were met.

2.3 INITIAL AND CONTINUING CALIBRATION

All raw data for the calibration samples were omitted. The following results are derived from the Forms VI and VII only.

2.3.1 Volatile Organic Analyses

In the initial calibration for the VOA, the response factor (RF) for 2-butanone was only 0.02. Therefore, all positive results for this chemical are considered estimates (flagged "J"), and all negative results are considered unusable (flagged "R"), as possible false negatives.

In the continuing calibrations, a number of chemicals had an RF for which the percent difference (%D) from the initial calibration exceeding the quality control (QC) limit of 25 percent. Results for these chemicals are considered estimates and flagged "J" (if detected) or "UJ" (if not detected). Table 1 lists these chemicals and the affected samples.

2.3.2 Semivolatile Organic Analyses

All initial calibration results were within QC limits. In the continuing calibration, the %D for some chemicals were excessive, requiring qualification as estimates. These chemicals are summarized in Table 2.

2.3.3 Pesticide/Polychlorinated Biphenyl Analyses

The initial and continuing calibrations for the P/PCB analyses were within QC limits. The required analytical sequence was followed.

TABLE 1

VOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATION

Continuing Calibration		Chemical (%D)		Samples Affected
Date	Time			
July 15, 1987	2211	Chloromethane (37.0)	Vinyl chloride (25.0)	DC-GW-39A and DC-GW-57
		Acetone (101)	Trichlorofluoromethane (39.4)	
		1,1,1-Trichloroethane (25.4)	Carbon tetrachloride (39.7)	
		Dibromochloromethane (25.8)	Bromoform (32.1)	
		2-Hexanone (37.8)		
July 16, 1987	1647	Acetone (27.8)	Trichlorofluoromethane (43.5)	DC-GW-34A, DC-GW-38A, DC-GW-40A, DC-GW-41A, and DC-GW-43A
		1,1-Dichloroethane (27.6)	Carbon tetrachloride (38.8)	

TABLE 2

SEMIVOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATIONS

Continuing Calibration		Chemical (%D)		Samples Affected
Date	Times[a]			
July 21, 1987	0912/1011[a]	2,4,5-Trichlorophenol (30.7)	2,4-Dinitrophenol (36.2)	DC-GW-34A, DC-GW-38A, DC-GW-39A, DC-GW-40A, DC-GW-41A, DC-GW-43A, and DC-GW-57
		4-Nitrophenol (49.5)	Benzyl alcohol (29.5)	
		2-Nitroaniline (47.4)	4-Nitroaniline (63.7)	
		3-Nitroaniline (89.1)	2,4-Dinitrotoluene (56.6)	
		2,6-Dinitrotoluene (40.6)	Diethylphthalate (28.9)	
		Pyrene (31.6)	3,3-Dichlorobenzidine (30.4)	
		Benzo(a)anthracene (28.5)		
August 11, 1987	1038[b]	2,4-Dinitrophenol (57.5)		DC-GW-38A and DC-GW-40A

Notes:

[a] The times represent the two standards, acids/phenols and bases/neutrals, used for calibration.

[b] Only the acid/phenol fraction results were used in this series of runs.

2.4 BLANKS

The field blank, sample DC-GW-57, contained no detectable organic chemicals. The various laboratory blanks contained only one target chemical, 2-butanone, at a maximum concentration of 15 micrograms per liter (μg/L). Therefore, all results of up to 150 μg/L, adjusted for dilution, of this common laboratory contaminant are considered artifacts and flagged "U." This affected samples DC-GW-34A, DC-GW-38A, DC-GW-39A. An SVOA blank included a number of nontarget chemicals, mostly phthalates. However, these chemicals were not found in any sample, although DC-GW-40A has a different group of such chemicals.

2.5 SURROGATE RECOVERY

VOA and P/PCB surrogate recoveries were within QC limits. Results from the SVOA were acceptable except for the acid/phenol fraction of sample DC-GW-43A, which had zero recovery of all three surrogates. Although this may have been a laboratory mistake (not adding the surrogate spike to the sample), it will be treated as a real result. All nondetected results in that fraction are considered unusable and flagged "R."

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATE

The VOA matrix spike/matrix spike duplicate (MS/MSD) results were within QC limits. In the SVOA MS/MSD, there was zero recovery of 4-nitrophenol from the MS, but acceptable recovery (40 percent, compared to QC limits of 10 to 80 percent) in the MSD. In addition, the difference between the MS and MSD recoveries exceeded standards for 2,4-dinitrotoluene, pyrene, and pentachlorophenol. In the P/PCB MS/MSD, the differences for lindane and dieldrin also exceeded QC limits. Since none of these compounds was found in the spiked samples, no action is warranted.

2.7 FIELD DUPLICATES

There were no field duplicates in these samples.

2.8 INTERNAL STANDARDS

The data package omitted the summary of internal standards on Form VIII. Inspection of the raw data revealed no problems.

2.9 COMPOUND IDENTIFICATION

The VOA and SVOA raw sample data omitted mass spectra, so identification could not be verified. However, there is no indication of any problem in any of the analyses.

2.10 COMPOUND QUANTITATION

Spot checks revealed no problems.

2.11 SYSTEM PERFORMANCE

There was no evidence of sudden shifts in system performance or similar problems.

3.0 OVERALL ASSESSMENT

On the whole, these analyses in produced results equivalent to Data Quality Level IV. The analysis of the most contaminated sample, DC-GW-39A, went well, considering its composition. The largest concentrations in that sample are estimated because they exceed the calibration range even after dilution, but there is no question that they are present in high concentration.

Sample Number
DC-GW-34A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5920

Lab Sample ID No: 6735 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Wojtowicz Date Sample Received: 7-15-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 7-16-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	10 ~~6 JB~~	U
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	36	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

HVE May 93

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Laboratory Name: Ecology & Environment

Case No: U-5920 /

Sample Number
DC-GW-34A

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-16-87

Date Analyzed: 7-21-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1, 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u J
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u J
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u J

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2, 4-Dinitrotoluene	10u J
606-20-2	2, 6-Dinitrotoluene	10u J
84-66-2	Diethylphthalate	10u J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u J
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u J
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u J
56-55-3	Benzo(a)Anthracene	10u J
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenz(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

HE

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Laboratory Name ecology and environment, inc.

Case No U-5920

Sample Number
DC-GW-34A

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-28-87

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name: Ecology & Environment

Case No: U-5920

Sample Number: DC-GW-34A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min.	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	Unknown	BNA	34.34	22 J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30				

Sample Number
DC-GW-38A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc Case No: U-5920

Lab Sample ID No: 6736 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Stojowicz Date Sample Received: 7-15-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 7-16-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	J
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	13 B		UJ
71-55-6	1, 1, 1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described, and such description attached to the data summary report.

Laboratory Name: Ecology & Environment

Case No: U-4431- U-4441

Sample Number
DC-GW-38A

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: B/N - 7/16/87

Date Analyzed: B/N - 7/21/87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2. 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u J
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u J

CAS Number		(ug/l or ug/Kg) (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u J
606-20-2	2. 6-Dinitrotoluene	10u J
84-66-2	Diethylphthalate	10u J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u J
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u J
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u J
56-55-3	Benzo(a)Anthracene	10u J
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2. 3-cd)Pyrene	10u
53-70-3	Dibenzo(a h)Anthracene	10u
191-24-2	Benzo(g h i)Perylene	10u

(1)-Cannot be separated from diphenylamine

May 93

Laboratory Name ecology and environment, inc.

Case No 4-5920

Sample Number DC-GW-38A

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-28-87

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name: Ecology & Environment

Case No: U-5920

Sample Number
DC-GW-38A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min.	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	No TIC's in B/N fraction			
4.				
5.	Unknown hydrocarbon	A/P	27.48	10 J
6.	Unknown	A/P	28.05	12 J
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30				

Sample Number
DC-GW-39A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment
Case No: U-5920
Lab Sample ID No: 6737
QC Report No:
Sample Matrix: Water
Contract No: IL-3140
Data Release Authorized By: C Slogtowicz
Date Sample Received: 7-15-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 7-16-87

Conc/Dil Factor: 100 pH

Percent Moisture: (Not Decanted)

CAS Number		(ug/l) or ug/Kg (Circle One)
74-87-3	Chloromethane	1000 u J
74-83-9	Bromomethane	1000 u
75-01-4	Vinyl Chloride	1000 u J
75-00-3	Chloroethane	1000 u
75-09-2	Methylene Chloride	31000
67-64-1	Acetone	34000 J
75-15-0	Carbon Disulfide	500 u
75-35-4	1, 1-Dichloroethene	500 u
75-34-3	1, 1-Dichloroethane	1700
156-60-5	Trans-1, 2-Dichloroethene	14000
67-66-3	Chloroform	1800
107-06-2	1, 2-Dichloroethane	2600
78-93-3	2-Butanone	54000 ~~E~~ J
71-55-6	1, 1, 1-Trichloroethane	5000 J
56-23-5	Carbon Tetrachloride	500 u J
108-05-4	Vinyl Acetate	1000 u
75-27-4	Bromodichloromethane	500 u

CAS Number		(ug/l) or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	500 u
10061-02-6	Trans-1, 3-Dichloropropene	500 u
79-01-6	Trichloroethene	64000 ~~E~~ J
124-48-1	Dibromochloromethane	500 u J
79-00-5	1, 1, 2-Trichloroethane	500 u
71-43-2	Benzene	150000 ~~E~~ J
10061-01-5	cis-1, 3-Dichloropropene	500 u
110-75-8	2-Chloroethylvinylether	1000 u
75-25-2	Bromoform	500 u J
108-10-1	4-Methyl-2-Pentanone	28000
591-78-6	2-Hexanone	1000 u J
127-18-4	Tetrachloroethene	500 u
79-34-5	1, 1, 2, 2-Tetrachloroethane	12000
108-88-3	Toluene	1300
108-90-7	Chlorobenzene	180000 ~~E~~ J
100-41-4	Ethylbenzene	860
100-42-5	Styrene	500 u
	Total Xylenes	2600

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 ug/L and a

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

E This flag indicates an approximate concentration. The amount detected in the

May 93

Laboratory Name: Ecology & Environment

Case No: U-5920

Sample Number
DC-GW-39A

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-16-87

Date Analyzed: 7-21-87

Conc/Dil Factor: 25

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
108-95-2	Phenol	1100
111-44-4	bis(-2-Chloroethyl)Ether	91 J
95-57-8	2-Chlorophenol	58 J
541-73-1	1, 3-Dichlorobenzene	290
106-46-7	1, 4-Dichlorobenzene	15000 ~~E~~ J
100-51-6	Benzyl Alcohol	120u J
95-50-1	1, 2-Dichlorobenzene	11000 ~~E~~ J
95-48-7	2-Methylphenol	120
39638-32-9	bis(2-chloroisopropyl)Ether	120u
106-44-5	4-Methylphenol	1100
621-64-7	N-Nitroso-Di-n-Propylamine	120u
67-72-1	Hexachloroethane	120u
98-95-3	Nitrobenzene	120u
78-59-1	Isophorone	120u
88-75-5	2-Nitrophenol	120u
105-67-9	2, 4-Dimethylphenol	400
65-85-0	Benzoic Acid	600u
111-91-1	bis(-2-Chloroethoxy)Methane	120u
120-83-2	2, 4-Dichlorophenol	120u
120-82-1	1, 2, 4-Trichlorobenzene	200
91-20-3	Naphthalene	180
106-47-8	4-Chloroaniline	120u
87-68-3	Hexachlorobutadiene	120u
59-50-7	4-Chloro-3-Methylphenol	120u
91-57-6	2-Methylnaphthalene	120u
77-47-4	Hexachlorocyclopentadiene	120u
88-06-2	2, 4, 6-Trichlorophenol	120u
95-95-4	2, 4, 5-Trichlorophenol	600u J
91-58-7	2-Chloronaphthalene	120u
88-74-4	2-Nitroaniline	600u J
131-11-3	Dimethyl Phthalate	120u
208-96-8	Acenaphthylene	120u
99-09-2	3-Nitroaniline	600u J

CAS Number		(ug/l or ug/Kg) (Circle One)
83-32-9	Acenaphthene	120u
51-28-5	2, 4-Dinitrophenol	600u J
100-02-7	4-Nitrophenol	600u J
132-64-9	Dibenzofuran	120u
121-14-2	2, 4-Dinitrotoluene	120u J
606-20-2	2, 6-Dinitrotoluene	120u J
84-66-2	Diethylphthalate	120u J
7005-72-3	4-Chlorophenyl-phenylether	120u
86-73-7	Fluorene	120u
100-01-6	4-Nitroaniline	600u J
534-52-1	4, 6-Dinitro-2-Methylphenol	600u
86-30-6	N-Nitrosodiphenylamine (1)	120u
101-55-3	4-Bromophenyl-phenylether	120u
118-74-1	Hexachlorobenzene	120u
87-86-5	Pentachlorophenol	600u
85-01-8	Phenanthrene	120u
120-12-7	Anthracene	120u
84-74-2	Di-n-Butylphthalate	120u
206-44-0	Fluoranthene	120u
129-00-0	Pyrene	120u J
85-68-7	Butylbenzylphthalate	120u
91-94-1	3, 3'-Dichlorobenzidine	240u J
56-55-3	Benzo(a)Anthracene	120u J
117-81-7	bis(2-Ethylhexyl)Phthalate	120u
218-01-9	Chrysene	120u
117-84-0	Di-n-Octyl Phthalate	120u
205-99-2	Benzo(b)Fluoranthene	120u
207-08-9	Benzo(k)Fluoranthene	120u
50-32-8	Benzo(a)Pyrene	120u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	120u
53-70-3	Dibenzo(a, h)Anthracene	120u
191-24-2	Benzo(g, h, i)Perylene	120u

(1)-Cannot be separated from diphenylamine

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Laboratory Name ECOLOGY AND ENVIRONMENT, INC.

Case No _____

Sample Number
DC-GW-39A

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-28-87

Conc/Dil Factor: 100

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	5.0	U
319-85-7	Beta-BHC	5.0	U
319-86-8	Delta-BHC	5.0	U
58-89-9	Gamma-BHC (Lindane)	5.0	U
76-44-8	Heptachlor	5.0	U
309-00-2	Aldrin	5.0	U
1024-57-3	Heptachlor Epoxide	5.0	U
959-98-8	Endosulfan I	5.0	U
60-57-1	Dieldrin	10	U
72-55-9	4, 4'-DDE	10	U
72-20-8	Endrin	10	U
33213-65-9	Endosulfan II	10	U
72-54-8	4, 4'-DDD	10	U
1031-07-8	Endosulfan Sulfate	10	U
50-29-3	4, 4'-DDT	10	U
72-43-5	Methoxychlor	50	U
53494-70-5	Endrin Ketone	10	U
57-74-9	Chlordane	50	U
8001-35-2	Toxaphene	100	U
12674-11-2	Aroclor-1016	50	U
11104-28-2	Aroclor-1221	50	U
11141-16-5	Aroclor-1232	50	U
53469-21-9	Aroclor-1242	50	U
12672-29-6	Aroclor-1248	50	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name: Ecology & Environment Inc.

Case No: U-5920

Sample Number: DC-GW-39A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.		Unknown Alcohol	VOA	12.10	2800 J
2.		Unknown Alcohol	VOA	17.15	4100 J
3.					
4.					
5.		Unknown Alcohol	BNA	5.14	360 J
6.	95476	1,2-Dimethylbenzene		5.67	780 J
7.	111762	2-Butoxyethanol		6.56	600 J
8.		Unknown Acid		7.62	160 J
9.		Unknown		8.50	1900 J
10.		Unknown Acid		15.01	14000 J
11.		Unknown Acid		15.85	510 J
12.		Unknown Hydrocarbon		10.27	830 J
13.		Unknown Hydrazine		11.33	4,000 J
14.		Unknown Alcohol		11.69	4600 J
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30					

Sample Number
DC-GW-40A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5920

Lab Sample ID No: 6738 QC Report No: _____

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Stoytowicz Date Sample Received: 7-15-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: _____

Date Analyzed: 7-16-87

Conc./Dil Factor: 1 pH _____

Percent Moisture: (Not Decanted) _____

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	J
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	118		UJ
71-55-6	1, 1, 1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	17	
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HE May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Laboratory Name: Ecology & Environment

Case No: U- 5920 1

Sample Number
DC-GW-40A

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: B/N - 7/16/87

Date Analyzed: B/N - 7/21/87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2. 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	10u
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2. 4. 6-Trichlorophenol	10u
95-95-4	2. 4. 5-Trichlorophenol	50u
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u J
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u J

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u J
606-20-2	2. 6-Dinitrotoluene	10u J
84-66-2	Diethylphthalate	10u J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u J
534-52-1	4. 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u J
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u J
56-55-3	Benzo(a)Anthracene	10u J
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1 2. 3-cd)Pyrene	10u
53-70-3	Dibenz(a h)Anthracene	10u
191-24-2	Benzo(g h. i)Perylene	10u

(1)-Cannot be separated from diphenylamine

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Laboratory Name ecology and environment, inc.

Case No U-5920

Sample Number DC-GW-40A

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-28-87

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name: Ecology & Environment

Case No: 4-5920

Sample Number: DC-GW-40A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min.	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	No TIC's in B/N fraction			
4.				
5.	Unknown phthalate	A/P	33.86	43 J
6.	Unknown phthalate		34.44	61 J
7.	Unknown phthalate		34.51	38 J
8.	Unknown phthalate		34.67	52 J
9.	Unknown phthalate		34.73	64 J
10.	Unknown phthalate		35.67	38 J
11.	Unknown phthalate	✓	37.31	25 J
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30				

Sample Number
DC-GW-41A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc Case No: U-5920

Lab Sample ID No: 6739 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Slotowic Date Sample Received: 7-15-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 7-16-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		(ug/l) or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	J
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	~~10~~	~~U~~	R
71-55-6	1, 1, 1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	

CAS Number		(ug/l) or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	20	
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	8	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HF May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration-dilution action. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Laboratory Name: Ecology & Environment

Case No: U- 5920 /

Sample Number
DC-GW-41A

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-16-87

Date Analyzed: 7-21-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylpheno'	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u J
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u J
31-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u J

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u J
606-20-2	2, 6-Dinitrotoluene	10u J
84-66-2	Diethylphthalate	10u J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u J
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	~~10u~~ 9u 7J
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u J
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u J
56-55-3	Benzo(a)Anthracene	10u J
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenzo(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

Laboratory Name ECOLOGY AND ENVIRONMENT, INC.

Case No U-5920

Sample Number DC-GW-41A

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-28-87

Conc/Dil Factor: 2

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.10	U
319-85-7	Beta-BHC	0.10	U
319-86-8	Delta-BHC	0.10	U
58-89-9	Gamma-BHC (Lindane)	0.10	U
76-44-8	Heptachlor	0.10	U
309-00-2	Aldrin	0.10	U
1024-57-3	Heptachlor Epoxide	0.10	U
959-98-8	Endosulfan I	0.20	U
60-57-1	Dieldrin	0.20	U
72-55-9	4,4'-DDE	0.20	U
72-20-8	Endrin	0.20	U
33213-65-9	Endosulfan II	0.20	U
72-54-8	4,4'-DDD	0.20	U
1031-07-8	Endosulfan Sulfate	0.20	U
50-29-3	4,4'-DDT	0.20	U
72-43-5	Methoxychlor	1.0	U
53494-70-5	Endrin Ketone	0.20	U
57-74-9	Chlordane	1.0	U
8001-35-2	Toxaphene	2.0	U
12674-11-2	Aroclor-1016	1.0	U
11104-28-2	Aroclor-1221	1.0	U
11141-16-5	Aroclor-1232	1.0	U
53469-21-9	Aroclor-1242	1.0	U
12672-29-6	Aroclor-1248	1.0	U
11097-69-1	Aroclor-1254	2.0	U
11096-82-5	Aroclor-1260	2.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name: Ecology & Environment

Case No: 4-5171, 5180

Sample Number: DC-GW-41A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min.	Estimated Concentration (ug/l or ug/kg)
1.	Butene isomer (?)	VOA	10.83	14 J
2.				
3.	Unknown	BNA	12.13	20 J
4.	Unknown - chloromethyl pyridine		12.23	110 J
5.	Dimethyl hexadiene isomer		16.05	54 J
6.	Unknown		34.33	20 J
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30				

Sample Number
DC-GW-43A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc Case No: U-5920

Lab Sample ID No: 6740 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received: 7-15-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 7-17-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	J
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	~~5 BJ~~		10 UJ
71-55-6	1, 1, 1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HVE May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described, and such description attached to the data summary report.

Laboratory Name: Ecology & Environment

Case No: U- 5920 /

Sample Number
DC-GW-43 A

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7/16/87

Date Analyzed: 7/21/87

Conc/Dil Factor: 1

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	~~10u~~ R
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	~~10u~~ R
541-73-1	1. 3-Dichlorobenzene	10u
106-46-7	1. 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1. 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	~~10u~~ R
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylpheno	~~10u~~ R
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	~~10u~~ R
105-67-9	2. 4-Dimethylphenol	~~10u~~ R
65-85-0	Benzoic Acid	~~50u~~ R
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2. 4-Dichlorophenol	~~10u~~ R
120-82-1	1. 2. 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	~~10u~~ R
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2. 4. 6-Trichlorophenol	~~10u~~ R
95-95-4	2. 4. 5-Trichlorophenol	~~50u~~ R
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u J
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u J

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2. 4-Dinitrophenol	~~50u~~ R
100-02-7	4-Nitrophenol	~~50u~~ R
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u J
606-20-2	2. 6-Dinitrotoluene	10u J
84-66-2	Diethylphthalate	10u J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u J
534-52-1	4. 6-Dinitro-2-Methylphenol	~~50u~~ R
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	~~50u~~ R
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u J
85-68-7	Butylbenzylphthalate	10u
91-94-1	3. 3'-Dichlorobenzidine	20u J
56-55-3	Benzo(a)Anthracene	10u J
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1. 2. 3-cd)Pyrene	10u
53-70-3	Dibenzo(a. h)Anthracene	10u
191-24-2	Benzo(g. h. i)Perylene	10u

(1)-Cannot be separated from diphenylamine

May 93

Form I

7 85

Laboratory Name ecology and environment, inc.

Case No A-5920

Sample Number DC-GW-43A

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-29-87

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4, 4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4, 4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4 4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name: Ecology & Environment

Case No: U-5920

Sample Number: DC-GW-43A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min.	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	No TIC's in B/NA fraction			
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
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27.				
28.				
29.				
30				

Sample Number
DC-GW-57

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5920

Lab Sample ID No: 6741 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Stojtowicz Date Sample Received: 7-15-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 7-16-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	J
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	10	U	J
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	~~10~~	~~U~~	R
71-55-6	1, 1, 1-Trichloroethane	5	U	J
56-23-5	Carbon Tetrachloride	5	U	J
108-05-4	Vinyl Acetate	10	U	
75-27-4	Bromodichloromethane	5	U	

CAS Number		ug/l or ug/Kg (Circle One)		
78-87-5	1, 2-Dichloropropane	5	U	
10061-02-6	Trans-1, 3-Dichloropropene	5	U	
79-01-6	Trichloroethene	5	U	
124-48-1	Dibromochloromethane	5	U	J
79-00-5	1, 1, 2-Trichloroethane	5	U	
71-43-2	Benzene	5	U	
10061-01-5	cis-1, 3-Dichloropropene	5	U	
110-75-8	2-Chloroethylvinylether	10	U	
75-25-2	Bromoform	5	U	J
108-10-1	4-Methyl-2-Pentanone	10	U	
591-78-6	2-Hexanone	10	U	J
127-18-4	Tetrachloroethene	5	U	
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U	
108-88-3	Toluene	5	U	
108-90-7	Chlorobenzene	5	U	
100-41-4	Ethylbenzene	5	U	
100-42-5	Styrene	5	U	
	Total Xylenes	5	U	

WE
May 93

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

Laboratory Name: Ecology & Environment

Case No: U-5920 1

Sample Number
DC-GW-57

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 7-16-87

Date Analyzed: 7-21-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l) or ug/Kg (Circle One)
108-95-2	Phenol	10u
111-44-4	bis(-2-Chloroethyl)Ether	10u
95-57-8	2-Chlorophenol	10u
541-73-1	1 3-Dichlorobenzene	10u
106-46-7	1, 4-Dichlorobenzene	10u
100-51-6	Benzyl Alcohol	10u J
95-50-1	1, 2-Dichlorobenzene	10u
95-48-7	2-Methylphenol	10u
39638-32-9	bis(2-chloroisopropyl)Ether	10u
106-44-5	4-Methylphenol	10u
621-64-7	N-Nitroso-Di-n-Propylamine	10u
67-72-1	Hexachloroethane	10u
98-95-3	Nitrobenzene	10u
78-59-1	Isophorone	10u
88-75-5	2-Nitrophenol	10u
105-67-9	2, 4-Dimethylphenol	10u
65-85-0	Benzoic Acid	50u
111-91-1	bis(-2-Chloroethoxy)Methane	10u
120-83-2	2, 4-Dichlorophenol	10u
120-82-1	1, 2, 4-Trichlorobenzene	10u
91-20-3	Naphthalene	10u
106-47-8	4-Chloroaniline	10u
87-68-3	Hexachlorobutadiene	10u
59-50-7	4-Chloro-3-Methylphenol	10u
91-57-6	2-Methylnaphthalene	10u
77-47-4	Hexachlorocyclopentadiene	10u
88-06-2	2, 4, 6-Trichlorophenol	10u
95-95-4	2, 4, 5-Trichlorophenol	50u J
91-58-7	2-Chloronaphthalene	10u
88-74-4	2-Nitroaniline	50u J
131-11-3	Dimethyl Phthalate	10u
208-96-8	Acenaphthylene	10u
99-09-2	3-Nitroaniline	50u J

CAS Number		(ug/l) or ug/Kg (Circle One)
83-32-9	Acenaphthene	10u
51-28-5	2, 4-Dinitrophenol	50u J
100-02-7	4-Nitrophenol	50u J
132-64-9	Dibenzofuran	10u
121-14-2	2 4-Dinitrotoluene	10u J
606-20-2	2, 6-Dinitrotoluene	10u J
84-66-2	Diethylphthalate	10u J
7005-72-3	4-Chlorophenyl-phenylether	10u
86-73-7	Fluorene	10u
100-01-6	4-Nitroaniline	50u J
534-52-1	4, 6-Dinitro-2-Methylphenol	50u
86-30-6	N-Nitrosodiphenylamine (1)	10u
101-55-3	4-Bromophenyl-phenylether	10u
118-74-1	Hexachlorobenzene	10u
87-86-5	Pentachlorophenol	50u
85-01-8	Phenanthrene	10u
120-12-7	Anthracene	10u
84-74-2	Di-n-Butylphthalate	10u
206-44-0	Fluoranthene	10u
129-00-0	Pyrene	10u J
85-68-7	Butylbenzylphthalate	10u
91-94-1	3, 3'-Dichlorobenzidine	20u J
56-55-3	Benzo(a)Anthracene	10u J
117-81-7	bis(2-Ethylhexyl)Phthalate	10u
218-01-9	Chrysene	10u
117-84-0	Di-n-Octyl Phthalate	10u
205-99-2	Benzo(b)Fluoranthene	10u
207-08-9	Benzo(k)Fluoranthene	10u
50-32-8	Benzo(a)Pyrene	10u
193-39-5	Indeno(1, 2, 3-cd)Pyrene	10u
53-70-3	Dibenzo(a, h)Anthracene	10u
191-24-2	Benzo(g, h, i)Perylene	10u

(1)-Cannot be separated from diphenylamine

May 93

Laboratory Name ecology and environment, inc.

Case No H-5920

Sample Number DC-GW-57

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 7-15-87

Date Analyzed: 7-29-87

Conc/Dil Factor: 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	0.05	U
319-85-7	Beta-BHC	0.05	U
319-86-8	Delta-BHC	0.05	U
58-89-9	Gamma-BHC (Lindane)	0.05	U
76-44-8	Heptachlor	0.05	U
309-00-2	Aldrin	0.05	U
1024-57-3	Heptachlor Epoxide	0.05	U
959-98-8	Endosulfan I	0.05	U
60-57-1	Dieldrin	0.10	U
72-55-9	4,4'-DDE	0.10	U
72-20-8	Endrin	0.10	U
33213-65-9	Endosulfan II	0.10	U
72-54-8	4,4'-DDD	0.10	U
1031-07-8	Endosulfan Sulfate	0.10	U
50-29-3	4,4'-DDT	0.10	U
72-43-5	Methoxychlor	0.50	U
53494-70-5	Endrin Ketone	0.10	U
57-74-9	Chlordane	0.50	U
8001-35-2	Toxaphene	1.0	U
12674-11-2	Aroclor-1016	0.50	U
11104-28-2	Aroclor-1221	0.50	U
11141-16-5	Aroclor-1232	0.50	U
53469-21-9	Aroclor-1242	0.50	U
12672-29-6	Aroclor-1248	0.50	U
11097-69-1	Aroclor-1254	1.0	U
11096-82-5	Aroclor-1260	1.0	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name Ecology & Environment

Case No U-5920

Sample Number DC-GW-57

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	No TIC's in B/NA fraction			
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
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26.				
27.				
28.				
29.				
30				

Appendix A

FORM? DATA VALIDATION REPORT
AND **Corrected Form Is**

Case Number U-5920

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5920
Sample Numbers:	DC-GW-34A, DC-GW-38A, DC-GW-39A, DC-GW-40A, DC-GW-41A, DC-GW-43A, and DC-GW-57
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Date:	July 14, 1987

The data for these seven samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form I~~6~~5) with appropriate data validation qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample (ICS) results, laboratory control sample (LCS) results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the ICS. The raw data were reviewed, and the results are within acceptable QC limits.

The laboratory failed to submit raw data for selenium and tin; therefore, the sample results for selenium and tin cannot be verified. The results for selenium and tin are considered estimated and qualified "UJ" if undetected and "J" if positive.

2.2 HOLDING TIMES

All holding time requirements were met.

2.3 CALIBRATIONS

The first continuing calibration check percent recovery (%R) for barium is above the acceptable limit of 110 %R. However, no samples from this case are associated with this check; therefore, the samples are unaffected and acceptable. ~~on this basis.~~

All other calibrations are acceptable and meet QC requirements for initial and continuing calibration checks.

2.4 BLANKS

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLES

The ICSs analyzed by inductively coupled plasma (ICP) generally meet the quality control requirements except for silver, which is below the lower acceptable limit. Since the sample matrix is not similar to the ICS matrix, the data are unaffected and acceptable. ~~on this basis.~~

The laboratory failed to report the ICS results on the appropriate form; however, the data were reviewed, and the results are within acceptable limits with the exception noted above.

2.6 LABORATORY CONTROL SAMPLES

The LCSs prepared and analyzed with the sample batch are within acceptable QC limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample results are within acceptable QC limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike %R for tin (59 %R) is below the lower QC limit of 75 %R. All tin sample results in this sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. These results are possibly biased low due to the low spike recoveries.

The spike for lead was not recovered (0 %R) in the matrix spike sample analysis. All lead results are less than the CRDL and are therefore considered unusable and qualified "R." The results are highly suspect, since the potential for false negatives exists.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine the extent of matrix interference in graphite furnace analyses, a post-digestion spike (PDS) was analyzed for each sample. Initially, the sample digest was analyzed, followed by a second analysis to which a known amount of analyte was added. The %R of the spike indicates the extent of matrix interference and bias. The following samples have PDS recoveries less than the lower QC limit of 85 %R.

Analyte	Samples
Selenium	All samples in this case
Thallium	DC-GW-39A and DC-GW-41A
Tin	All samples in this case

The results for the analytes and sample numbers listed above are considered estimated and qualified "UJ." The sample results are possibly biased low.

Most of the lead PDS results were below the QC limit; however, since the results are already considered unusable due to matrix spike results, no further action is required.

2.10 SAMPLE RESULT VERIFICATION

All sample results were verified with the exception of selenium and tin (see Section 2.1).

3.0 OVERALL ASSESSMENT

Generally, the data are acceptable Level IV data with the exceptions noted in Section 2.0. The data are qualified due to matrix interference, possibly caused by high organic content. This matrix interference may contribute to false negatives or biased low data. The lead results are unusable for scoring or risk assessment. The other qualified data are biased low and may be used for scoring.

Form I

Sample No.
DC-GW-34A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6735 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200		U	P	13.	Magnesium	NR			
2.	Antimony	60		U	P	14.	Manganese	1510			P
3.	Arsenic	10		U	F	15.	Mercury	0.2		U	CV
4.	Barium	[51]			P	16.	Nickel	40		U	P
5.	Beryllium	5		U	P	17.	Potassium	NR			
6.	Cadmium	5		U	P	18.	Selenium	5		U	F UJ
7.	Calcium	NR				19.	Silver	10		U	P
8.	Chromium	10		U	P	20.	Sodium	NR			
9.	Cobalt	[10]			P	21.	Thallium	10		U	F
10.	Copper	25		U	P	22.	Tin	40		U	F UJ
11.	Iron	2860			P	23.	Vanadium	50		U	P
12.	Lead	5	R	U	F R	24.	Zinc	31			P
Cyanide		10		U		Percent Solids (%)					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager J. Hm

Form I

Sample No.
DC-GW-38A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. M-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6736 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	3270		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	CV
4.	Barium	[135]		P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	25	U	P	22.	Tin	80	U	F UJ
11.	Iron	15900		P	23.	Vanadium	50	U	P
12.	Lead	5 R	U	F R	24.	Zinc	57		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager JJ Id

Form I

Sample No.
DC-GW-39A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6737 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	6350	–	P
3.	Arsenic	123	–	F	15.	Mercury	0.2	U	CV
4.	Barium	500	–	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	11	–	P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F UJ
10.	Copper	25	U	P	22.	Tin	40	UF	UJ
11.	Iron	171,000	–	P	23.	Vanadium	55	–	P
12.	Lead	5 R	U	F R	24.	Zinc	40	–	P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

5

Form I

Sample No.
DC-GW-40A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6738 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	1330	P
3.	Arsenic	17	F	15.	Mercury	0.2	U CV
4.	Barium	[152]	P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	16,800	P	23.	Vanadium	50	U P
12.	Lead	5 R	U F R	24.	Zinc	[15]	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager J Fish

Form I

Sample No.
DC-GW-41A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6739 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	4540	P
3.	Arsenic	15	F	15.	Mercury	0.2	U CV
4.	Barium	204	P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F UJ
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	29,200	P	23.	Vanadium	50	U P
12.	Lead	5	R U F R	24.	Zinc	25	P
Cyanide		10	U	Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager JJ [illegible]

Form I

Sample No.
DC-GW-43A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6740 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	1520	P
3.	Arsenic	10	U F	15.	Mercury	0.2	U CV
4.	Barium	[92]	P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	2360	P	23.	Vanadium	50	U P
12.	Lead	5 R	U F R	24.	Zinc	24	P
Cyanide		10	U	Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

Sample No.
DC-GW-57

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6744 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	15	U P
3.	Arsenic	10	U F	15.	Mercury	0.2	U CV
4.	Barium	200	U P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	[87]	P	23.	Vanadium	50	U P
12.	Lead	5	R U F R	24.	Zinc	10	U P
	Cyanide	10	U		Percent Solids (%)		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

GW ORG + INORG

APPENDIX A

CORRECTED FORM I

CASE U-5167/U-5162

~~p.6 - Table 2 (cont)~~
p 5 + 6 (Table 2)
8
10

DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5107/U-5162
Sample Numbers:	DC-GW-23 through DC-GW-43
Analyses:	Volatiles, Semivolatiles, Pesticides/Polychlorinated Biphenyls
Collection Dates:	March 23 and 24, 1987

The data for these 21 water samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analysis" (February 1988). Data sheets (Form I) with appropriate qualifiers and provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

The laboratory reported that a refrigerator malfunction caused some samples to freeze, rupturing bottles. Therefore, only volatile organic analyses (VOA) are available for samples DC-GW-34, DC-GW-38, and DC-GW-40.

2.0 DATA REVIEW REQUIREMENTS

This section discusses the various data review requirements. Some items are omitted from these data packages. The comments include specific notes on those omissions.

2.1 HOLDING TIMES

All holding time requirements were met. Several reextractions were made beyond the holding time, but these often resulted in better performance.

2.2 INSTRUMENT PERFORMANCE

In the VOA and semivolatile organic analysis (SVOA), all requirements for gas chromatography/mass spectroscopy (GC/MS) tuning were met. In the pesticide/polychlorinated biphenyl (P/PCB) analyses, all requirements were met.

2.3 INITIAL AND CONTINUING CALIBRATION

All raw data for the calibration samples were omitted. The following results are derived from the Forms VI and VII only.

2.3.1 Volatile Organic Analyses

In the initial VOA calibration, the response factor (RF) for 2-butanone was only 0.04. Therefore, all positive results are considered estimates and flagged "J," while nondetects are considered unusable, as possible false negatives, and flagged "R."

During the continuing calibrations, a number of chemicals had an RF for which the percent difference (%D) from the initial calibration exceeded the quality control (QC) limit of 25. Results for these chemicals are considered estimates and flagged "J" (if detected) or "UJ" (if not detected). These chemicals are listed in Table 1.

2.3.2 Semivolatile Organic Analyses

Two machine were used in these analyses. All initial calibration results for machine "B" were within QC limits. On machine "D," the percent relative standard deviation (%RSD) of the RF for 3-nitroaniline was 34.5 and that for 3,3'-dichlorobenzidine was 37.2, above the QC limit of 30. Therefore, all results for those two compounds on machine "D" are considered estimates and flagged "J" or "UJ."

TABLE 1

VOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATIONS

Continuing Calibration		Chemical (%D)		Samples Affected
Date	Time			
March 27, 1987	0951	Chloromethane (28.6)	Vinyl acetate (42.6)	DC-GW-23, DC-GW-25, DC-GW-27, DC-GW-28, DC-GW-29, DC-GW-30, and DC-GW-31
		4-Methyl-2-pentanone (29.4)	2-Hexanone (38.2)	
March 30, 1987	1038	Chloromethane (41.6)	Chloroethane (28.5)	DC-GW-24, DC-GW-26, DC-GW-33, and DC-GW-42
		Acetone (38.9)	Vinyl acetate (37.7)	
April 3, 1987	0916	Vinyl acetate (33.4)	2-Chloroethylvinylether (32.8)	DC-GW-26R, DC-GW-32, DC-GW-34, DC-GW-35, DC-GW-35R, and DC-GW-37
April 6, 1987	1246	Chloromethane (25.9)	Bromomethane (54.8)	DC-GW-36, DC-GW-38, DC-GW-39A, DC-GW-40, DC-GW-41, and DC-GW-43
		Vinyl acetate (53.0)	4-Methyl-2-pentanone (25.0)	
April 7, 1987	1740	Acetone (91.9)	2-Butanone (29.5)	DC-GW-39B
		Vinyl acetate (29.7)	2-Chloroethylvinylether (36.8)	
		4-Methyl-2-pentanone (32.3)	2-Hexanol (69.1)	

During the continuing calibrations, %D for a number of chemicals exceeded the QC limit. Results for these chemicals are also considered estimates and flagged "J" or "UJ." Table 2 lists these chemicals.

2.3.3 Pesticide/Polychlorinated Biphenyl Analyses

The initial and continuing calibrations for the P/PCB analyses were within QC limits. The required analytical sequence was followed.

2.4 BLANKS

A number of common laboratory chemicals and some other chemicals, including nontarget chemicals (tentatively identified compounds [TIC]), were found in the various blanks run during these analyses. These included two field blanks, samples DC-GW-30 and DC-GW-35. All sample concentrations up to 5 times the maximum blank concentration (10 times for common laboratory contaminants), corrected for dilution, are considered artifacts and flagged "U" for nondetected. These are detailed in Table 3.

2.5 SURROGATE RECOVERY

The deuterated toluene recovery in four samples (DC-GW-36, DC-GW-40, DC-GW-41, and DC-GW-42) was 84 to 87 percent, slightly below the QC limits of 88 to 110 percent. In the SVOA, deuterated terphenyl in sample DC-GW-32 was slightly below its limit. A number of surrogates were diluted out; however, all others were within QC limits. No action is warranted for these minor deviations.

2.6 MATRIX SPIKE/MATRIX SPIKE DUPLICATES

The VOA and P/PCB matrix spike/matrix spike duplicate (MS/MSD) results were satisfactory. In the SVOA MS/MSD, based on the field blank sample DC-GW-30, recoveries of 2,4-dinitrotoluene were 100 and 100 percent, compared to QC limits of 24 to 96 percent; those of pentachlorophenol were 125 and 105 percent, compared to 9 to 103 percent, and those of 4-chloro-3-methylphenol were 105

TABLE 2

SEMIVOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATIONS

Machine	Continuing Calibration		Chemical (%D)		Samples Affected
	Date	Times[a]			
D	April 21, 1987	1308/1008	bis(2-Chloroisopropyl)ether (39.2)	N-Nitroso-di-n-propylamine (26.5)	DC-GW-23
			Hexachlorocyclopentadiene (37.5)	3-Nitroaniline (49.0)	
			Hexachlorobenzene (27.7)	Pyrene (49.9)	
			3,3'-Dichlorobenzidine (85.5)	4-Nitrophenol (43.4)	
D	April 22, 1987	1651/1553	Benzyl alcohol (40.6)	bis(2-Chloroisopropyl)ether (52.7	DC-GW-25, DC-GW-27, DC-GW-28, DC-GW-30, and DC-GW-31
			N-Nitroso-di-ni-propylamine (31.7)	Nitrobenzene (31.9)	
			bis(2-Chloroethoxy)methane (40.5)	Hexachlorocyclopentadiene (32.2)	
			3-Nitroaniline (67.1)	Pyrene (34.6)	
			4-Nitrophenol (52.7)		
D	April 24, 1987	1411/1313	Benzyl alcohol (31.3)	bis(2-Chloroisopropyl)ether (32.4)	DC-GW-24
			N-Nitroso-di-n-propylamine (30.0)	bis(2-Chlorethoxy)methane (32.4)	
			Hexachlorocyclopentadiene (29.9)	3-Nitroaniline (49.6)	
			Pyrene (34.0)	Benzo(k)fluoranthene (30.0)	
			4-Nitrophenol (50.1)		
D	April 27, 1987	1520/1118	bis(2-Chloroisopropyl)ether (49.2)	N-Nitroso-di-n-propylamine (31.9)	DC-GW-26, DC-GW-29, DC-GW-33, and DC-GW-35
			bis(2-Chlorethoxy)methane (27.0)	Hexachlorocyclopentadiene (32.2)	
			Fluorene (37.2)	3-Nitroaniline (37.2)	
			Diethylphthalate (26.0)	4-Chlorophenylphenylether (27.4)	
			Benzidine (60.0)	3,3'-Dichlorobenzidine (114.9)	
			Benzo(k)fluoranthene (26.1)	2,4-Dinitrophenol (34.9)	
			4-Nitrophenol (66.9)		

TABLE 2 (Continued)

SEMIVOLATILE ORGANIC ANALYSIS CONTINUING CALIBRATIONS

Machine	Continuing Calibration		Chemical (%D)		Samples Affected
	Date	Times[a]			
B	April 28, 1987	1214/1027	4-Nitroaniline (44.4)	3-Nitroaniline (88.7)[b]	DC-GW-36, DC-GW-37, DC-GW-39, DC-GW-41, DC-GW-41R, DC-GW-42, and DC-GW-43
			2,4-Dinitrotoluene (45.7)	2,6-Dinitrotoluene (30.6)	
			Diethylphthalate (25.5)	Di-n-butylphthalate (25.9)	
			3,3'Dichlorobenzidine (49.8)	Benzo(a)anthracene (26.0)	
			Benzo(b)fluoranthene (25.6)	2,4-Dinitrophenol (28.9)	
			4-Nitrophenol (39.6)		
D	May 20, 1987	1115/1209	bis(2-Chloroisopropyl)ether (36.6)	Hexachlorobutadiene (29.7)	DC-GW-32, DC-GW-23,[c] DC-GW-25,[c] and DC-GW-27[c]
			Dimethylphthalate (33.3)	4-Nitroaniline (26.2)	
			Fluorene (26.3)	2,4-Dinitrotoluene (38.9)	
			2,6-Dinitrotoluene (34.5)	Diethylphthalate (39.6)	
			Benzidine (71.2)	Pyrene (55.9)	
			Butylbenzylphthalate (44.8)	3,3'-Dichlorobenzaine (54.4)	
			bis(2-Ethylhexyl)phthalate (34.2)	Di-n-octylphthalate (38.5)	
			Dibenz(a,h)anthracene (34.8)	4-Nitrophenol (60.7)	

Note:

[a] The times represent the two standards for acids/phenols and bases/neutrals used for calibration.
[b] Response factor less than 0.05, so nondetects are flagged "R" as unusable.
[c] Acids/phenols fraction only rerun at lower dilution.

TABLE 3

BLANK CONTAMINATION

Analysis	Chemical	Concentration (micrograms/liter)		Samples Qualified
		Blank	Action Level	
VOA	Methylene chloride	2	20	DC-GW-26, DC-GW-27, DC-GW-37, and DC-GW-42
VOA	Acetone	48	480	All samples except DC-GW-36
VOA	Chloroform	1	5	DC-GW-26 and DC-GW-39B
VOA	4-Methyl-2-pentanone	2	10	DC-GW-26 and DC-GW-33
VOA	2-Hexanone	2	10	None
VOA	Toluene	1	10	DC-GW-26, DC-GW-29, DC-GW-32, DC-GW-33, DC-GW-41, and DC-GW-42
SVOA	Diethylphthalate	36	360	DC-GW-25, DC-GW-27, DC-GW-28, and DC-GW-31
SVOA	Di-n-butylphthalate	6	60	DC-GW-23, DC-GW-24, DC-GW-25, DC-GW-27, DC-GW-31, DC-GW-37, DC-GW-41, DC-GW-41R, and DC-GW-42
SVOA	bis(2-Ethylhexyl)phthalate	4	40	DC-GW-23, DC-GW-24, DC-GW-25, DC-GW-27, DC-GW-28, DC-GW-31, DC-GW-33, and DC-GW-41
SVOA	Di-n-octylphthalate	3	30	DC-GW-33, DC-GW-41, DC-GW-41R, and DC-GW-42
SVOA	Unknown (20.8)[a]	140	700	DC-GW-23, DC-GW-25, DC-GW-27, DC-GW-33, DC-GW-36, DC-GW-41, DC-GW-41R, DC-GW-42, and DC-GW-43
SVOA	Unknown (24.0)	11	55	DC-GW-25 and DC-GW-27
SVOA	Unknown (30.3)	52	260	DC-GW-23, DC-GW-24, DC-GW-27, DC-GW-31, and DC-GW-33
SVOA	Unknown phthalate (34.5)	79	395	DC-GW-23, DC-GW-27, DC-GW-31, DC-GW-33, DC-GW-36, DC-GW-37, DC-GW-41, DC-GW-41R, DC-GW-42, and DC-GW-43
P/PCB	None			None

Note:

[a] Nontarget compound; number is approximate retention time in minutes.

~~See TR and make changes~~

and 95 percent compared to 23 to 97 percent. The RF for each of those chemicals is relatively variable, which increases the possibility of ~~random~~ excursions from the ~~control~~ expected recovery. No action is warranted for these minor discrepancies.

2.7 FIELD DUPLICATES

~~See TR~~

There were two pairs of field duplicates in these analyses, DC-GW-24 and DC-GW-29, and DC-GW-41 and DC-GW-42. In addition, the laboratory analyzed the vials from sample DC-GW-39 separately in the VOA (as if they were duplicates) because they were visibly different; the sampling crew noted a "strong organic odor" for this sample.

Table 4 summarizes the ~~planned and unplanned~~ field duplicate results. The first pair is acceptably similar. However, the second pair and the two vials from DC-GW-39 ~~seem to be from different sources~~ are not similar. Inspection of the raw data shows that these differences, including 20-fold and 1,000-fold dilution ratios in the pairs, are correctly calculated. Therefore, the water from which these samples were taken must be highly heterogenous, probably with some nonaqueous phase liquids.

2.8 INTERNAL STANDARDS

The data package omitted the summary of internal standards on Form VIII. Inspection of the raw data revealed no problems.

2.9 COMPOUND IDENTIFICATION

The VOA and SVOA raw data omitted mass spectra, so identification could not be verified. However, the notations on the available data show care in making identifications. No problems were noted in identification.

2.10 COMPOUND QUANTITATION

Spot checks revealed no problems.

TABLE 4

FIELD DUPLICATE RESULTS (micrograms per liter)

Chemical	DC-GW-24	DC-GW-29
Benzene	50	75
Chlorobenzene	270	390
1,3-Dichlorobenzene	110	110
1,4-Dichlorobenzene	640	830
1,2-Dichlorobenzene	110	110
4-Chloroaniline	140	78
2-Amino-1,1'-biphenyl[a]	170	430
Chloraniline isomer[a]	42	51
Ethylaniline isomer[a]	30	52
Substituted phenol[a]	62	67
Chemical	DC-GW-41	DC-GW-42
Benzene	10	1,800
Chlorobenzene	5	1,000
Chloroaniline isomer[a]	100	180
3-Methyl-1,5-heptadiene[a]	39	57
Chemical	DC-GW-39A	DC-GW-39B
2-Butanone	10U[b]	62,000
1,1,1-Trichloroethane	5U	7,800
Trichloroethene	5U	83,000
Benzene	5U	190,000
4-Methyl-2-pentanone	10U	38,000
Tetrachloroethene	5U	10,000
Toluene	5U	15,000
Chlorobenzene	5U	150,000

Notes:

[a] Nontarget semivolatile compound

[b] "U" indicates chemical was not detected; number is contract-required quantitation limit.

2.11 SYSTEM PERFORMANCE

There were no evidence of sudden shifts in system performance or similar problems.

3.0 OVERALL ASSESSMENT

On the whole, these analyses produced results equivalent to Data Quality Level IV. The ~~only~~ most serious discrepancy was the major variation within one pair of field duplicates and within one sample (DC-GW-39). The correlation between the other pair of field duplicates and in the MS/MSD indicates this variation is due to the source sampled and was not caused by the laboratory. The presence of nonaqueous phase liquids, with variable amounts collected in different containers, would readily explain the observed results.

~~Frozen Vials indicate lab not to good~~

mention

In addition, a refrigerator malfunction resulted in the loss of some samples before they could be extracted and analyzed.

Sample Number
DC-GW-23

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5157, 5162

Lab Sample ID No: 2194 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Stoytowicz Date Sample Received: 3-24-~~85~~ 87 B/K

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-27-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	J
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	29 ~~B~~	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	~~10~~	~~U~~	R
71-55-6	1, 1, 1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	J
75-27-4	Bromodichloromethane	5	U	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U J
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name Ecology & Environment Inc.
Case No U-5157, 5162

Sample Number
DC-GW-23

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)
Date Extracted/Prepared: 3/29 and 5/6/87
Date Analyzed: 4/21 and 5/20/87
Conc/Dil Factor: 2
Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No
Separatory Funnel Extraction ☒Yes
Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2, 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2, 4-Dichlorophenol	10	U
120-82-1	1, 2, 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2, 4, 6-Trichlorophenol	10	U
95-95-4	2, 4, 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
9-09-2	3-Nitroaniline	50	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2, 4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	U
606-20-2	2, 6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~2 JB~~	10 U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3, 3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~2 JB~~	10 U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1 2, 3-cd)Pyrene	10	U
53-70-3	Dibenz(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

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Laboratory Name ecology and environment, inc.

Case No U-5157,5162

Sample Number DC-GW-23

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor-1260	1.0 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-23

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	Unknown	BN.	5.60	10 J
4.	Unknown		5.77	10 J
5.	Unknown		20.78	~~25 BJ~~ U
6.	Unknown		30.34	~~33 BJ~~ U
7	Unknown		34.45	~~25 J~~ U
8.				
9.	No TIC's in AP fraction			
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24				
25.				
26.				
27.				
28.				
29.				
30				

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Form 1, Part B

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Sample Number
DC-GW-24

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2195 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received 3-24-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-30-87

Conc./Dil Factor: 5 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/L or ug/Kg (Circle One)
74-87-3	Chloromethane	50u J
74-83-9	Bromomethane	50u
75-01-4	Vinyl Chloride	50u
75-00-3	Chloroethane	50u J
75-09-2	Methylene Chloride	25u
67-64-1	Acetone	40 UJ
75-15-0	Carbon Disulfide	25u
75-35-4	1, 1-Dichloroethene	25u
75-34-3	1, 1-Dichloroethane	25u
156-60-5	Trans-1, 2-Dichloroethene	25u
67-66-3	Chloroform	25u
107-06-2	1, 2-Dichloroethane	25u
78-93-3	2-Butanone	~~50u~~ R
71-55-6	1, 1, 1-Trichloroethane	25u
56-23-5	Carbon Tetrachloride	25u
108-05-4	Vinyl Acetate	50u
75-27-4	Bromodichloromethane	25u

CAS Number		ug/L or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	25u
10061-02-6	Trans-1, 3-Dichloropropene	25u
79-01-6	Trichloroethene	25u
124-48-1	Dibromochloromethane	25u
79-00-5	1, 1, 2-Trichloroethane	25u
71-43-2	Benzene	50
10061-01-5	cis-1, 3-Dichloropropene	25u
110-75-8	2-Chloroethylvinylether	50u
75-25-2	Bromoform	25u
591-78-6	4-Methyl-2-Pentanone	50u
108-10-1	2-Hexanone	50u J
127-18-4	Tetrachloroethene	25u
79-34-5	1, 1, 2, 2-Tetrachloroethane	25u
108-88-3	Toluene	25u
108-90-7	Chlorobenzene	270
100-41-4	Ethylbenzene	25u
100-42-5	Styrene	25u
	Total Xylenes	25u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name Ecology & Environment Inc.

Case No 4-5157, 5162

Sample Number DCGW-24

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-29-87

Date Analyzed 4-25-87

Conc./Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(-2-ChloroethylEther	10	U
95-57-8	2-Chlorophenol	5	J
541-73-1	1 3-Dichlorobenzene	110	
106-46-7	1 4-Dichlorobenzene	640	
100-51-6	Benzyl Alcohol	10	UJ
95-50-1	1 2-Dichlorobenzene	110	
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	UJ
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	UJ
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2, 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-ChloroethoxylMethane	2	J
120-83-2	2 4-Dichlorophenol	22	
120-82-1	1 2, 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	140	
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	1	J
77-47-4	Hexachlorocyclopentadiene	10	UJ
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2, 4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	U
606-20-2	2 6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~7~~ ~~BJ~~	10 U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	20	UJ
56-55-3	BenzoaAnthracene	10	U
117-81-7	bis(2-EthylhexylPhthalate	~~5~~ ~~BJ~~	10 U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	BenzobFluoranthene	10	U
207-08-9	BenzokFluoranthene	10	UJ
50-32-8	BenzoaPyrene	10	U
193-39-5	Indeno(1 2, 3-cd)Pyrene	10	U
53-70-3	Dibenz(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

HE

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Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-24

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor-1260	1.0 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-24

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1. 60297	Ethane, 1,1'-oxybis -	VOA	13.87	44 J
2.	Dichlorobenzene isomer	↓	38.56	84 J
3.	Dichlorobenzene isomer	↓	40.39	740 J
4.				
5.	Chloroaniline Isomer	BNA	12.26	42 J
6.	Ethylaniline Isomer		13.20	30 J
7	Nonylphenol Isomer		17.59	70 J
8.	Ethoxyphenol Isomer		12.91	62 J
9. 90415	[1,1'-Biphenyl]-2-amine		20.57	170 J
10.	Unknown Aromatic	BNA	21.55	22 J
11.	Unknown Aromatic		21.78	34 J
12.	Unknown Aromatic		22.41	27 J
13.	Unknown		30.30	~~33 BJ~~ 4
14.	Unknown		34.42	~~83 J~~ 4
15.				
16.				
17.				
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30				

TD WS May 93

Sample Number
DC-GW-25

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc Case No: U-5157, 5162

Lab Sample ID No: 2196 QC Report No:

Sample Matrix: Water Contract No: EL-3140

Data Release Authorized By: C Stojtowicz Date Sample Received: 3-24-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-27-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U ~~J~~
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	5	J
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	17	~~B~~ U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	~~10~~	U R
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U J
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	28	
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U J
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	33	
100-41-4	Ethylbenzene	1	J
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HE
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Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name Ecology & Environment Inc.

Case No U-5157, 5162

Sample Number DC-GW-25

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3/29/87 and 5/6/87

Date Analyzed: 4/22 and 5/20/87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	UJ
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	UJ
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	UJ
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2, 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	UJ
120-83-2	2, 4-Dichlorophenol	10	U
120-82-1	1, 2, 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	14	
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	UJ
88-06-2	2, 4, 6-Trichlorophenol	10	U
95-95-4	2, 4, 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2, 4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	U
606-20-2	2, 6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	23	~~B~~ U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	6	J
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~2~~	~~JB~~ 10 U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	UJ
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3, 3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~3~~	~~JB~~ 10 U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1 2, 3-cd)Pyrene	10	U
53-70-3	Dibenzo(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

HE

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Laboratory Name ecology and environment, inc.

Case No U-5157,5162

Sample Number DC-GW-25

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.50U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.50U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.50U
11104-28-2	Aroclor-1221	0.50U
11141-16-5	Aroclor-1232	0.50U
53469-21-9	Aroclor-1242	0.50U
12672-29-6	Aroclor-1248	0.50U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-25

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	Hexene Isomer	VOA	16.39	4 B
2.				
3.	Unknown	BN	5.58	13 J
4.	Unknown		5.72	12 J
5.	Chloroaniline Isomer		12.28	16 J
6.	Ethylaniline Isomer		12.96	10 J
7.	Unknown		20.72	~~34 B J~~ 4
8.	Unknown		24.02	~~7 B J~~ 4
9.				
10.	No T.I.C's found in AP fraction			
11.				
12.				
13.				
14.				
15.				
16.				
17.				
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Sample Number
DC-GW-26

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2197 QC Report No

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received 3-24-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-30-87

Conc./Dil Factor: 25 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	250u J	
74-83-9	Bromomethane	250u	
75-01-4	Vinyl Chloride	250u	
75-00-3	Chloroethane	250u J	
75-09-2	Methylene Chloride 120	~~50 J~~	U
67-64-1	Acetone 28	~~150 J~~	UJ
75-15-0	Carbon Disulfide	120u	
75-35-4	1, 1-Dichloroethene	120u	
75-34-3	1, 1-Dichloroethane	120u	
156-60-5	Trans-1, 2-Dichloroethene	150	
67-66-3	Chloroform 120	~~110 J~~	U
107-06-2	1, 2-Dichloroethane	120u	
78-93-3	2-Butanone	~~250u~~ R	
71-55-6	1, 1, 1-Trichloroethane	120u	
56-23-5	Carbon Tetrachloride	120u	
108-05-4	Vinyl Acetate	250u J	
75-27-4	Bromodichloromethane	120u	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	120u	
10061-02-6	Trans-1, 3-Dichloropropene	120u	
79-01-6	Trichloroethene	270	
124-48-1	Dibromochloromethane	120u	
79-00-5	1, 1, 2-Trichloroethane	120u	
71-43-2	Benzene	1400	
10061-01-5	cis-1, 3-Dichloropropene	120u	
110-75-8	2-Chloroethylvinylether	250u	
75-25-2	Bromoform	120u	
591-78-6	4-Methyl-2-Pentanone	~~230 J~~	250 U
108-10-1	2-Hexanone	250u	
127-18-4	Tetrachloroethene	470	
79-34-5	1, 1, 2, 2-Tetrachloroethane	120u	
108-88-3	Toluene	240 U	
108-90-7	Chlorobenzene	3100	
100-41-4	Ethylbenzene	190	
100-42-5	Styrene	120u	
	Total Xylenes	61 J	

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such definitions attached to the data summary report

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name ECOLOGY & ENVIRONMENT INC.

Case No U-5157, 5162

Sample Number DC-GW-26

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3/29/87

Date Analyzed 4-27-87

Conc/Dil Factor: 50

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
108-95-2	Phenol	1800
111-44-4	bis(-2-ChloroethylEther	250 U
95-57-8	2-Chlorophenol	370
541-73-1	1 3-Dichlorobenzene	250 U
106-46-7	1 4-Dichlorobenzene	910
100-51-6	Benzyl Alcohol	230 J
95-50-1	1 2-Dichlorobenzene	220 J
95-48-7	2-Methylphenol	89 J
39638-32-9	bis(2-chloroisopropyl)Ether	250 U J
106-44-5	4-Methylphenol	350
621-64-7	N-Nitroso-Di-n-Propylamine	250 U J
67-72-1	Hexachloroethane	250 U
98-95-3	Nitrobenzene	250 U
78-59-1	Isophorone	250 U
88-75-5	2-Nitrophenol	250 U
105-67-9	2. 4-Dimethylphenol	250 U
65-85-0	Benzoic Acid	1200 U
111-91-1	bis(-2-ChloroethoxylMethane	2900 J
120-83-2	2. 4-Dichlorophenol	1000
120-82-1	1 2. 4-Trichlorobenzene	2700
91-20-3	Naphthalene	57 J
106-47-8	4-Chloroaniline	8300
87-68-3	Hexachlorobutadiene	250 U
59-50-7	4-Chloro-3-Methylphenol	140 J
91-57-6	2-Methylnaphthalene	250 U
77-47-4	Hexachlorocyclopentadiene	250 U J
88-06-2	2 4 6-Trichlorophenol	290
95-95-4	2 4 5-Trichlorophenol	1200 U
91-58-7	2-Chloronaphthalene	250 U
88-74-4	2-Nitroaniline	1200 U
131-11-3	Dimethyl Phthalate	250 U
208-96-8	Acenaphthylene	250 U
99-09-2	3-Nitroaniline	1200 U J

CAS Number		ug/l or ug/Kg (Circle One)
83-32-9	Acenaphthene	250 U
51-28-5	2. 4-Dinitrophenol	1200 U J
100-02-7	4-Nitrophenol	1200 U J
132-64-9	Dibenzofuran	250 U
121-14-2	2 4-Dinitrotoluene	250 U
606-20-2	2 6-Dinitrotoluene	250 U
84-66-2	Diethylphthalate	250 U J
7005-72-3	4-Chlorophenyl-phenylether	250 U J
86-73-7	Fluorene	250 U J
100-01-6	4-Nitroaniline	1200 U
534-52-1	4. 6-Dinitro-2-Methylphenol	1200 U
86-30-6	N-Nitrosodiphenylamine (1)	250 U
101-55-3	4-Bromophenyl-phenylether	250 U
118-74-1	Hexachlorobenzene	250 U
87-86-5	Pentachlorophenol	2400
85-01-8	Phenanthrene	250 U
120-12-7	Anthracene	250 U
84-74-2	Di-n-Butylphthalate	250 U
206-44-0	Fluoranthene	250 U
129-00-0	Pyrene	250 U
85-68-7	Butylbenzylphthalate	250 U
91-94-1	3. 3 -Dichlorobenzidine	500 U J
56-55-3	Benzo(a)Anthracene	250 U
117-81-7	bis(2-EthylhexylPhthalate	250 U
218-01-9	Chrysene	250 U
117-84-0	Di-n-Octyl Phthalate	250 U
205-99-2	BenzobiFluoranthene	250 U
207-08-9	Benzok Fluoranthene	250 U J
50-32-8	BenzoaPyrene	250 U
193-39-5	Indeno(1 2. 3-cd)Pyrene	250 U
53-70-3	Dibenz a h)Anthracene	250 U
191-24-2	Benzo(g h i)Perylene	250 U

(1)-Cannot be separated from diphenylamine

HE

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Form I

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Laboratory Name ecology and environment, inc.

Case No K-5157, 5162

Sample Number DC--GW-26

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 50

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	2.5U
319-85-7	Beta-BHC	2.5U
319-86-8	Delta-BHC	2.5U
58-89-9	Gamma-BHC (Lindane)	2.5U
76-44-8	Heptachlor	2.5U
309-00-2	Aldrin	2.5U
1024-57-3	Heptachlor Epoxide	2.5U
959-98-8	Endosulfan I	2.5U
60-57-1	Dieldrin	5.0U
72-55-9	4,4'-DDE	5.0U
72-20-8	Endrin	5.0U
33213-65-9	Endosulfan II	5.0U
72-54-8	4,4'-DDD	5.0U
1031-07-8	Endosulfan Sulfate	5.0U
50-29-3	4,4'-DDT	5.0U
72-43-5	Methoxychlor	25U
53494-70-5	Endrin Ketone	5.0U
57-74-9	Chlordane	25U
8001-35-2	Toxaphene	50U
12674-11-2	Aroclor-1016	25U
11104-28-2	Aroclor-1221	25U
11141-16-5	Aroclor-1232	25U
53469-21-9	Aroclor-1242	25U
12672-29-6	Aroclor-1248	25U
11097-69-1	Aroclor-1254	50U
11096-82-5	Aroclor-1260	50U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 4,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-26

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	Dichlorobenzene isomer	VOA	39.65	580 J
2.	Dichlorobenzene isomer	↓	40.35	3500 J
3.				
4. 62533	Aniline	BNA	8.23	6800
5.	Chloroaniline Isomer		12.33	1600 J
6.	Ethylaniline Isomer		13.25	18,000 J
7.	Ethylaniline Isomer		13.45	7000 J
8.	Chlorophenol Isomer		14.16	3200 J
9.	Unknown		14.55	4200 J
10.	Ethoxyaniline Isomer		14.76	3000 J
11.	Ethylnitrobenzene Isomer		15.65	770 J
12.	Ethylnitrobenzene Isomer		16.04	570 J
13.	Dichloroaniline Isomer		16.37	1200 J
14.	Tetrachlorobenzene Isomer		17.12	1900 J
15.	Unknown Aromatic		20.16	1500 J
16. 90415	[1,1'-Biphenyl]-2-amine		20.61	1200 J
17.	Unknown Aromatic		21.79	200 J
18. 81845	1H,3H-Naphtho[1,8-cd]pyran-1,3-dione		26.54	310 J
19.	Unknown		27.66	240 J
20.				
21.				
22.				
23.				
24				
25.				
26.				
27.				
28.				
29.				
30				

Sample Number
DC-GW-27

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5157, 5162

Lab Sample ID No: 2198 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Stojtowicz Date Sample Received: 3-24-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-27-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	76	
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5 ~~2 J~~	U
67-64-1	Acetone	10 ~~B~~	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	10	
75-34-3	1, 1-Dichloroethane	120	
156-60-5	Trans-1, 2-Dichloroethene	310	
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	~~10~~	U R
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U J
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	4 J	
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U J
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	120	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

KVE May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name Ecology & Environment Inc.

Case No U-5157, 5162

Sample Number DC-GW-27

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 3/29 and 5/6/87

Date Analyzed: 4/22 and 5/20/87

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	18	
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-Dichlorobenzene	10	
100-51-6	Benzyl Alcohol	10	UJ
95-50-1	1 2-Dichlorobenzene	4	J
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	UJ
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	UJ
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2, 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	UJ
120-83-2	2, 4-Dichlorophenol	10	U
120-82-1	1, 2, 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	18	
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	UJ
88-06-2	2, 4, 6-Trichlorophenol	10	U
95-95-4	2, 4, 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl-Phthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)		
83-32-9	Acenaphthene	10	U	
51-28-5	2, 4-Dinitrophenol	50	U	
100-02-7	4-Nitrophenol	50	UJ	
132-64-9	Dibenzofuran	10	U	
121-14-2	2 4-Dinitrotoluene	10	U	
606-20-2	2, 6-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	13	~~B~~	U
7005-72-3	4-Chlorophenyl-phenylether	10	U	
86-73-7	Fluorene	10	U	
100-01-6	4-Nitroaniline	50	U	
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	7	J	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	~~2~~	~~JB~~	104
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	UJ	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3, 3'-Dichlorobenzidine	20	UJ	
56-55-3	Benzo(a)Anthracene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	~~2~~	~~JB~~	104
218-01-9	Chrysene	10	U	
117-84-0	Di-n-Octyl Phthalate	10	U	
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	U	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1 2, 3-cd)Pyrene	10	U	
53-70-3	Dibenz(a h)Anthracene	10	U	
191-24-2	Benzo(g h, i)Perylene	10	U	

(1)-Cannot be separated from diphenylamine

FVE May 93

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-27

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor-1260	1.0 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-27

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)	
1.	Dichlorobenzene isomer	VOA	39.44	2 J	
2.	Dichlorobenzene isomer		40.26	3 J	
3.					
4.	Chloroaniline Isomer	BN	12.29	25 J	
5.	Ethylaniline Isomer		13.00	180 J	
6.	Ethylaniline Isomer		13.22	13 J	
7	Unknown		20.72	~~19 B J~~	U
8.	Unknown		24.02	~~6 B J~~	U
9. 127639	1,1'-sulfonylbisbenzene		25.16	8 J	
10.	Unknown Hydrocarbon		26.93	28 J	
11.	Unknown		30.34	~~61 B J~~	U
12.	Unknown		34.45	~~33 J~~	U
13.					
14.					
15.	Molecular Sulfur	AP	25.73	6 J	
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24					
25.					
26.					
27.					
28.					
29.					
30					

III VE May 93

Sample Number
DC-GW-28

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2199 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: A Szytowicz Date Sample Received 3-24-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-27-87

Conc./Dil Factor: 5 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	50u J
74-83-9	Bromomethane	50u
75-01-4	Vinyl Chloride	790
75-00-3	Chloroethane	50u
75-09-2	Methylene Chloride	25u
67-64-1	Acetone	190 ~~B~~ u
75-15-0	Carbon Disulfide	25u
75-35-4	1, 1-Dichloroethene	25u
75-34-3	1, 1-Dichloroethane	25u
156-60-5	Trans-1, 2-Dichloroethene	640
67-66-3	Chloroform	25u
107-06-2	1, 2-Dichloroethane	25u
78-93-3	2-Butanone	~~50u~~ R
71-55-6	1, 1, 1-Trichloroethane	25u
56-23-5	Carbon Tetrachloride	25u
108-05-4	Vinyl Acetate	50u J
75-27-4	Bromodichloromethane	25u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	25u
10061-02-6	Trans-1, 3-Dichloropropene	25u
79-01-6	Trichloroethene	25u
124-48-1	Dibromochloromethane	25u
79-00-5	1, 1, 2-Trichloroethane	25u
71-43-2	Benzene	550
10061-01-5	cis-1, 3-Dichloropropene	25u
110-75-8	2-Chloroethylvinylether	50u
75-25-2	Bromoform	25u
591-78-6	4-Methyl-2-Pentanone	50u J
108-10-1	2-Hexanone	50u J
127-18-4	Tetrachloroethene	25u
79-34-5	1, 1, 2, 2-Tetrachloroethane	25u
108-88-3	Toluene	740
108-90-7	Chlorobenzene	550
100-41-4	Ethylbenzene	58
100-42-5	Styrene	25u
	Total Xylenes	58

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

HE May 93

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

Laboratory Name Ecology & Environment

Case No H-5157, 5162

Sample Number DC-GW-28

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-29-87

Date Analyzed: 4-23-87

Conc/Dil Factor: 10

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	80	
111-44-4	bis(-2-Chloroethyl)Ether	50	U
95-57-8	2-Chlorophenol	50	U
541-73-1	1 3-Dichlorobenzene	50	U
106-46-7	1 4-Dichlorobenzene	110	
100-51-6	Benzyl Alcohol	350	J
95-50-1	1 2-Dichlorobenzene	15	J
95-48-7	2-Methylphenol	76	
39638-32-9	bis(2-chloroisopropyl)Ether	50	UJ
106-44-5	4-Methylphenol	50	U
621-64-7	N-Nitroso-Di-n-Propylamine	50	UJ
67-72-1	Hexachloroethane	50	U
98-95-3	Nitrobenzene	50	UJ
78-59-1	Isophorone	50	U
88-75-5	2-Nitrophenol	50	U
105-67-9	2, 4-Dimethylphenol	50	U
65-85-0	Benzoic Acid	250	U
111-91-1	bis(-2-Chloroethoxy)Methane	50	UJ
120-83-2	2, 4-Dichlorophenol	50	U
120-82-1	1 2, 4-Trichlorobenzene	50	U
91-20-3	Naphthalene	230	
106-47-8	4-Chloroaniline	9600	E
87-68-3	Hexachlorobutadiene	50	U
59-50-7	4-Chloro-3-Methylphenol	50	U
91-57-6	2-Methylnaphthalene	9	J
77-47-4	Hexachlorocyclopentadiene	50	UJ
88-06-2	2 4 6-Trichlorophenol	50	U
95-95-4	2, 4 5-Trichlorophenol	250	U
91-58-7	2-Chloronaphthalene	50	U
88-74-4	2-Nitroaniline	250	U
131-11-3	Dimethyl Phthalate	50	U
208-96-8	Acenaphthylene	50	U
99-09-2	3-Nitroaniline	250	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	50	U
51-28-5	2, 4-Dinitrophenol	250	U
100-02-7	4-Nitrophenol	250	UJ
132-64-9	Dibenzofuran	50	U
121-14-2	2 4-Dinitrotoluene	50	U
606-20-2	2, 6-Dinitrotoluene	50	U
84-66-2	Diethylphthalate	140	~~B~~ U
7005-72-3	4-Chlorophenyl-phenylether	50	U
86-73-7	Fluorene	25	J
100-01-6	4-Nitroaniline	250	U
534-52-1	4, 6-Dinitro-2-Methylphenol	250	U
86-30-6	N-Nitrosodiphenylamine (1)	50	U
101-55-3	4-Bromophenyl-phenylether	50	U
118-74-1	Hexachlorobenzene	50	U
87-86-5	Pentachlorophenol	60	J
85-01-8	Phenanthrene	50	U
120-12-7	Anthracene	50	U
84-74-2	Di-n-Butylphthalate	50	U
206-44-0	Fluoranthene	50	U
129-00-0	Pyrene	50	UJ
85-68-7	Butylbenzylphthalate	50	U
91-94-1	3, 3'-Dichlorobenzidine	100	UJ
56-55-3	Benzo(a)Anthracene	50	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~20~~ ~~BJ~~	50 U
218-01-9	Chrysene	50	U
117-84-0	Di-n-Octyl Phthalate	50	U
205-99-2	Benzo(b)Fluoranthene	50	U
207-08-9	Benzo(k)Fluoranthene	50	U
50-32-8	Benzo(a)Pyrene	50	U
193-39-5	Indeno(1 2, 3-cd)Pyrene	50	U
53-70-3	Dibenz(a h)Anthracene	50	U
191-24-2	Benzo(g h i)Perylene	50	U

(1)-Cannot be separated from diphenylamine

Laboratory Name ecology and environment, inc.

Case No U-5157,5162

Sample Number DC-GW-28

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 50

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	2.5U
319-85-7	Beta-BHC	2.5U
319-86-8	Delta-BHC	2.5U
58-89-9	Gamma-BHC (Lindane)	2.5U
76-44-8	Heptachlor	2.5U
309-00-2	Aldrin	2.5U
1024-57-3	Heptachlor Epoxide	2.5U
959-98-8	Endosulfan I	2.5U
60-57-1	Dieldrin	5.0U
72-55-9	4,4'-DDE	5.0U
72-20-8	Endrin	5.0U
33213-65-9	Endosulfan II	5.0U
72-54-8	4,4'-DDD	5.0U
1031-07-8	Endosulfan Sulfate	5.0U
50-29-3	4,4'-DDT	5.0U
72-43-5	Methoxychlor	25U
53494-70-5	Endrin Ketone	5.0U
57-74-9	Chlordane	25U
8001-35-2	Toxaphene	50U
12674-11-2	Aroclor-1016	25U
11104-28-2	Aroclor-1221	25U
11141-16-5	Aroclor-1232	25U
53469-21-9	Aroclor-1242	25U
12672-29-6	Aroclor-1248	25U
11097-69-1	Aroclor-1254	50U
11096-82-5	Aroclor-1260	50U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name Ecology & Environment Inc.

Case No H-5157, 5162

Sample Number DC-GW-28

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

	CAS Number	Compound Name	Fraction	RT or Scan Number	Estimated Concentration (ug/l or ug/kg)	
1.	60297	Ethane, 1,1'-oxybis	VOA	13.83	320	J
2.		Hexene Isomer		17.90	37	J
3.		Dichlorobenzene Isomer		40.29	270	J
4.						
5.	62533	Aniline	BNA	8.23	2300	
6.		Chloroaniline Isomer		12.39	3100	J
7.		Ethylaniline Isomer		13.00	1800	J
8.		Dimethylphenol Isomer		13.57	260	J
9.		Chlorophenol Isomer		14.17	1400	J
10.		Ethoxybenzenamine Isomer		14.78	650	J
11.		Ethoxybenzenamine Isomer		15.74	390	J
12.	92524	1,1'-biphenyl		17.17	570	J
13.		Unknown		17.55	3100	J
14.		Unknown		17.64	1100	J
15.		Unknown Aromatic		21.29	1300	J
16.		Unknown		21.60	120	J
17.	70553	4-methylsulfonamide		21.90	1200	J
18.	62442	Phenacetin		22.43	320	J
19.		Unknown		24.78	390	J
20.		Unknown		24.96	240	J
21.	81845	1H,3H-Naphtho[1,8-cd]pyran-1,3-dione		26.57	870	J
22.		Unknown		27.92	270	J
23.		Unknown		31.77	600	J
24.		Unknown		33.40	480	J
25.						
26.						
27.						
28.						
29.						
30						

Sample Number
DC-GW-29

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5157, 5162

Lab Sample ID No: 2200 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Szczotowicz Date Sample Received: 3-24-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-27-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	6J	I
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	~~16B~~	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	~~10~~	~~U~~ R
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U J
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	75	
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U J
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	~~1J~~ 5	U
108-90-7	Chlorobenzene	390	
100-41-4	Ethylbenzene	2J	
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

WE
May 93

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name Ecology & Environment Inc.

Case No U-5157, 5162

Sample Number DC-GW-29

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 3-29-87

Date Analyzed: 4-27-87

Conc/Dil Factor: 10

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	50	U
111-44-4	bis(-2-Chloroethyl)Ether	50	U
95-57-8	2-Chlorophenol	50	U
541-73-1	1 3-Dichlorobenzene	110	
106-46-7	1 4-Dichlorobenzene	830	
100-51-6	Benzyl Alcohol	50	U
95-50-1	1 2-Dichlorobenzene	110	
95-48-7	2-Methylphenol	50	U
39638-32-9	bis(2-chloroisopropyl)Ether	50	UJ
106-44-5	4-Methylphenol	50	U
621-64-7	N-Nitroso-Di-n-Propylamine	50	UJ
67-72-1	Hexachloroethane	50	U
98-95-3	Nitrobenzene	50	U
78-59-1	Isophorone	50	U
88-75-5	2-Nitrophenol	50	U
105-67-9	2. 4-Dimethylphenol	50	U
65-85-0	Benzoic Acid	250	U
111-91-1	bis(-2-Chloroethoxy)Methane	50	UJ
120-83-2	2. 4-Dichlorophenol	50	U
120-82-1	1. 2. 4-Trichlorobenzene	50	U
91-20-3	Naphthalene	50	U
106-47-8	4-Chloroaniline	78	
87-68-3	Hexachlorobutadiene	50	U
59-50-7	4-Chloro-3-Methylphenol	50	U
91-57-6	2-Methylnaphthalene	50	U
77-47-4	Hexachlorocyclopentadiene	50	UJ
88-06-2	2 4 6-Trichlorophenol	50	U
95-95-4	2. 4 5-Trichlorophenol	250	U
91-58-7	2-Chloronaphthalene	50	U
88-74-4	2-Nitroaniline	250	U
131-11-3	Dimethyl Phthalate	50	U
208-96-8	Acenaphthylene	50	U
99-09-2	3-Nitroaniline	250	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	50	U
51-28-5	2. 4-Dinitrophenol	250	UJ
100-02-7	4-Nitrophenol	250	UJ
132-64-9	Dibenzofuran	50	U
121-14-2	2 4-Dinitrotoluene	50	U
606-20-2	2. 6-Dinitrotoluene	50	U
84-66-2	Diethylphthalate	50	UJ
7005-72-3	4-Chlorophenyl-phenylether	50	UJ
86-73-7	Fluorene	50	UJ
100-01-6	4-Nitroaniline	250	U
534-52-1	4. 6-Dinitro-2-Methylphenol	250	U
86-30-6	N-Nitrosodiphenylamine (1)	50	U
101-55-3	4-Bromophenyl-phenylether	50	U
118-74-1	Hexachlorobenzene	50	U
87-86-5	Pentachlorophenol	250	U
85-01-8	Phenanthrene	50	U
120-12-7	Anthracene	50	U
84-74-2	Di-n-Butylphthalate	50	U
206-44-0	Fluoranthene	50	U
129-00-0	Pyrene	50	U
85-68-7	Butylbenzylphthalate	50	U
91-94-1	3. 3'-Dichlorobenzidine	100	UJ
56-55-3	Benzo(a)Anthracene	50	U
117-81-7	bis(2-Ethylhexyl)Phthalate	50	U
218-01-9	Chrysene	50	U
117-84-0	Di-n-Octyl Phthalate	50	U
205-99-2	Benzo(b)Fluoranthene	50	U
207-08-9	Benzo(k)Fluoranthene	50	UJ
50-32-8	Benzo(a)Pyrene	50	U
193-39-5	Indeno(1 2. 3-cd)Pyrene	50	U
53-70-3	Dibenz(a h)Anthracene	50	U
191-24-2	Benzo(g h i)Perylene	50	U

(1)-Cannot be separated from diphenylamine

HF May 93

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-29

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.50U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.50U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.50U
11104-28-2	Aroclor-1221	0.50U
11141-16-5	Aroclor-1232	0.50U
53469-21-9	Aroclor-1242	0.50U
12672-29-6	Aroclor-1248	0.50U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-29

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1. 60297	Ethane, 1,1'-oxybis-	VOA	13.86	52 J
2.	Dichlorobenzene isomer	↓	38.53	180 J
3.	Dichlorobenzene isomer	↓	40.20	1400 J
4.				
5.	Chloroaniline Isomer	BNA	12.31	51 J
6.	Ethylaniline Isomer	↓	12.96	52 J
7. 98544	4-(1,1-dimethylethyl)phenol	↓	17.62	67 J
8. 90415	[1,1'-biphenyl]-2-amine	↓	20.60	430 J
9.				
10.				
11.				
12.				
13.				
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29.				
30				

Sample Number
DC-GW-30

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5157, 5162

Lab Sample ID No: 2201 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Stojtowicz Date Sample Received: 3-24-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-27-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	~~2 J~~ 5	U
67-64-1	Acetone	23 ~~B~~	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	~~10~~	~~U~~ R
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U J
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U J
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

WE
May 93

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

E&E # 2201

Sample Number
DC-GW-30

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 3-29-87

Date Analyzed: 4-22-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	UJ
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	UJ
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	UJ
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	UJ
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	UJ
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	13 ~~B~~	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~25~~ ~~B~~	10U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	UJ
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~25~~ ~~B~~	10U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	~~15~~	10U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

HE

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Laboratory Name ecology and environment, inc.

Case No 4-5157,5162

Sample Number
DC - GW-30

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.50U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.50U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.50U
11104-28-2	Aroclor-1221	0.50U
11141-16-5	Aroclor-1232	0.50U
53469-21-9	Aroclor-1242	0.50U
12672-29-6	Aroclor-1248	0.50U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-30

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
4.	Unknown	BNA	30.34	~~52 B J~~ U
5.	Unknown	BNA	34.46	~~27 J~~ U
6.				
7				
8.				
9.				
10.				
11.				
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Sample Number
DC-GW-31

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc Case No: U-5157, 5162

Lab Sample ID No: 2202 QC Report No: _____

Sample Matrix: Water Contract No: EL-3140

Data Release Authorized By: C Stoytowicz Date Sample Received: 3-24-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: _____

Date Analyzed: 3-27-87

Conc./Dil Factor: 1 pH _____

Percent Moisture: (Not Decanted) _____

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U J
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	5	U
67-64-1	Acetone	~~29 B~~	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	~~10~~	~~U~~ R
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U J
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U J
591-78-6	2-Hexanone	10	U J
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described, and such description attached to the data summary report.

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Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-6W-31

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-29-87

Date Analyzed: 4-23-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	UJ
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	UJ
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	UJ
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	UJ
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	UJ
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
[illegible]-96-8	Acenaphthylene	10	U
[illegible]-09-2	3-Nitroaniline	50	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	~~8~~ BJ	104
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~4~~ BJ	104
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	UJ
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~3~~ BJ	104
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

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Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-31

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-14-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.50U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.50U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.50U
11104-28-2	Aroclor-1221	0.50U
11141-16-5	Aroclor-1232	0.50U
53469-21-9	Aroclor-1242	0.50U
12672-29-6	Aroclor-1248	0.50U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-31

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	Unknown Hydrocarbon	BNA	26.93	12 J
4.	Unknown	L	30.34	~~60 BJ~~ 4
5.	Unknown	L	34.45	~~37 J~~ 4
6.				
7				
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XS May 93

Sample Number
DC-GW-32

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2210 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received: 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-3-87

Conc./Dil Factor: 25 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	250u
74-83-9	Bromomethane	250u
75-01-4	Vinyl Chloride	250u
75-00-3	Chloroethane	250u
75-09-2	Methylene Chloride	120u
67-64-1	Acetone	1700 ~~B~~ 4
75-15-0	Carbon Disulfide	120u
75-35-4	1, 1-Dichloroethene	120u
75-34-3	1, 1-Dichloroethane	120u
156-60-5	Trans-1, 2-Dichloroethene	120u
67-66-3	Chloroform	120u
107-06-2	1, 2-Dichloroethane	120u
78-93-3	2-Butanone	~~250u~~ R
71-55-6	1, 1, 1-Trichloroethane	120u
56-23-5	Carbon Tetrachloride	120u
108-05-4	Vinyl Acetate	250u J
75-27-4	Bromodichloromethane	120u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	120u
10061-02-6	Trans-1, 3-Dichloropropene	120u
79-01-6	Trichloroethene	120u
124-48-1	Dibromochloromethane	120u
79-00-5	1, 1, 2-Trichloroethane	120u
71-43-2	Benzene	460
10061-01-5	cis-1, 3-Dichloropropene	120u
110-75-8	2-Chloroethylvinylether	250u J
75-25-2	Bromoform	120u
591-78-6	4-Methyl-2-Pentanone	250u
108-10-1	2-Hexanone	250u
127-18-4	Tetrachloroethene	120u
79-34-5	1, 1, 2, 2-Tetrachloroethane	120u
108-88-3	Toluene	~~100 BJ~~ 120 U
108-90-7	Chlorobenzene	2500
100-41-4	Ethylbenzene	840
100-42-5	Styrene	120u
	Total Xylenes	400

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

May 93

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Laboratory Name: Ecology & Environment Inc.

Case No: U-5157, 5162

Sample Number: DC-GW-32

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 5-5-87

Date Analyzed: 5-20-87

Conc/Dil Factor: 10

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	50	U
111-44-4	bis(-2-Chloroethyl)Ether	50	U
95-57-8	2-Chlorophenol	130	
541-73-1	1 3-Dichlorobenzene	50	U
106-46-7	1 4-Dichlorobenzene	34	J
100-51-6	Benzyl Alcohol	50	U
95-50-1	1. 2-Dichlorobenzene	50	U
95-48-7	2-Methylphenol	50	U
39638-32-9	bis(2-chloroisopropyl)Ether	50	UJ
106-44-5	4-Methylphenol	37	J
621-64-7	N-Nitroso-Di-n-Propylamine	50	U
67-72-1	Hexachloroethane	50	U
98-95-3	Nitrobenzene	50	U
78-59-1	Isophorone	50	U
88-75-5	2-Nitrophenol	50	U
105-67-9	2. 4-Dimethylphenol	240	
65-85-0	Benzoic Acid	250	U
111-91-1	bis(-2-Chloroethoxy)Methane	50	U
120-83-2	2. 4-Dichlorophenol	50	U
120-82-1	1. 2. 4-Trichlorobenzene	50	U
91-20-3	Naphthalene	36	J
106-47-8	4-Chloroaniline	15,000	~~E~~ J
87-68-3	Hexachlorobutadiene	50	UJ
59-50-7	4-Chloro-3-Methylphenol	50	U
91-57-6	2-Methylnaphthalene	50	U
77-47-4	Hexachlorocyclopentadiene	50	U
88-06-2	2. 4. 6-Trichlorophenol	50	U
95-95-4	2. 4. 5-Trichlorophenol	250	U
91-58-7	2-Chloronaphthalene	50	U
88-74-4	2-Nitroaniline	250	U
131-11-3	Dimethyl Phthalate	98	J
208-96-8	Acenaphthylene	50	U
99-09-2	3-Nitroaniline	250	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	50	U
51-28-5	2. 4-Dinitrophenol	250	UJ
100-02-7	4-Nitrophenol	250	UJ
132-64-9	Dibenzofuran	50	U
121-14-2	2 4-Dinitrotoluene	50	U
606-20-2	2. 6-Dinitrotoluene	50	U
84-66-2	Diethylphthalate	50	UJ
7005-72-3	4-Chlorophenyl-phenylether	50	U
86-73-7	Fluorene	50	U
100-01-6	4-Nitroaniline	250	UJ
534-52-1	4. 6-Dinitro-2-Methylphenol	250	U
86-30-6	N-Nitrosodiphenylamine (1)	50	U
101-55-3	4-Bromophenyl-phenylether	50	U
118-74-1	Hexachlorobenzene	50	U
87-86-5	Pentachlorophenol	250	U
85-01-8	Phenanthrene	50	U
120-12-7	Anthracene	50	U
84-74-2	Di-n-Butylphthalate	50	UJ
206-44-0	Fluoranthene	50	U
129-00-0	Pyrene	50	U
85-68-7	Butylbenzylphthalate	50	U
91-94-1	3. 3'-Dichlorobenzidine	50	UJ
56-55-3	Benzo(a)Anthracene	50	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	50	U
218-01-9	Chrysene	50	U
117-84-0	Di-n-Octyl Phthalate	50	U
205-99-2	Benzo(b)Fluoranthene	50	UJ
207-08-9	Benzo(k)Fluoranthene	50	U
50-32-8	Benzo(a)Pyrene	50	U
193-39-5	Indeno(1 2. 3-cd)Pyrene	50	U
53-70-3	Dibenzo(a h)Anthracene	50	U
191-24-2	Benzo(g h i)Perylene	50	U

(1)-Cannot be separated from diphenylamine

HE May 93

Laboratory Name ecology and environment, inc.

Case No U-5157,5162

Sample Number DC-GW-32

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-21-87

Conc/Dil Factor 20

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	1.0U
319-85-7	Beta-BHC	1.0U
319-86-8	Delta-BHC	1.0U
58-89-9	Gamma-BHC (Lindane)	1.0U
76-44-8	Heptachlor	1.0U
309-00-2	Aldrin	1.0U
1024-57-3	Heptachlor Epoxide	1.0U
959-98-8	Endosulfan I	1.0U
60-57-1	Dieldrin	2.0U
72-55-9	4,4'-DDE	2.0U
72-20-8	Endrin	2.0U
33213-65-9	Endosulfan II	2.0U
72-54-8	4,4'-DDD	2.0U
1031-07-8	Endosulfan Sulfate	2.0U
50-29-3	4,4'-DDT	2.0U
72-43-5	Methoxychlor	10U
53494-70-5	Endrin Ketone	2.0U
57-74-9	Chlordane	10U
8001-35-2	Toxaphene	20U
12674-11-2	Aroclor-1016	10U
11104-28-2	Aroclor-1221	10U
11141-16-5	Aroclor-1232	10U
53469-21-9	Aroclor-1242	10U
12672-29-6	Aroclor-1248	10U
11097-69-1	Aroclor-1254	20U
11096-82-5	Aroclor-1260	20U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-32

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
4.	Aniline	BNA	8.41	5700
5.	Chloroaniline Isomer		12.10	9900 J
6.	Chloroaniline Isomer		13.65	9000 J
7	Chlorophenol Isomer		13.84	1000 J
8.	Ethoxyaniline Isomer		14.43	10,000 J
9.	Ethoxyaniline Isomer		15.24	660 J
10.	Dichloroaniline Isomer		15.88	500 J
11.	Unknown Aromatic		21.05	730 J
12. 70553	4-methylbenzene sulfonamide		21.23	320 J
13.	Unknown Aromatic		21.91	360 J
14.				
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Sample Number
DC-GW-33

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162
Lab Sample ID No: 2211 QC Report No:
Sample Matrix: Water Contract No: IL-3140
Data Release Authorized By: [illegible] Date Sample Received: 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:
Date Analyzed: 3-30-87
Conc./Dil Factor: 20 pH
Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	200u J
74-83-9	Bromomethane	200u
75-01-4	Vinyl Chloride	200u
75-00-3	Chloroethane	200u J
75-09-2	Methylene Chloride	440
67-64-1	Acetone	210UJ
75-15-0	Carbon Disulfide	100u
75-35-4	1, 1-Dichloroethene	100u
75-34-3	1, 1-Dichloroethane	100u
156-60-5	Trans-1, 2-Dichloroethene	110
67-66-3	Chloroform	100u
107-06-2	1, 2-Dichloroethane	100u
78-93-3	2-Butanone	560 J
71-55-6	1, 1, 1-Trichloroethane	51 J
56-23-5	Carbon Tetrachloride	100u
108-05-4	Vinyl Acetate	200u J
75-27-4	Bromodichloromethane	100u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	100u
10061-02-6	Trans-1, 3-Dichloropropene	100u
79-01-6	Trichloroethene	800
124-48-1	Dibromochloromethane	100u
79-00-5	1, 1, 2-Trichloroethane	100u
71-43-2	Benzene	1800
10061-01-5	cis-1, 3-Dichloropropene	100u
110-75-8	2-Chloroethylvinylether	200u
75-25-2	Bromoform	100u
591-78-6	4-Methyl-2-Pentanone	150U
108-10-1	2-Hexanone	200u
127-18-4	Tetrachloroethene	100u
79-34-5	1, 1, 2, 2-Tetrachloroethane	100u
108-88-3	Toluene	~~83J~~ 100 U
108-90-7	Chlorobenzene	1200
100-41-4	Ethylbenzene	100u
100-42-5	Styrene	100u
	Total Xylenes	100u

HF
May 93

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U: Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥ [illegible] ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name Ecology & Environment Inc.

Case No W-5157, 5162

Sample Number DC-GW-33

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-27-87

Conc/Dil Factor 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	2	J
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	9	J
541-73-1	1 3-Dichlorobenzene	4	J
106-46-7	1 4-Dichlorobenzene	350	
100-51-6	Benzyl Alcohol	10	U
95-50-1	1 2-Dichlorobenzene	6	J
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	UJ
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	UJ
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2, 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	UJ
120-83-2	2 4-Dichlorophenol	11	
120-82-1	1 2, 4-Trichlorobenzene	280	
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	110	
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	UJ
88-06-2	2 4 6-Trichlorophenol	3	J
95-95-4	2, 4 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)		
83-32-9	Acenaphthene	10	U	
51-28-5	2, 4-Dinitrophenol	50	UJ	
100-02-7	4-Nitrophenol	50	UJ	
132-64-9	Dibenzofuran	10	U	
121-14-2	2 4-Dinitrotoluene	10	U	
606-20-2	2 6-Dinitrotoluene	10	U	
84-66-2	Diethylphthalate	10	UJ	
7005-72-3	4-Chlorophenyl-phenylether	10	UJ	
86-73-7	Fluorene	10	UJ	
100-01-6	4-Nitroaniline	50	U	
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U	
86-30-6	N-Nitrosodiphenylamine (1)	10	U	
101-55-3	4-Bromophenyl-phenylether	10	U	
118-74-1	Hexachlorobenzene	10	U	
87-86-5	Pentachlorophenol	50	U	
85-01-8	Phenanthrene	10	U	
120-12-7	Anthracene	10	U	
84-74-2	Di-n-Butylphthalate	12	B	
206-44-0	Fluoranthene	10	U	
129-00-0	Pyrene	10	U	
85-68-7	Butylbenzylphthalate	10	U	
91-94-1	3, 3'-Dichlorobenzidine	20	UJ	
56-55-3	Benzo(a)Anthracene	10	U	
117-81-7	bis(2-Ethylhexyl)Phthalate	~~4~~	~~BJ~~	104
218-01-9	Chrysene	10	U	
117-84-0	Di-n-Octyl Phthalate	~~2~~	~~BJ~~	104
205-99-2	Benzo(b)Fluoranthene	10	U	
207-08-9	Benzo(k)Fluoranthene	10	UJ	
50-32-8	Benzo(a)Pyrene	10	U	
193-39-5	Indeno(1 2, 3-cd)Pyrene	10	U	
53-70-3	Dibenz(a h)Anthracene	10	U	
191-24-2	Benzo(g h i)Perylene	10	U	

(1)-Cannot be separated from diphenylamine

HE

Laboratory Name ecology and environment, inc.

Case No 4-5157,5162

Sample Number DC-GW-33

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-21-87

Conc/Dil Factor 100

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)	
319-84-6	Alpha-BHC	70	C
319-85-7	Beta-BHC	5.0U	
319-86-8	Delta-BHC	5.0U	
58-89-9	Gamma-BHC (Lindane)	5.0U	
76-44-8	Heptachlor	5.0U	
309-00-2	Aldrin	5.0U	
1024-57-3	Heptachlor Epoxide	5.0U	
959-98-8	Endosulfan I	5.0U	
60-57-1	Dieldrin	10U	
72-55-9	4,4'-DDE	10U	
72-20-8	Endrin	10U	
33213-65-9	Endosulfan II	10U	
72-54-8	4,4'-DDD	10U	
1031-07-8	Endosulfan Sulfate	10U	
50-29-3	4,4'-DDT	10U	
72-43-5	Methoxychlor	50U	
53494-70-5	Endrin Ketone	10U	
57-74-9	Chlordane	50U	
8001-35-2	Toxaphene	100U	
12674-11-2	Aroclor-1016	50U	
11104-28-2	Aroclor-1221	50U	
11141-16-5	Aroclor-1232	50U	
53469-21-9	Aroclor-1242	50U	
12672-29-6	Aroclor-1248	50U	
11097-69-1	Aroclor-1254	100U	
11096-82-5	Aroclor-1260	100U	

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 4,000 or W_s _____ V_t 10,000 V_i 4

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Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-33

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	Dichlorobenzene Isomer	VOA	40.34	3300 J
2.				
3.	Chloroaniline Isomer	BNA	12.27	36 J
4.	Ethylaniline Isomer		12.97	22 J
5.	Tetrachlorobenzene Isomer		16.25	34 J
6.	Tetrachlorobenzene Isomer		17.15	310 J
7 608935	Pentachlorobenzene		19.43	23 J
8.	Unknown		20.78	~~80 BJ~~ U
9.	Unknown		30.34	~~320 J~~ U
10.	Unknown	—	34.46	~~160 BJ~~ U
11.	BHC	BNA	22.11	—
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24				
25.				
26.				
27.				
28.				
29.				
30				

HVS May 93

Sample Number
DC-GW-34

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc. Case No: U-5157, 5162

Lab Sample ID No: 2212 QC Report No:

Sample Matrix: Water Contract No: EL-3140

Data Release Authorized By: C Hojtowicz Date Sample Received: 3-25-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-3-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)		
74-87-3	Chloromethane	10	U	
74-83-9	Bromomethane	10	U	
75-01-4	Vinyl Chloride	10	U	
75-00-3	Chloroethane	10	U	
75-09-2	Methylene Chloride	5	U	
67-64-1	Acetone	~~78 BJ~~ 10	U	
75-15-0	Carbon Disulfide	5	U	
75-35-4	1, 1-Dichloroethene	5	U	
75-34-3	1, 1-Dichloroethane	5	U	
156-60-5	Trans-1, 2-Dichloroethene	5	U	
67-66-3	Chloroform	5	U	
107-06-2	1, 2-Dichloroethane	5	U	
78-93-3	2-Butanone	~~10~~	~~U~~	R
71-55-6	1, 1, 1-Trichloroethane	5	U	
56-23-5	Carbon Tetrachloride	5	U	
108-05-4	Vinyl Acetate	10	U	J
75-27-4	Bromodichloromethane	5	U	

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U J
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	20	
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide/Aroclors where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

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May 93

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Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-34

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
4.				
5.				
6.				
7				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
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17.				
18.				
19.				
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22.				
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24				
25.				
26.				
27.				
28.				
29.				
30				

Sample Number
DC-GW-35

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2213 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Hogsowney Date Sample Received: 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-3-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u
74-83-9	Bromomethane	10u
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	~~2J~~ 5U
67-64-1	Acetone	13BU
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	~~1J~~ 5U
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10uJ
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	10uJ
75-25-2	Bromoform	5u
591-78-6	4-Methyl-2-Pentanone	10u
108-10-1	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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May 93

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such definitions attached to the Data Summary report

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name Ecology & Environment Inc.

Case No U-5157, 5162

Sample Number DC-GW-35

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-30-87

Date Analyzed: 4-27-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) –

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U J
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U J
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U J
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U J
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	U J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U J
100-02-7	4-Nitrophenol	50	U J
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U J
7005-72-3	4-Chlorophenyl-phenylether	10	U J
86-73-7	Fluorene	10	U J
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~6~~ ~~BJ~~	10 U
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U J
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	~~2~~ ~~BJ~~	10 U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	~~3~~ ~~BJ~~	10 U
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U J
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

HE

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Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-35

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-21-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor 1260	1.0 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-35

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)	
1.	No TIC's in VOA fraction				
2.					
3.	Unknown	BNA	20.78	~~140 BJ~~	u
4.	Unknown		30.35	~~76 BJ~~	u
5.	Unknown Phthalate		34.47	~~99 BJ~~	u
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24					
25.					
26.					
27.					
28.					
29.					
30					

May 93

Sample Number
DC-GW-35R

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment Inc Case No: U-5157, 5162

Lab Sample ID No: 2213 Replicate QC Report No:

Sample Matrix: Water Contract No: EL-3140

Data Release Authorized By: O Stoytowicz Date Sample Received: 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-3-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)	
74-87-3	Chloromethane	10	U
74-83-9	Bromomethane	10	U
75-01-4	Vinyl Chloride	10	U
75-00-3	Chloroethane	10	U
75-09-2	Methylene Chloride	~~20~~ 15	U
67-64-1	Acetone	~~9 85~~ 10	U
75-15-0	Carbon Disulfide	5	U
75-35-4	1, 1-Dichloroethene	5	U
75-34-3	1, 1-Dichloroethane	5	U
156-60-5	Trans-1, 2-Dichloroethene	5	U
67-66-3	Chloroform	~~15~~ 5	U
107-06-2	1, 2-Dichloroethane	5	U
78-93-3	2-Butanone	~~10~~	~~U~~ R
71-55-6	1, 1, 1-Trichloroethane	5	U
56-23-5	Carbon Tetrachloride	5	U
108-05-4	Vinyl Acetate	10	U
75-27-4	Bromodichloromethane	5	U

CAS Number		ug/l or ug/Kg (Circle One)	
78-87-5	1, 2-Dichloropropane	5	U
10061-02-6	Trans-1, 3-Dichloropropene	5	U
79-01-6	Trichloroethene	5	U
124-48-1	Dibromochloromethane	5	U
79-00-5	1, 1, 2-Trichloroethane	5	U
71-43-2	Benzene	5	U
10061-01-5	cis-1, 3-Dichloropropene	5	U
110-75-8	2-Chloroethylvinylether	10	U
75-25-2	Bromoform	5	U
108-10-1	4-Methyl-2-Pentanone	10	U
591-78-6	2-Hexanone	10	U
127-18-4	Tetrachloroethene	5	U
79-34-5	1, 1, 2, 2-Tetrachloroethane	5	U
108-88-3	Toluene	5	U
108-90-7	Chlorobenzene	5	U
100-41-4	Ethylbenzene	5	U
100-42-5	Styrene	5	U
	Total Xylenes	5	U

HE May 93

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit, report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g., 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g., 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described, and such description attached to the data summary report.

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Sample Number
DC-GW-36

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2214 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Slogtowicz Date Sample Received: 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-6-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u J
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	5u
67-64-1	Acetone	10u
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	1 J
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	10u
75-25-2	Bromoform	5u
591-78-6	4-Methyl-2-Pentanone	10u J
108-10-1	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	6
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible or probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such definitions attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

1-VE
May 93

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Laboratory Name _____

Case No. 4-5157, 5162

Sample Number: DC-GW-36

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared: 3-30-87

Date Analyzed: 4-28-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) _____

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1. 4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1. 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2. 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2. 4-Dichlorophenol	10	U
120-82-1	1. 2. 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	30	
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2. 4. 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	U J

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2. 4-Dinitrophenol	50	U J
100-02-7	4-Nitrophenol	50	U J
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	U J
606-20-2	2. 6-Dinitrotoluene	10	U J
84-66-2	Diethylphthalate	10	U J
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U J
534-52-1	4. 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	U J
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3. 3'-Dichlorobenzidine	20	U J
56-55-3	Benzo(a)Anthracene	10	U J
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	U J
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1 2. 3-cd)Pyrene	10	U
53-70-3	Dibenzo(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

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491095

Laboratory Name ecology and environment, inc.

Case No U-5157,5162

Sample Number DC-GW-36

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-21-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor-1260	1.0 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-36

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)	
1.	No TIC's in VOA fraction				
2.					
3.	Unknown	~~BNA~~	19.92	~~56 J~~	4
4.	Unknown Phthalate	~~BNA~~	33.69	~~58 J~~	4
5.					
6.					
7					
8.					
9.					
10.					
11.					
12.					
13.					
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29.					
30					

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Sample Number
DC-GW-37

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2215 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received: 3-25-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-3-87

Conc./Dil Factor: 20 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	200u
74-83-9	Bromomethane	200u
75-01-4	Vinyl Chloride	200u
75-00-3	Chloroethane	200u
75-09-2	Methylene Chloride	~~44J~~ 100 U
67-64-1	Acetone	650 ~~Bc~~ U
75-15-0	Carbon Disulfide	100u
75-35-4	1, 1-Dichloroethene	100u
75-34-3	1, 1-Dichloroethane	100u
156-60-5	Trans-1, 2-Dichloroethene	100u
67-66-3	Chloroform	730
107-06-2	1, 2-Dichloroethane	100u
78-93-3	2-Butanone	~~200u~~ R
71-55-6	1, 1, 1-Trichloroethane	100u
56-23-5	Carbon Tetrachloride	100u
108-05-4	Vinyl Acetate	200u J
75-27-4	Bromodichloromethane	100u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	100u
10061-02-6	Trans-1, 3-Dichloropropene	100u
79-01-6	Trichloroethene	100u
124-48-1	Dibromochloromethane	100u
79-00-5	1, 1, 2-Trichloroethane	100u
71-43-2	Benzene	150
10061-01-5	cis-1, 3-Dichloropropene	100u
110-75-8	2-Chloroethylvinylether	200u J
75-25-2	Bromoform	100u
591-78-6	4-Methyl-2-Pentanone	270 ~~Bc~~ U
108-10-1	2-Hexanone	200u
127-18-4	Tetrachloroethene	100u
79-34-5	1, 1, 2, 2-Tetrachloroethane	100u
108-88-3	Toluene	970 ~~Bc~~
108-90-7	Chlorobenzene	100u
100-41-4	Ethylbenzene	100u
100-42-5	Styrene	100u
	Total Xylenes	100u

HVE
May 93

Data Reporting Qualifiers

For reporting results to EPA the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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ase No U-5157, 5162

DC-GW-37

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

oncentration: Low Medium (Circle One)

ate Extracted/Prepared: 3-30-87

ate Analyzed: 4-28-87

onc/Dil Factor: 2

ercent Moisture (Decanted) –

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	150	
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	150	
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	6	J
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	75	
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2, 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2, 4-Dichlorophenol	41	
120-82-1	1, 2, 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	60	
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2, 4, 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
[illegible]96-8	Acenaphthylene	10	U
[illegible]9-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2, 4-Dinitrophenol	50	UJ
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	UJ
606-20-2	2, 6-Dinitrotoluene	10	UJ
84-66-2	Diethylphthalate	10	UJ
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	UJ
534-52-1	4, 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~6 BJ~~	10 UJ
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3, 3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	UJ
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1 2, 3-cd)Pyrene	10	U
53-70-3	Dibenz(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

HE

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Form I

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491095

Laboratory Name ECOLOGY & ENVIRONMENT, INC

Case No 4-5157,5162

Sample Number DC-GW-37

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration Low Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-21-87

Conc/Dil Factor 10 80

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/L or ug/Kg (Circle One)	
319-84-6	Alpha-BHC	4.0	U
319-85-7	Beta-BHC	4.0	U
319-86-8	Delta-BHC	4.0	U
58-89-9	Gamma-BHC (Lindane)	4.0	U
76-44-8	Heptachlor	4.0	U
309-00-2	Aldrin	4.0	U
1024-57-3	Heptachlor Epoxide	4.0	U
959-98-8	Endosulfan I	0.50	U
60-57-1	Dieldrin	1.0	U
72-55-9	4,4'-DDE	1.0	U
72-20-8	Endrin	1.0	U
33213-65-9	Endosulfan II	1.0	U
72-54-8	4,4'-DDD	1.0	U
1031-07-8	Endosulfan Sulfate	1.0	U
50-29-3	4,4'-DDT	1.0	U
72-43-5	Methoxychlor	5.0	U
53494-70-5	Endrin Ketone	1.0	U
57-74-9	Chlordane	5.0	U
8001-35-2	Toxaphene	10	U
12674-11-2	Aroclor-1016	5.0	U
11104-28-2	Aroclor-1221	5.0	U
11141-16-5	Aroclor-1232	5.0	U
53469-21-9	Aroclor-1242	5.0	U
12672-29-6	Aroclor-1248	5.0	U
11097-69-1	Aroclor-1254	10	U
11096-82-5	Aroclor-1260	10	U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-37

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)	
1.	No TIC's in VOA fraction				
2.					
3.	Aniline	BNA	8.10	33	
4.	Unknown Hydrocarbon		9.40	36	J
5.	Unknown		9.50	48	J
6.	Unknown		11.31	57	J
7	Chloroaniline Isomer		11.58	72	J
8. 76222	1,7,7-trimethylbicyclo[2.2.1]hepta-2-one		11.90	87	J
9.	Chloroaniline Isomer		13.10	40	J
10.	Chlorophenol Isomer		13.23	130	J
11.	Unknown		14.26	18	J
12.	Unknown		14.57	98	J
13.	Unknown		19.94	180	J
14.	Unknown		24.37	24	J
15.	Unknown		29.25	550	J
16.	Unknown Phthalate		33.68	~~100~~ ~~BJ~~	
17.					
18.					
19.					
20.					
21.					
22.					
23.					
24					
25.					
26.					
27.					
28.					
29.					
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Form 1, Part B

7 85

Sample Number
DC-GW-38

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2216 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-6-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u J
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	5u
67-64-1	Acetone	~~75~~ 104
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	10u
75-25-2	Bromoform	5u
591-78-6	4-Methyl-2-Pentanone	10u J
108-10-1	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

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Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-38

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
4.				
5.				
6.				
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Sample Number
DC-GW-39 A

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2217.01 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-6-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u J
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	5u
67-64-1	Acetone	~~40~~ 10 U
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	10u
75-25-2	Bromoform	5u
591-78-6	4-Methyl-2-Pentanone	10u J
108-10-1	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

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May 93

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥ [illegible] ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Sample Number
DC-GW-39B

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2217.02 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received: 3-25-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-7-87

Conc./Dil Factor: 1000 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10000 U
74-83-9	Bromomethane	10000 U
75-01-4	Vinyl Chloride	10000 U
75-00-3	Chloroethane	10000 U
75-09-2	Methylene Chloride	52000
67-64-1	Acetone	38000 BUJ
75-15-0	Carbon Disulfide	5000 U
75-35-4	1, 1-Dichloroethene	5000 U
75-34-3	1, 1-Dichloroethane	5000 U
156-60-5	Trans-1, 2-Dichloroethene	20000 U
67-66-3	Chloroform	3000 J U
107-06-2	1, 2-Dichloroethane	4000 J
78-93-3	2-Butanone	62000 J
71-55-6	1, 1, 1-Trichloroethane	7800
56-23-5	Carbon Tetrachloride	5000 U
108-05-4	Vinyl Acetate	10000 UJ
75-27-4	Bromodichloromethane	5000 U

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5000 U
10061-02-6	Trans-1, 3-Dichloropropene	5000 U
79-01-6	Trichloroethene	83000
124-48-1	Dibromochloromethane	5000 U
79-00-5	1, 1, 2-Trichloroethane	5000 U
71-43-2	Benzene	190000
10061-01-5	cis-1, 3-Dichloropropene	5000 U
110-75-8	2-Chloroethylvinylether	10000 UJ
75-25-2	Bromoform	5000 U
591-78-6	4-Methyl-2-Pentanone	38000 J
108-10-1	2-Hexanone	10000 U J
127-18-4	Tetrachloroethene	10000
79-34-5	1, 1, 2, 2-Tetrachloroethane	5000 U
108-88-3	Toluene	15000
108-90-7	Chlorobenzene	150,000
100-41-4	Ethylbenzene	5000 U
100-42-5	Styrene	5000 U
	Total Xylenes	4600 J

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U: Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such definitions attached to the data summary report

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name ECOLOGY & ENVIRONMENT INC

Case No. U-5157, 5167

Sample Number DC-GW-39

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-30-87

Date Analyzed: 4-28-87

Conc/Dil Factor: 25

Percent Moisture (Decanted) –

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	500	
111-44-4	bis(-2-Chloroethyl)Ether	120	U
95-57-8	2-Chlorophenol	120	
541-73-1	1 3-Dichlorobenzene	320	
106-46-7	1 4-Dichlorobenzene	10,000	E
100-51-6	Benzyl Alcohol	120	U
95-50-1	1 2-Dichlorobenzene	7800	
95-48-7	2-Methylphenol	78	J
39638-32-9	bis(2-chloroisopropyl)Ether	120	U
106-44-5	4-Methylphenol	820	
621-64-7	N-Nitroso-Di-n-Propylamine	120	U
67-72-1	Hexachloroethane	120	U
98-95-3	Nitrobenzene	120	U
78-59-1	Isophorone	120	U
88-75-5	2-Nitrophenol	120	U
105-67-9	2. 4-Dimethylphenol	350	
65-85-0	Benzoic Acid	620	U
111-91-1	bis(-2-Chloroethoxyl)Methane	120	U
120-83-2	2. 4-Dichlorophenol	30	J
120-82-1	1. 2. 4-Trichlorobenzene	270	
91-20-3	Naphthalene	160	
106-47-8	4-Chloroaniline	780	
87-68-3	Hexachlorobutadiene	120	U
59-50-7	4-Chloro-3-Methylphenol	120	U
91-57-6	2-Methylnaphthalene	6	J
77-47-4	Hexachlorocyclopentadiene	120	U
88-06-2	2. 4. 6-Trichlorophenol	120	U
95-95-4	2. 4. 5-Trichlorophenol	620	U
91-58-7	2-Chloronaphthalene	120	U
88-74-4	2-Nitroaniline	620	U
131-11-3	Dimethyl Phthalate	120	U
208-96-8	Acenaphthylene	120	U
99-09-2	3-Nitroaniline	620	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	120	U
51-28-5	2. 4-Dinitrophenol	620	UJ
100-02-7	4-Nitrophenol	620	UJ
132-64-9	Dibenzofuran	120	U
121-14-2	2 4-Dinitrotoluene	120	UJ
606-20-2	2. 6-Dinitrotoluene	120	UJ
84-66-2	Diethylphthalate	120	UJ
7005-72-3	4-Chlorophenyl-phenylether	120	U
86-73-7	Fluorene	120	U
100-01-6	4-Nitroaniline	620	UJ
534-52-1	4. 6-Dinitro-2-Methylphenol	620	U
86-30-6	N-Nitrosodiphenylamine (1)	120	U
101-55-3	4-Bromophenyl-phenylether	120	U
118-74-1	Hexachlorobenzene	120	U
87-86-5	Pentachlorophenol	23	J
85-01-8	Phenanthrene	120	U
120-12-7	Anthracene	120	U
84-74-2	Di-n-Butylphthalate	120	UJ
206-44-0	Fluoranthene	120	U
129-00-0	Pyrene	120	U
85-68-7	Butylbenzylphthalate	120	U
91-94-1	3. 3'-Dichlorobenzidine	250	UJ
56-55-3	Benzo(a)Anthracene	120	U
117-81-7	bis(2-Ethylhexyl)Phthalate	120	U
218-01-9	Chrysene	120	U
117-84-0	Di-n-Octyl Phthalate	120	U
205-99-2	Benzo(b)Fluoranthene	120	U
207-08-9	Benzo(k)Fluoranthene	120	U
50-32-8	Benzo(a)Pyrene	120	U
193-39-5	Indeno(1 2. 3-cd)Pyrene	120	U
53-70-3	Dibenz(a h)Anthracene	120	U
191-24-2	Benzo(g. h i)Perylene	120	U

(1)-Cannot be separated from diphenylamine

Laboratory Name ecology and environment, inc.

Case No 11-5157, 5162

Sample Number DC-GW-39

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-22-87

Conc/Dil Factor 100

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	5.0U
319-85-7	Beta-BHC	5.0U
319-86-8	Delta-BHC	5.0U
58-89-9	Gamma-BHC (Lindane)	5.0U
76-44-8	Heptachlor	5.0U
309-00-2	Aldrin	5.0U
1024-57-3	Heptachlor Epoxide	5.0U
959-98-8	Endosulfan I	5.0U
60-57-1	Dieldrin	10U
72-55-9	4,4'-DDE	10U
72-20-8	Endrin	10U
33213-65-9	Endosulfan II	10U
72-54-8	4,4'-DDD	10U
1031-07-8	Endosulfan Sulfate	10U
50-29-3	4,4'-DDT	10U
72-43-5	Methoxychlor	50U
53494-70-5	Endrin Ketone	10U
57-74-9	Chlordane	50U
8001-35-2	Toxaphene	100U
12674-11-2	Aroclor-1016	50U
11104-28-2	Aroclor-1221	50U
11141-16-5	Aroclor-1232	50U
53469-21-9	Aroclor-1242	50U
12672-29-6	Aroclor-1248	50U
11097-69-1	Aroclor-1254	100U
11096-82-5	Aroclor-1260	100U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4 304

Laboratory Name

Case No U-5157, 5162

Sample Number DC-GW-39 A

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
4.	Xylene Isomer	BNA	5.06	360 J
5.	Unknown Alcohol		5.25	360 J
6.	Xylene Isomer		5.72	180 J
7	Tetrachloroethane		6.37	320 J
8.	Unknown Alcohol		10.99	5500 J
9.	Chloroaniline Isomer		11.62	550 J
10.	Unknown Acid		12.21	2400 J
11.	Unknown Acid		14.29	11,000 J
12.	Unknown Acid		15.08	430 J
13.				
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Laboratory Name Ecology & Environment

Case No U-5157, 5162

Sample Number DC-GW-39B

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
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Sample Number
DC-GW-40

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2218 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Slostowicz Date Sample Received 3-25-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-6-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u J
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	5u
67-64-1	Acetone	~~6J~~ 10u
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	5u
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	10u
75-25-2	Bromoform	5u
591-78-6	4-Methyl-2-Pentanone	10u J
108-10-1	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	5u
108-90-7	Chlorobenzene	5u
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	5u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥ 10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and footnotes attached to the data summary report

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-40

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.				
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30				

Sample Number
DC-GW-41

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2219 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Wojtowicz Date Sample Received: 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-6-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10u J
74-83-9	Bromomethane	10u J
75-01-4	Vinyl Chloride	10u
75-00-3	Chloroethane	10u
75-09-2	Methylene Chloride	5u
67-64-1	Acetone	10u
75-15-0	Carbon Disulfide	5u
75-35-4	1, 1-Dichloroethene	5u
75-34-3	1, 1-Dichloroethane	5u
156-60-5	Trans-1, 2-Dichloroethene	5u
67-66-3	Chloroform	5u
107-06-2	1, 2-Dichloroethane	5u
78-93-3	2-Butanone	~~10u~~ R
71-55-6	1, 1, 1-Trichloroethane	5u
56-23-5	Carbon Tetrachloride	5u
108-05-4	Vinyl Acetate	10u J
75-27-4	Bromodichloromethane	5u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5u
10061-02-6	Trans-1, 3-Dichloropropene	5u
79-01-6	Trichloroethene	5u
124-48-1	Dibromochloromethane	5u
79-00-5	1, 1, 2-Trichloroethane	5u
71-43-2	Benzene	10
10061-01-5	cis-1, 3-Dichloropropene	5u
110-75-8	2-Chloroethylvinylether	10u
75-25-2	Bromoform	5u
591-78-6	4-Methyl-2-Pentanone	10u J
108-10-1	2-Hexanone	10u
127-18-4	Tetrachloroethene	5u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5u
108-88-3	Toluene	~~1J~~ 5u
108-90-7	Chlorobenzene	5
100-41-4	Ethylbenzene	5u
100-42-5	Styrene	5u
	Total Xylenes	2J

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

May 93

Value If the result is a value greater than or equal to the detection limit report the value

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration dilution action. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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Laboratory Name _____

Case No U-5157, 5162

Sample Number DC-GW-41

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-30-87

Date Analyzed: 4-28-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
[illegible]96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	UJ
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	UJ
606-20-2	2,6-Dinitrotoluene	10	UJ
84-66-2	Diethylphthalate	10	UJ
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	UJ
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10 ~~B~~	UJ
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	~~3 BJ~~	10 U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	~~2 BJ~~	10 U
205-99-2	Benzo(b)Fluoranthene	10	UJ
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

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Form I

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491095

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-4

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-22-87

Conc/Dil Factor 1.0

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.07U
319-85-7	Beta-BHC	0.07U
319-86-8	Delta-BHC	0.07U
58-89-9	Gamma-BHC (Lindane)	0.07U
76-44-8	Heptachlor	0.07U
309-00-2	Aldrin	0.07U
1024-57-3	Heptachlor Epoxide	0.07U
959-98-8	Endosulfan I	0.07U
60-57-1	Dieldrin	0.13U
72-55-9	4,4'-DDE	0.13U
72-20-8	Endrin	0.13U
33213-65-9	Endosulfan II	0.13U
72-54-8	4,4'-DDD	0.13U
1031-07-8	Endosulfan Sulfate	0.13U
50-29-3	4,4'-DDT	0.13U
72-43-5	Methoxychlor	0.65U
53494-70-5	Endrin Ketone	0.13U
57-74-9	Chlordane	0.65U
8001-35-2	Toxaphene	1.3U
12674-11-2	Aroclor-1016	0.65U
11104-28-2	Aroclor-1221	0.65U
11141-16-5	Aroclor-1232	0.65U
53469-21-9	Aroclor-1242	0.65U
12672-29-6	Aroclor-1248	0.65U
11097-69-1	Aroclor-1254	1.3U
11096-82-5	Aroclor 1260	1.3U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 780 or W_s _____ V_t 10,000 V_i 4

Laboratory Name _____

Case No U-5157, 5162

Sample Number
DC-GW-4

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.	Unknown	BNA	11.48	19 J
3.	Chloroaniline Isomer	BNA	11.56	100 J
4. 50763514	3-methyl-1,5-heptadiene		15.34	39 J
5.	Unknown		19.91	~~52bJ~~ 4
6.	Unknown Phthalate		33.67	~~83bJ~~ 4
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Form 1, Part B

7 85

Laboratory Name Ecology & Environment Inc.

Case No: U-5157, 5162

Sample Number: DC-GW-41R

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared: 3-30 87

Date Analyzed: 4-28-87

Conc/Dil Factor: 2

Percent Moisture (Decanted) –

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-Dichlorobenzene	2	J
100-51-6	Benzyl Alcohol	10	U
95-50-1	1. 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2. 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2. 4-Dichlorophenol	10	U
120-82-1	1. 2. 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2. 4. 6-Trichlorophenol	10	U
95-95-4	2. 4. 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2. 4-Dinitrophenol	50	UJ
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	UJ
606-20-2	2. 6-Dinitrotoluene	10	UJ
84-66-2	Diethylphthalate	10	UJ
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	UJ
534-52-1	4. 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	~~7 BJ~~	10 UJ
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3. 3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	~~2 BJ~~	10 U
205-99-2	Benzo(b)Fluoranthene	10	UJ
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1 2. 3-cd)Pyrene	10	U
53-70-3	Dibenzo(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

HE May 9

Form I

Case No U-5157, 5162

DC-GW-41R

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number MIN.	Estimated Concentration (ug/l or ug/kg)
1.	Unknown	BNA	11.48	11 J
2.	Chlorocyclic Isomer		11.58	73 J
3. 50763514	3-methyl-1,5-heptadiene		15.34	36 J
4	Unknown		19.92	~~42 B J~~
5.	Unknown Phthalate		33.69	~~39 B J~~
6.				
7				
8.				
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May
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Sample Number
DC-GW-42

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2220 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: [signature] Date Sample Received: 3-25-87

Volatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 3-30-87

Conc./Dil Factor: 20 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	200u J
74-83-9	Bromomethane	200u
75-01-4	Vinyl Chloride	200u
75-00-3	Chloroethane	200u J
75-09-2	Methylene Chloride	310 U
67-64-1	Acetone	430 U
75-15-0	Carbon Disulfide	100u
75-35-4	1, 1-Dichloroethene	100u
75-34-3	1, 1-Dichloroethane	100u
156-60-5	Trans-1, 2-Dichloroethene	94J
67-66-3	Chloroform	100u
107-06-2	1, 2-Dichloroethane	100u
78-93-3	2-Butanone	570J
71-55-6	1, 1, 1-Trichloroethane	43J
56-23-5	Carbon Tetrachloride	100u
108-05-4	Vinyl Acetate	200u J
75-27-4	Bromodichloromethane	100u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	100u
10061-02-6	Trans-1, 3-Dichloropropene	100u
79-01-6	Trichloroethene	1000
124-48-1	Dibromochloromethane	100u
79-00-5	1, 1, 2-Trichloroethane	100u
71-43-2	Benzene	1800
10061-01-5	cis-1, 3-Dichloropropene	100u
110-75-8	2-Chloroethylvinylether	200u
75-25-2	Bromoform	100u
591-78-6	4-Methyl-2-Pentanone	200u
108-10-1	2-Hexanone	200u
127-18-4	Tetrachloroethene	100u
79-34-5	1, 1, 2, 2-Tetrachloroethane	100u
108-88-3	Toluene	130u
108-90-7	Chlorobenzene	1000
100-41-4	Ethylbenzene	100u
100-42-5	Styrene	100u
	Total Xylenes	27J

HE
May 93

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration/dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U-Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

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aboratory Name ecology and environment, inc.

ase No U-5157, 5162

Sample Number
DC-GW-42

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

oncentration: Low Medium (Circle One)

ate Extracted/Prepared 3-30-87

ate Analyzed: 4-28-87

onc/Dil Factor: 2

ercent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1,2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2,4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(2-Chloroethoxy)Methane	10	U
120-83-2	2,4-Dichlorophenol	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2,4,6-Trichlorophenol	10	U
95-95-4	2,4,5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
1[illegible]-11-3	Dimethyl Phthalate	10	U
2[illegible]-96-8	Acenaphthylene	10	U
99-09-2	3-Nitroaniline	50	U

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2,4-Dinitrophenol	50	U
100-02-7	4-Nitrophenol	50	U
132-64-9	Dibenzofuran	10	U
121-14-2	2,4-Dinitrotoluene	10	U
606-20-2	2,6-Dinitrotoluene	10	U
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	U
534-52-1	4,6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10 ~~B~~	UJ
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3,3'-Dichlorobenzidine	20	U
56-55-3	Benzo(a)Anthracene	10	U
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	11 ~~B~~	4
205-99-2	Benzo(b)Fluoranthene	10	U
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1,2,3-cd)Pyrene	10	U
53-70-3	Dibenz(a,h)Anthracene	10	U
191-24-2	Benzo(g,h,i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

TV
XE

May 9

Form I

7/85
491095

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number
DC-GW-42

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-22-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05U
319-85-7	Beta-BHC	0.05U
319-86-8	Delta-BHC	0.05U
58-89-9	Gamma-BHC (Lindane)	0.05U
76-44-8	Heptachlor	0.05U
309-00-2	Aldrin	0.05U
1024-57-3	Heptachlor Epoxide	0.05U
959-98-8	Endosulfan I	0.05U
60-57-1	Dieldrin	0.10U
72-55-9	4,4'-DDE	0.10U
72-20-8	Endrin	0.10U
33213-65-9	Endosulfan II	0.10U
72-54-8	4,4'-DDD	0.10U
1031-07-8	Endosulfan Sulfate	0.10U
50-29-3	4,4'-DDT	0.10U
72-43-5	Methoxychlor	0.50U
53494-70-5	Endrin Ketone	0.10U
57-74-9	Chlordane	0.50U
8001-35-2	Toxaphene	1.0U
12674-11-2	Aroclor-1016	0.50U
11104-28-2	Aroclor-1221	0.50U
11141-16-5	Aroclor-1232	0.50U
53469-21-9	Aroclor-1242	0.50U
12672-29-6	Aroclor-1248	0.50U
11097-69-1	Aroclor-1254	1.0U
11096-82-5	Aroclor-1260	1.0U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 1,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No 4-5157, 5162

Sample Number DC-GW-42

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	Unknown alcohol	VOA	15.53	120 J
2.	Dichlorobenzene isomer	↓	39.80	1100 J
3.	Dichlorobenzene isomer	↓	40.50	2900 J
4.	Dichlorobenzene isomer	↓	41.80	5800 J
5.				
6.	Chloroaniline Isomer	BNA	11.59	180 J
7. 50763514	3-Methyl-1,5-Heptadiene	↓	15.37	57 J
8.	Unknown	↓	19.92	~~76 BJ~~ 4
9.	Unknown Phthalate	↓	33.68	~~51 JB~~ 4
10.				
11.				
12.				
13.				
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May 93

Sample Number
DC-GW-43

Organics Analysis Data Sheet
(Page 1)

Laboratory Name: Ecology & Environment, Inc. Case No: U-5157, 5162

Lab Sample ID No: 2221 QC Report No:

Sample Matrix: Water Contract No: IL-3140

Data Release Authorized By: C Hoytowicz Date Sample Received 3-25-87

Volatile Compounds

Concentration: (Low) Medium (Circle One)

Date Extracted/Prepared:

Date Analyzed: 4-6-87

Conc./Dil Factor: 1 pH

Percent Moisture: (Not Decanted)

CAS Number		ug/l or ug/Kg (Circle One)
74-87-3	Chloromethane	10 u J
74-83-9	Bromomethane	10 u J
75-01-4	Vinyl Chloride	10 u
75-00-3	Chloroethane	10 u
75-09-2	Methylene Chloride	5 u
67-64-1	Acetone	~~5~~ J 10 U
75-15-0	Carbon Disulfide	5 u
75-35-4	1, 1-Dichloroethene	5 u
75-34-3	1, 1-Dichloroethane	5 u
156-60-5	Trans-1, 2-Dichloroethene	5 u
67-66-3	Chloroform	5 u
107-06-2	1, 2-Dichloroethane	5 u
78-93-3	2-Butanone	~~10 u~~ B
71-55-6	1, 1, 1-Trichloroethane	5 u
56-23-5	Carbon Tetrachloride	5 u
108-05-4	Vinyl Acetate	10 u J
75-27-4	Bromodichloromethane	5 u

CAS Number		ug/l or ug/Kg (Circle One)
78-87-5	1, 2-Dichloropropane	5 u
10061-02-6	Trans-1, 3-Dichloropropene	5 u
79-01-6	Trichloroethene	5 u
124-48-1	Dibromochloromethane	5 u
79-00-5	1, 1, 2-Trichloroethane	5 u
71-43-2	Benzene	5 u
10061-01-5	cis-1, 3-Dichloropropene	5 u
110-75-8	2-Chloroethylvinylether	10 u
75-25-2	Bromoform	5 u
591-78-6	4-Methyl-2-Pentanone	10 u J
108-10-1	2-Hexanone	10 u
127-18-4	Tetrachloroethene	5 u
79-34-5	1, 1, 2, 2-Tetrachloroethane	5 u
108-88-3	Toluene	5 u
108-90-7	Chlorobenzene	5 u
100-41-4	Ethylbenzene	5 u
100-42-5	Styrene	5 u
	Total Xylenes	5 u

Data Reporting Qualifiers

For reporting results to EPA, the following results qualifiers are used. Additional flags or footnotes explaining results are encouraged. However, the definition of each flag must be explicit.

Value If the result is a value greater than or equal to the detection limit report the value.

U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration, dilution action. (This is not necessarily the instrument detection limit.) The footnote should read: U - Compound was analyzed for but not detected. The number is the minimum attainable detection limit for the sample.

J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicated the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g. 10J). If limit of detection is 10 µg/l and a concentration of 3 µg/l is calculated, report as 3J.

C This flag applies to pesticide parameters where the identification has been confirmed by GC/MS. Single component pesticides ≥10 ng/ul in the final extract should be confirmed by GC/MS.

B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.

Other Other specific flags and footnotes may be required to properly define the results. If used, they must be fully described and such description attached to the data summary report.

E This flag indicates an approximate concentration. The amount detected in the analysis exceeds the calibrated range.

HE May 93

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Laboratory Name ECOLOGY & ENVIRONMENT INC.

Case No 4-5157, 5162

Sample Number DC-GW-43

Organics Analysis Data Sheet
(Page 2)

Semivolatile Compounds

Concentration: Low Medium (Circle One)

Date Extracted/Prepared 3-30-87

Date Analyzed 4-28-87

Conc/Dil Factor 2

Percent Moisture (Decanted) -

GPC Cleanup ☐Yes ☒No

Separatory Funnel Extraction ☒Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		ug/l or ug/Kg (Circle One)	
108-95-2	Phenol	10	U
111-44-4	bis(-2-Chloroethyl)Ether	10	U
95-57-8	2-Chlorophenol	10	U
541-73-1	1 3-Dichlorobenzene	10	U
106-46-7	1 4-Dichlorobenzene	10	U
100-51-6	Benzyl Alcohol	10	U
95-50-1	1 2-Dichlorobenzene	10	U
95-48-7	2-Methylphenol	10	U
39638-32-9	bis(2-chloroisopropyl)Ether	10	U
106-44-5	4-Methylphenol	10	U
621-64-7	N-Nitroso-Di-n-Propylamine	10	U
67-72-1	Hexachloroethane	10	U
98-95-3	Nitrobenzene	10	U
78-59-1	Isophorone	10	U
88-75-5	2-Nitrophenol	10	U
105-67-9	2 4-Dimethylphenol	10	U
65-85-0	Benzoic Acid	50	U
111-91-1	bis(-2-Chloroethoxy)Methane	10	U
120-83-2	2 4-Dichlorophenol	10	U
120-82-1	1 2 4-Trichlorobenzene	10	U
91-20-3	Naphthalene	10	U
106-47-8	4-Chloroaniline	10	U
87-68-3	Hexachlorobutadiene	10	U
59-50-7	4-Chloro-3-Methylphenol	10	U
91-57-6	2-Methylnaphthalene	10	U
77-47-4	Hexachlorocyclopentadiene	10	U
88-06-2	2 4 6-Trichlorophenol	10	U
95-95-4	2 4 5-Trichlorophenol	50	U
91-58-7	2-Chloronaphthalene	10	U
88-74-4	2-Nitroaniline	50	U
131-11-3	Dimethyl Phthalate	10	U
208-96-8	Acenaphthylene	10	U
3-09-2	3-Nitroaniline	50	UJ

CAS Number		ug/l or ug/Kg (Circle One)	
83-32-9	Acenaphthene	10	U
51-28-5	2 4-Dinitrophenol	50	UJ
100-02-7	4-Nitrophenol	50	UJ
132-64-9	Dibenzofuran	10	U
121-14-2	2 4-Dinitrotoluene	10	UJ
606-20-2	2 6-Dinitrotoluene	10	UJ
84-66-2	Diethylphthalate	10	U
7005-72-3	4-Chlorophenyl-phenylether	10	U
86-73-7	Fluorene	10	U
100-01-6	4-Nitroaniline	50	UJ
534-52-1	4 6-Dinitro-2-Methylphenol	50	U
86-30-6	N-Nitrosodiphenylamine (1)	10	U
101-55-3	4-Bromophenyl-phenylether	10	U
118-74-1	Hexachlorobenzene	10	U
87-86-5	Pentachlorophenol	50	U
85-01-8	Phenanthrene	10	U
120-12-7	Anthracene	10	U
84-74-2	Di-n-Butylphthalate	10	UJ
206-44-0	Fluoranthene	10	U
129-00-0	Pyrene	10	U
85-68-7	Butylbenzylphthalate	10	U
91-94-1	3 3'-Dichlorobenzidine	20	UJ
56-55-3	Benzo(a)Anthracene	10	UJ
117-81-7	bis(2-Ethylhexyl)Phthalate	10	U
218-01-9	Chrysene	10	U
117-84-0	Di-n-Octyl Phthalate	10	U
205-99-2	Benzo(b)Fluoranthene	10	UJ
207-08-9	Benzo(k)Fluoranthene	10	U
50-32-8	Benzo(a)Pyrene	10	U
193-39-5	Indeno(1 2 3-cd)Pyrene	10	U
53-70-3	Dibenz(a h)Anthracene	10	U
191-24-2	Benzo(g h i)Perylene	10	U

(1)-Cannot be separated from diphenylamine

Laboratory Name ecology and environment, inc.

Case No 11-5157, 5162

Sample Number DC-GW-21

Organics Analysis Data Sheet
(Page 3)

Pesticide/PCBs

Concentration (Low) Medium (Circle One)

Date Extracted/Prepared 3-31-87

Date Analyzed 4-22-87

Conc/Dil Factor 1

Percent Moisture (decanted) _____

GPC Cleanup ☐Yes ☑No

Separatory Funnel Extraction ☑Yes

Continuous Liquid - Liquid Extraction ☐Yes

CAS Number		(ug/l or ug/Kg) (Circle One)
319-84-6	Alpha-BHC	0.05 U
319-85-7	Beta-BHC	0.05 U
319-86-8	Delta-BHC	0.05 U
58-89-9	Gamma-BHC (Lindane)	0.05 U
76-44-8	Heptachlor	0.05 U
309-00-2	Aldrin	0.05 U
1024-57-3	Heptachlor Epoxide	0.05 U
959-98-8	Endosulfan I	0.05 U
60-57-1	Dieldrin	0.10 U
72-55-9	4,4'-DDE	0.10 U
72-20-8	Endrin	0.10 U
33213-65-9	Endosulfan II	0.10 U
72-54-8	4,4'-DDD	0.10 U
1031-07-8	Endosulfan Sulfate	0.10 U
50-29-3	4,4'-DDT	0.10 U
72-43-5	Methoxychlor	0.50 U
53494-70-5	Endrin Ketone	0.10 U
57-74-9	Chlordane	0.50 U
8001-35-2	Toxaphene	1.0 U
12674-11-2	Aroclor-1016	0.50 U
11104-28-2	Aroclor-1221	0.50 U
11141-16-5	Aroclor-1232	0.50 U
53469-21-9	Aroclor-1242	0.50 U
12672-29-6	Aroclor-1248	0.50 U
11097-69-1	Aroclor-1254	1.0 U
11096-82-5	Aroclor-1260	1.0 U

V_i = Volume of extract injected (ul)

V_s = Volume of water extracted (ml)

W_s = Weight of sample extracted (g)

V_t = Volume of total extract (ul)

V_s 4,000 or W_s _____ V_t 10,000 V_i 4

Laboratory Name ecology and environment, inc.

Case No U-5157, 5162

Sample Number DC-GW-43

Organics Analysis Data Sheet
(Page 4)

Tentatively Identified Compounds

CAS Number	Compound Name	Fraction	RT or Scan Number min	Estimated Concentration (ug/l or ug/kg)
1.	No TIC's in VOA fraction			
2.				
3.	Unknown	BNA	19.91	~~33 BJ~~ 4
4.	Unknown Phthalate	BNA	33.69	~~56 BJ~~ 4
5.				
6.				HE
7.				
8.				May 4
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Appendix A

FONT? DATA VALIDATION REPORT
AND **Corrected Form Is**

Case Numbers U-5157 and U-5162

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Numbers:	U-5157 and U-5162
Sample Numbers:	DC-GW-23 through DC-GW-43
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	March 23 and March 24, 1987

The data for these 21 samples were reviewed according to the EPA document "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form I~~s~~) with appropriate data validation qualifiers are provided in Appendix A. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample (ICS) results, laboratory control sample (LCS) results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the ICS. The raw data were reviewed, and the results are within acceptable QC limits.

The cyanide initial calibration was not found in the data package. Therefore, all positive cyanide results are considered estimated and qualified "J," since the results cannot be verified. Undetected results are acceptable.

2.2 HOLDING TIMES

All holding time requirements were met.

2.3 CALIBRATIONS

Calibrations are acceptable and meet QC requirements for initial and continuing calibration checks, except for cyanide as indicated in Section 2.1.

2.4 BLANKS

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLES

The ICSs analyzed by inductively coupled plasma (ICP) generally meet the QC requirements. The laboratory failed to report the results on the appropriate form; however, the raw data were reviewed, and the results are within the acceptable limits.

2.6 LABORATORY CONTROL SAMPLES

The LCSs prepared and analyzed with the sample batch are within acceptable QC limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The laboratory duplicate sample results are within acceptable QC limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike percent recoveries (%R) for lead (70 %R) and selenium (46 %R) are below the lower quality control limit of 75 %R. All lead and selenium sample results for all samples in this

sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. These results are biased low due to the low spike recoveries.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine the extent of matrix interference in graphite furnace analyses, a post-digestion spike (PDS) was analyzed for each sample. Initially, the sample digest was analyzed, followed by a second analysis to which a known amount of analyte was added. The %R of the spike indicates the extent of matrix interference and bias. The following samples have PDS recoveries less than the lower QC limit of 85 %R.

Analyte	Samples
Arsenic	DC-GW-28 and DC-GW-29
Lead	DC-GW-24, DC-GW-27, DC-GW-29, DC-GW-32, DC-GW-33, DC-GW-34, DC-GW-36, DC-GW-37, DC-GW-39, DC-GW-40, DC-GW-41, and DC-GW-43
Selenium	DC-GW-24, DC-GW-27, DC-GW-29, DC-GW-32, DC-GW-33, DC-GW-34, DC-GW-36, DC-GW-37 DC-GW-38, DC-GW-39, DC-GW-40, DC-GW-41, DC-GW-42, and DC-GW-43
Thallium	DC-GW-41
Tin	DC-GW-23, DC-GW-24, DC-GW-25, DC-GW-26, DC-GW-27, DC-GW-28, DC-GW-29, DC-GW-31 DC-GW-32, DC-GW-33, DC-GW-34, DC-GW-36, DC-GW-38, DC-GW-40, DC-GW-41, DC-GW-42, and DC-GW-43

The results for the analytes and sample numbers listed above are considered estimated and qualified "UJ." The sample results are biased low.

2.10 SAMPLE RESULT VERIFICATION

The nickel result for sample DC-GW-37 is greater than the linear calibration range for the instrument. The laboratory failed to perform a dilution for this sample. Therefore, the sample result reported is the undiluted analysis and is considered estimated (J), since the response may be outside the linear range. Bias cannot be determined.

To reduce the matrix effect, the laboratory performed dilutions on numerous graphite furnace sample analyses. The quantitation limits for undetected results are increased by the dilution factor. Unless the result is qualified on the basis of PDS (see Section 2.9), the results are acceptable at the higher quantitation limit.

For the following samples, the laboratory incorrectly reported the results listed below. The results are in micrograms per liter (μg/L).

Sample	Analyte	Incorrect Result	Correct Result
DC-GW-32	Aluminum	[85] μg/L	200U μg/L
	Barium	200U μg/L	[85] μg/L
DC-GW-33	Manganese	3,740 μg/L	3,940 μg/L
DC-GW-37	Aluminum	200U μg/L	11,600 μg/L
	Arsenic	14,000 μg/L	13,700 μg/L
	Beryllium	50.0U μg/L	5.0U μg/L
	Nickel	40U μg/L	67,000 μg/L
DC-GW-39	Mercury	0.2U μg/L	0.47 μg/L
	Vanadium	[82] μg/L	[42] μg/L
DC-GW-42	Manganese	4,300 μg/L	4,270 μg/L

The "[ ]" means that the sample result is less than the CRDL but greater that the instrument detection limit and has no affect on data quality.

3.0 OVERALL ASSESSMENT

Generally, the data are acceptable Level IV data with the exceptions noted in Section 2.0 and the corrections made in Section 2.10. The data are qualified due to matrix interference, possibly caused by high organic content. This matrix interference may contribute to false negatives or data that is biased low. The qualified data are biased low and may be used for scoring.

Form I

Sample No.
PC-GW-23

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2194 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1520	P
3.	Arsenic	12	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	25,400	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager D. [illegible]

Form I

Sample No. DC-GW-24

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2195 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1550	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	23,300	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-25

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2196 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1650	P
3.	Arsenic	20	F	15.	Mercury	0.2 U	CV
4.	Barium	223	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,800	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-26

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2197 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U		P	14.	Manganese	1260		P
3.	Arsenic	15		F	15.	Mercury	0.2 U		CV
4.	Barium	200 U		P	16.	Nickel	95		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U		P	18.	Selenium	50 U	R F	UJ
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F
10.	Copper	25 U		P	22.	Tin	40 U		F UJ
11.	Iron	24,100		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R F	UJ	24.	Zinc	25		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-27

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2198 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	800 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1270	P
3.	Arsenic	12	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U - R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,500	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	26	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-28

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2199 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1750	P
3.	Arsenic	10 U	F UJ	15.	Mercury	0.2 U	CV
4.	Barium	956	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F UJ
11.	Iron	9540	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-29

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2200 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1580	P
3.	Arsenic	10 U	F UJ	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	24,900	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) 20 U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
PC-GW-30

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2201 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60. U	P	14.	Manganese	15 U	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F
11.	Iron	107	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-31

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2202 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	124	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	100 U	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P
Cyanide		10 U		Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-32

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2210 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	~~[85]~~ 200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2290	P
3.	Arsenic	175	F	15.	Mercury	0.2 U	CV
4.	Barium	~~200 U~~ [85]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	4000 U	F UJ
11.	Iron	43,900	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	129	P

Cyanide 26 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-33

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2211 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR 3,940	
2.	Antimony	60 U	P	14.	Manganese	3940	P
3.	Arsenic	34	F	15.	Mercury	0.2 U	CV
4.	Barium	[192]	P	16.	Nickel	[57]	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	41	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	49,500	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	58	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No. DC-GW-34

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2212 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1460	P
3.	Arsenic	27	F	15.	Mercury	0.2 U	CV
4.	Barium	[48]	P	16.	Nickel	72	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	3850	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	[14]	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-35

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2213 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	15 U	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	111	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	[10]	P
Cyanide		10 U		Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-36

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2214 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	274	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[173]	P	16.	Nickel	111	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	2160	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	53	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-37

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2215 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	cnf ~~200 U~~ 11,600	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	7660	P
3.	Arsenic	cnf ~~14,000~~ 13,700	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	cnf ~~40 U~~	P 67,000 J
5.	Beryllium	cnf ~~50.0 U~~ 5.0 U	P	17.	Potassium	NR	
6.	Cadmium	32	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	84	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	4000 U	F
11.	Iron	523,000	P	23.	Vanadium	159	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	2210	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager J. J. [illegible]

Form I

Sample No.
DC-GW-38

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2216 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	4340	P
3.	Arsenic	16	F	15.	Mercury	0.2 U	CV
4.	Barium	[159]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	20,400	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	41	P

Cyanide 20 J Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-39

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2217 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	5460	P
3.	Arsenic	133	F	15.	Mercury	~~0.24~~ 0.47	CV
4.	Barium	536	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	8.3	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	147,000	P	23.	Vanadium	[42]	P [42]
12.	Lead	5.0 U R	F UJ	24.	Zinc	101	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-40

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2218 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1270	P
3.	Arsenic	25	F	15.	Mercury	0.2 U	CV
4.	Barium	[16 I]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	19,600	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	95	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-41

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2219 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	4110	P
3.	Arsenic	18	F	15.	Mercury	0.2 U	CV
4.	Barium	[170]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	36,400	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	23	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-42

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2220 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR 4270	
2.	Antimony	60 U	P	14.	Manganese	~~4300~~	P
3.	Arsenic	23	F	15.	Mercury	0.2U	CV
4.	Barium	[184]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0U	P	17.	Potassium	NR	
6.	Cadmium	5.0U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	36,600	P	23.	Vanadium	50U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	34	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-43

Date 4/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2221 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2300	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	141	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	3930	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	26	P
Cyanide		10 U		Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill and
Laboratory:	Ecology/Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5109, U-5119, and U-5129
Sample Numbers:	DC-GW-01 through DC-GW-22
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	March 17 through March 19, 1987

The data for these 22 samples were reviewed according to EPA document "Laboratory Data Validation functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form 1s) are attached with appropriate data validation qualifiers. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample results, laboratory control sample results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the interference check sample (ICS), however, the raw data ~~was~~ were reviewed and the results are within acceptable QC limits.

The barium raw data for samples DC-GW-10 through DC-GW-17 were not found in the report package. The barium results for these samples cannot be verified. ? what/how did you qualify it? – J-?

The cyanide data does not contain the initial calibration curve. The cyanide results for all samples cannot be verified. again → ?

2.2 HOLDING TIMES

All holding time requirements ~~are~~ were met.

2.3 CALIBRATIONS

Calibrations are acceptable and meet quality control requirements for initial and continuing calibration checks.

2.4 BLANKS

hard return ?

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLE

The interference check samples (ICS) analyzed by inductively coupled plasma (ICP) generally meet the quality control requirements. although The laboratory failed to report the results on the appropriate form, ~~however~~, the raw data was reviewed and the results are within acceptable limits.

2.6 LABORATORY CONTROL SAMPLE

The laboratory control samples (LCS) prepared and analyzed with the sample batch are within acceptable quality control limits.

2.7 DUPLICATE SAMPLE ANALYSIS

lab or field or both?

The duplicate sample results are within acceptable quality control limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike percent recoveries (%R) for antimony (70%), cadmium (74%), and lead (60%) are below the lower quality control limit. All antimony, cadmium, and lead sample results for all samples in this sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. The indication is that these results are biased low due to the low spike recoveries. Good

The spike for selenium was not recovered (0% recovery) in the matrix spike sample analysis. All selenium results are less than the CRDL and are therefore considered unusable. The results are highly suspect, ~~since~~ and ~~there exists the potential for~~ false negatives. are a strong possibility. and qualified "R" as unusable

2.9 FURNACE ATOMIC ABSORPTION QC

To determine matrix interference, all graphite furnace samples are analyzed followed by a post-digestion spike (PDS). The following samples have PDS recoveries less than the lower QC limit of 85%.

Analyte	Samples
Arsenic	DC-GW-15
Lead	DC-GW-01, DC-GW-08, DC-GW-09, DC-GW-10, DC-GW-12, DC-GW-13, DC-GW-14, DC-GW-15 and DC-GW-16
Thallium	DC-GW-01, DC-GW-02, DC-GW-04, DC-GW-07, DC-GW-08, DC-GW-09, DC-GW-10, DC-GW-12 DC-GW-13, DC-GW-14, DC-GW-15, DC-GW-18, and DC-GW-19
Tin	DC-GW-01, DC-GW-02, DC-GW-03, DC-GW-05, DC-GW-07, DC-GW-08, DC-GW-18, DC-GW-19 DC-GW-20, and DC-GW-21

The ~~sample~~ results for the sample numbers and analytes listed above are considered estimated and qualified "UJ". Their results are biased low.

Most of the selenium PDS results were below the QC limit, however, since the results are already considered unusable due to matrix spike results, no further action is required.

2.10 SAMPLE RESULT VERIFICATION

Arsenic sample results for DC-GW-01, DC-GW-02, and DC-GW-11, and the lead results for samples DC-GW-11 and DC-GW-21 were above the calibration range and required dilutions. The dilution results are reported on the Form 1s.

In an attempt to reduce the matrix effect, the laboratory performed dilutions on numerous graphite furnace sample analyses. The quantitation limits for these results are increased by the dilution factor. Unless the result is qualified on the basis of PDS (Section 2.9), the results are acceptable at the higher quantitation limit.

positive or negative or all

For the following samples, the laboratory incorrectly reported the results listed. The Form 1s attached have been changed to reflect the correct results.

Sample	Analyte	Incorrect Result	Correct Result
DC-GW-08	Tin	40U ug/L	400U ug/L
DC-GW-09	Manganese	6630 ug/L	6620 ug/L
	Zinc	4.31 ug/L	4310 ug/L
DC-GW-13	Tin	400U ug/L	4000U ug/L
DC-GW-15	Iron	1150 ug/L	115 ug/L
DC-GW-16	Iron	1110 ug/L	110 ug/L

3.0 OVERALL ASSESSMENT

Generally, the data is acceptable Level IV data with the qualifiers noted in Section 2.0. The data are qualified due to matrix interference, possibly the result of high organic content. This matrix interference may contribute to false negatives or biased low data. The selenium results are unusable for scoring or risk assessment. The other qualified data are biased low and may be used for scoring.

This is

are

Form I

Sample No.
DC-GW-01.

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1970 QC REPORT NO. 1

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	1320	P
3.	Arsenic	64	F	15.	Mercury	0.2 U	CV
4.	Barium	384	P	16.	Nickel	64	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	40 U	F UJ
11.	Iron	8960	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	25	P

Cyanide 1560 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-02

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1971 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	1600		P
3.	Arsenic	82		F	15.	Mercury	0.2 U		CV
4.	Barium	482		P	16.	Nickel	74		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	50 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F UJ
10.	Copper	25 U		P	22.	Tin	40 U		F UJ
11.	Iron	54,000		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	326		P
Cyanide		10 U			Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-03

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1972 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	522	P
3.	Arsenic	18			F	15.	Mercury	0.2 U	CV
4.	Barium	200	U		P	16.	Nickel	40 U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10 U	F
10.	Copper	25	U		P	22.	Tin	40 U	F UJ
11.	Iron	15,800			P	23.	Vanadium	50 U	P
12.	Lead	5	U	R	F UJ	24.	Zinc	26	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-04

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1973 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	1090		P
3.	Arsenic	100		F	15.	Mercury	0.2 U		CV
4.	Barium	358		P	16.	Nickel	40 U		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F UJ
10.	Copper	25 U		P	22.	Tin	4000 U		F
11.	Iron	20,000		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	22		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-05

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1974 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	1640		P
3.	Arsenic	10 U		F	15.	Mercury	0.2 U		CV
4.	Barium	200 U		P	16.	Nickel	40 U		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F
10.	Copper	25 U		P	22.	Tin	400 U		F UJ
11.	Iron	571		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	313		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-06

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1975 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	13,200	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	336	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	4000 U	F
11.	Iron	11,300	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	48	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-07

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1976 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	2660	P
3.	Arsenic	11	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	36,700	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	172	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-05

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1977 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	2600		P
3.	Arsenic	11		F	15.	Mercury	0.2 U		CV
4.	Barium	200 U		P	16.	Nickel	40 U		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50 U		P	21.	Thallium	10 U		F UJ
10.	Copper	25 U		P	22.	Tin	~~40 U~~ 400 U		F UJ
11.	Iron	36,500		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	171		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-09

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109/5119/5129

SOW NO. 784

LAB SAMPLE ID. NO. 1978 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60 U	R	P UJ	14.	Manganese	orig 6630	6620	P
3.	Arsenic	15		F	15.	Mercury	0.2 U		CV
4.	Barium	200 U		P	16.	Nickel	112		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U	R	P UJ	18.	Selenium	5.0 U		F R
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	13		P	20.	Sodium	NR		
9.	Cobalt	148		P	21.	Thallium	10 U		F UJ
10.	Copper	25 U		P	22.	Tin	4000 U		F
11.	Iron	41,200		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	orig 4.3+	4310	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-10

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2001 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR			
2.	Antimony	60	U	R	P UJ	14.	Manganese	907			P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U		CV
4.	Barium	200	U		P	16.	Nickel	241			P
5.	Beryllium	5.0	U		P	17.	Potassium	NR			
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50	U		F R
7.	Calcium	NR				19.	Silver	10	U		P
8.	Chromium	10	U		P	20.	Sodium	NR			
9.	Cobalt	50	U		P	21.	Thallium	10	U		F UJ
10.	Copper	25	U		P	22.	Tin	400	U		F
11.	Iron	29600			P	23.	Vanadium	50	U		P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	57			P

Cyanide 480 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR : Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-11

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2002 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	11,800	P	13.	Magnesium	NR	
2.	Antimony	60 U R	P UJ	14.	Manganese	8020	P
3.	Arsenic	8490	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	17200	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	70 R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	24	P	20.	Sodium	NR	
9.	Cobalt	758	P	21.	Thallium	10 U	F
10.	Copper	2410	P	22.	Tin	4000 U	F
11.	Iron	104,000	P	23.	Vanadium	50 U	P
12.	Lead	28 R	F J	24.	Zinc	6840	P

Cyanide 21 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR : Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-12

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2003 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	1030		P
3.	Arsenic	26			F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	10	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F UJ
10.	Copper	25	U		P	22.	Tin	400	U	F
11.	Iron	34,900			P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	25		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-13

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2004 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	1800	P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U CV
4.	Barium	200	U		P	16.	Nickel	40	U P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U F R
7.	Calcium	NR				19.	Silver	10	U P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10	U F UJ
10.	Copper	25	U		P	22.	Tin	~~400 U~~ 4000U	F
11.	Iron	100	U		P	23.	Vanadium	50	U P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	24	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-14

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. V-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2005 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	2230	P
3.	Arsenic	10	U		F	15.	Mercury	1.4	CV
4.	Barium	219			P	16.	Nickel	40 U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10 U	F UJ
10.	Copper	25	U		P	22.	Tin	4000 U	F
11.	Iron	1280			P	23.	Vanadium	50 U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	31	P

Cyanide 157 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-15

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2006 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR			
2.	Antimony	63		R	P J	14.	Manganese	242			P
3.	Arsenic	10	U		F UJ	15.	Mercury	2.1			CV
4.	Barium	200	U		P	16.	Nickel	40	U		P
5.	Beryllium	5.0	U		P	17.	Potassium	NR			
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50	U		F R
7.	Calcium	NR				19.	Silver	10	U		P
8.	Chromium	10	U		P	20.	Sodium	NR			
9.	Cobalt	50	U		P	21.	Thallium	10	U		F UJ
10.	Copper	25	U		P	22.	Tin	400	U		F
11.	Iron	~~1150~~ 115			P	23.	Vanadium	50	U		P
12.	Lead	50	U	R	F UJ	24.	Zinc	42			P

Cyanide 101 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-16

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. V-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2007 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	103	P
3.	Arsenic	10	U		F	15.	Mercury	0.2 U	CV
4.	Barium	200	U		P	16.	Nickel	40 U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	10	U		P	20.	Sodium	NR	
9.	Cobalt	50	U		P	21.	Thallium	10 U	F
10.	Copper	25	U		P	22.	Tin	400 U	F
11.	Iron	~~110~~	110		P	23.	Vanadium	50 U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	24	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: not requested

Lab Manager _____

Form I

Sample No.
DC-GW-17

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2008 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	15	U	P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F
10.	Copper	25	U		P	22.	Tin	40	U	F
11.	Iron	100	U		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	20	U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Not requested

Lab Manager [signature]

Form I

Sample No.
DC-GW-18

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2034 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	1280		P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	331			P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	50	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F UJ
10.	Copper	25	U		P	22.	Tin	40	U	F UJ
11.	Iron	21,900			P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	24		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-19

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2035 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	7240	P
3.	Arsenic	14			F	15.	Mercury	0.2 U	CV
4.	Barium	610			P	16.	Nickel	349	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	22		R	P J	18.	Selenium	5.0 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	24			P	20.	Sodium	NR	
9.	Cobalt	588			P	21.	Thallium	10 U	F UJ
10.	Copper	25	U		P	22.	Tin	40 U	F UJ
11.	Iron	247,000			P	23.	Vanadium	93	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	1910	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-20

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109, 5119, 5129

SOW NO. 784

LAB SAMPLE ID. NO. 2036 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR	
2.	Antimony	60	U	R	P UJ	14.	Manganese	6850	P
3.	Arsenic	12			F	15.	Mercury	0.2 U	CV
4.	Barium	580			P	16.	Nickel	328	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR	
6.	Cadmium	22		R	P J	18.	Selenium	5.0 U	F R
7.	Calcium	NR				19.	Silver	10 U	P
8.	Chromium	23			P	20.	Sodium	NR	
9.	Cobalt	572			P	21.	Thallium	10 U	F
10.	Copper	25	U		P	22.	Tin	40 U	F UJ
11.	Iron	241,000			P	23.	Vanadium	94	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	1820	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-21

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2037 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	286		P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F
10.	Copper	25	U		P	22.	Tin	400	U	F UJ
11.	Iron	100	U		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	26		P

Cyanide 350 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-22

Date 5/29/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5109,5119,5129

SOW NO. 784

LAB SAMPLE ID. NO. 2038 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U		P	13.	Magnesium	NR		
2.	Antimony	60	U	R	P UJ	14.	Manganese	15	U	P
3.	Arsenic	10	U		F	15.	Mercury	0.2	U	CV
4.	Barium	200	U		P	16.	Nickel	40	U	P
5.	Beryllium	5.0	U		P	17.	Potassium	NR		
6.	Cadmium	5.0	U	R	P UJ	18.	Selenium	5.0	U	F R
7.	Calcium	NR				19.	Silver	10	U	P
8.	Chromium	10	U		P	20.	Sodium	NR		
9.	Cobalt	50	U		P	21.	Thallium	10	U	F
10.	Copper	25	U		P	22.	Tin	40	U	F
11.	Iron	100	U		P	23.	Vanadium	50	U	P
12.	Lead	5.0	U	R	F UJ	24.	Zinc	20	U	P
Cyanide		10	U			Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5157, and U-5162
Sample Numbers:	DC-GW-23 through DC-GW-43
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	March 23 and March 24, 1987

The data for these 21 samples were reviewed according to EPA document "Laboratory Data Validation functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (Form 1s) are attached with appropriate data validation qualifiers. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample results, laboratory control sample results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the interference check sample (ICS). The raw data ~~was~~ were reviewed and the results are within acceptable QC limits.

The cyanide data do~~es~~ not contain the initial calibration. The cyanide results cannot be verified.

delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. The indication is that these results are biased low due to the low spike recoveries.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine matrix interference, all graphite furnace samples are analyzed followed by a post-digestion spike (PDS). The following samples have PDS recoveries less than the lower QC limit of 85%.

Analyte	Samples
Arsenic	DC-GW-28 and DC-GW-29
Lead	DC-GW-24, DC-GW-27, DC-GW-29, DC-GW-32, DC-GW-33, DC-GW-34, DC-GW-36, DC-GW-37, DC-GW-39, DC-GW-40, DC-GW-41, and DC-GW-43
Selenium	DC-GW-24, DC-GW-27, DC-GW-29, DC-GW-32, DC-GW-33, DC-GW-34, DC-GW-36, DC-GW-37 DC-GW-38, DC-GW-39, DC-GW-40, DC-GW-41, DC-GW-42, and DC-GW-43
Thallium	DC-GW-41
Tin	DC-GW-23, DC-GW-24, DC-GW-25, DC-GW-26, DC-GW-27, DC-GW-28, DC-GW-29, DC-GW-31 DC-GW-32, DC-GW-33, DC-GW-34, DC-GW-36, DC-GW-38, DC-GW-40, DC-GW-41, DC-GW-42, and DC-GW-43

The sample results listed above are considered estimated and qualified "UJ". Their results are biased low.

2.10 SAMPLE RESULT VERIFICATION

The nickel result for sample DC-GW-37 is greater than the linear calibration range for the instrument. The laboratory failed to perform a dilution for this sample, therefore, the sample result reported is the undiluted analysis and is considered estimated (J), since the response may be outside the linear range. Bias cannot be determined.

2.2 HOLDING TIMES

All holding time requirements ~~are~~ were met.

2.3 CALIBRATIONS

Calibrations are acceptable and meet quality control requirements for initial and continuing calibration checks, except for cyanide as indicated in Section 2.1.

2.4 BLANKS

could be deleted

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLE

The interference check samples (ICS) analyzed by inductively coupled plasma (ICP) generally meet the quality control requirements. The laboratory failed to report the results on the appropriate form, however, the raw data ~~was~~ were reviewed and the results are within the acceptable limits.

2.6 LABORATORY CONTROL SAMPLE

The laboratory control samples (LCS) prepared and analyzed with the sample batch ~~are~~ were within acceptable quality control limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The duplicate sample results are within acceptable quality control limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike percent recoveries (%R) for lead (70%) and selenium (46%) are below the lower quality control limit. All lead and selenium sample results for all samples in this sample

of -- %.

To reduce the matrix effect, the laboratory performed dilutions on numerous graphite furnace sample analyses. The quantitation limits for these results are increased by the dilution factor. Unless the result is qualified on the basis of PDS (Section 2.9), the results are acceptable at the higher quantitation limit.

For the following samples, the laboratory incorrectly reported the results listed.

Sample	Analyte	Incorrect Result	Correct Result
DC-GW-32	Aluminum	[85] ug/L	200U ug/L
	Barium	200U ug/L	[85] ug/L
DC-GW-33	Manganese	3740 ug/L	3940 ug/L
DC-GW-37	Aluminum	200U ug/L	11,600 ug/L
	Arsenic	14,000 ug/L	13,700 ug/L
	Beryllium	50.0U ug/L	5.0U ug/L
	Nickel	40U ug/L	67,000 ug/L
DC-GW-39	Mercury	0.2U ug/L	0.47 ug/L
	Vanadium	[82] ug/L	[42] ug/L
DC-GW-42	Manganese	4300 ug/L	4270 ug/L

3.0 OVERALL ASSESSMENT

Generally, the data is acceptable Level IV data with the exceptions noted in Section 2.0 and the correction made in Section 2.10.3. The data are qualified due to matrix interference, possibly the result of high organic content. This matrix interference may contribute to false negatives or biased low data. The qualified data are biased low and may be used for scoring.

Why? This sounds bad to be off on so many!

Form I

Sample No.
PC-GW-23

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2194 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1520	P
3.	Arsenic	12	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	25,400	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager D. [illegible]

Form I

Sample No.
DC-GW-24

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2195 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1550	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	23,300	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-25

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2196 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1650	P
3.	Arsenic	20	F	15.	Mercury	0.2 U	CV
4.	Barium	223	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,800	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-26

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2197 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1260	P
3.	Arsenic	15	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	95	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F UJ
11.	Iron	24,100	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	25	P
Cyanide		10 U		Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-27

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2198 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	800 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1270	P
3.	Arsenic	12	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,500	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	26	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [illegible]

Form I

Sample No.
DC-GW-28

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2199 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1750	P
3.	Arsenic	10 U	F UJ	15.	Mercury	0.2 U	CV
4.	Barium	956	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	40 U	F UJ
11.	Iron	9540	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-29

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2200 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1580	P
3.	Arsenic	10 U	F UJ	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	24,900	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) 20 U

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
PC-GW-30

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2201 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U		P	13.	Magnesium	NR		
2.	Antimony	60. U		P	14.	Manganese	15 U		P
3.	Arsenic	10 U		F	15.	Mercury	0.2 U		CV
4.	Barium	200 U		P	16.	Nickel	40 U		P
5.	Beryllium	5.0 U		P	17.	Potassium	NR		
6.	Cadmium	5.0 U		P	18.	Selenium	5.0 U	R	F UJ
7.	Calcium	NR			19.	Silver	10 U		P
8.	Chromium	10 U		P	20.	Sodium	NR		
9.	Cobalt	50. U		P	21.	Thallium	10 U		F
10.	Copper	25 U		P	22.	Tin	40 U		F
11.	Iron	107		P	23.	Vanadium	50 U		P
12.	Lead	5 U	R	F UJ	24.	Zinc	20 U		P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-31

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2202 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	124	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	100 U	P	23.	Vanadium	50 U	P
12.	Lead	5 U R	F UJ	24.	Zinc	20 U	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-32

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2210 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	[85]	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2290	P
3.	Arsenic	175	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	4000 U	F UJ
11.	Iron	43,900	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	129	P

Cyanide 26 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-33

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157, 5162

SOW NO. 784

LAB SAMPLE ID. NO. 2211 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	3940	P
3.	Arsenic	34	F	15.	Mercury	0.2 U	CV
4.	Barium	[192]	P	16.	Nickel	[57]	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	41	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	49,500	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	58	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No. DC-GW-34

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2212 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1460	P
3.	Arsenic	27	F	15.	Mercury	0.2 U	CV
4.	Barium	[48]	P	16.	Nickel	72	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	3850	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	[14]	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-35

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2213 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	15 U	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	111	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	[10]	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-36

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 11-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2214 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	274	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[173]	P	16.	Nickel	111	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	2160	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	53	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-37

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2215 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	7660	P
3.	Arsenic	~~14,000~~	F	15.	Mercury	0.2 U	CV
4.	Barium	200 U	P	16.	Nickel	40 U	P J
5.	Beryllium	~~50.0 U~~	P	17.	Potassium	NR	
6.	Cadmium	32	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	84	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	4000 U	F
11.	Iron	523,000	P	23.	Vanadium	159	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	2210	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager J. Chu

Form I

Sample No.
DC-GW-38

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2216 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	4340	P
3.	Arsenic	16	F	15.	Mercury	0.2 U	CV
4.	Barium	[159]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	20,400	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	41	P

Cyanide 20 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-39

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2217 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	5460	P
3.	Arsenic	133	F	15.	Mercury	0.2 U	CV
4.	Barium	536	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	8.3	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	147,000	P	23.	Vanadium	[42]	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	101	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-40

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2218 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1270	P
3.	Arsenic	25	F	15.	Mercury	0.2 U	CV
4.	Barium	[161]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	19,600	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	95	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-41

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2219 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	4110	P
3.	Arsenic	18	F	15.	Mercury	0.2 U	CV
4.	Barium	[170]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	36,400	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	23	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-42

Date 6/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2220 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	4300	P
3.	Arsenic	23	F	15.	Mercury	0.2 U	CV
4.	Barium	[184]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	36,600	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	34	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-43

Date 4/23/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5157,5162

SOW NO. 784

LAB SAMPLE ID. NO. 2221 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2300	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	141	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F UJ
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	3930	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	26	P

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5171 and U-5180
Sample Numbers:	DC-GW-44 through DC-GW-48 and DC-GW-50 through DC-GW-56
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	March 25 and March 26, 1987

The data for these 12 samples were reviewed according to EPA document "Laboratory Data Validation functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (From 1s) are attached with appropriate data validation qualifiers. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample results, laboratory control sample results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

What is this?

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the interference check sample (ICS). The raw data ~~was~~ were reviewed and the results are within acceptable QC limits.

The cyanide data do~~es~~ not contain the initial calibration. The cyanide results cannot be verified.

The sample number listed on the Form 1s for the following samples are incorrect.

Incorrect Sample Number	Correct Sample Number
DC-BW-44	DC-GW-44
DC-BW-45	DC-GW-45
DC-BW-46	DC-GW-46
DC-BW-47	DC-GW-47
DC-BW-48	DC-GW-48
DC-BW-50	DC-GW-50
DC-BW-51	DC-GW-51

2.2 HOLDING TIMES

All holding time requirements are met.

2.3 CALIBRATIONS

The arsenic initial calibration verification check on 05/12/87 is above ~~than~~ the acceptable limit. However an acceptable continuing calibration was analyzed prior to and after the samples in this case, therefore the data are unaffected and acceptable ~~on this basis~~.

2.4 BLANKS

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLE

The interference check samples (ICS) analyzed by inductively coupled plasma (ICP) generally meet the quality control requirements. Although the laboratory failed to report the results on the appropriate form, ~~however~~, the raw data were reviewed and the results are within the acceptable limits.

2.6 LABORATORY CONTROL SAMPLE

The laboratory control samples (LCS) prepared and analyzed with the sample batch are within acceptable quality control limits, except for antimony which has a higher percent recovery than the acceptable limit. Since this implies a high bias, ~~and~~ all ~~samples~~ analyzed with this LCS ~~are~~ were undetected, the data are unaffected and acceptable ~~on this basis~~.

2.7 DUPLICATE SAMPLE ANALYSIS

The duplicate sample results are within acceptable quality control limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

The matrix spike percent recoveries (%R) for lead (45%) and zinc (70%) are below the ~~lower~~ quality control limit. All lead and zinc sample results for all samples in this sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. ~~The indication~~ is that these results are biased low due to the low spike recoveries.

The spike for selenium was not recovered (0% recovery) in the matrix spike sample analysis. All selenium results are less than the CRDL and are therefore considered unusable. The results are highly suspect, ~~since there exists the potential~~ for false negatives.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine matrix interference, all graphite furnace samples are analyzed followed by a post-digestion spike (PDS). The following samples have PDS recoveries less than the lower QC limit of 85%.

Analyte	Samples
Lead	DC-GW-44, DC-GW-45, DC-GW-46, DC-GW-47, DC-GW-48, and DC-GW-56
Thallium	DC-GW-46
Tin	DC-GW-44, DC-GW-45, DC-GW-46, DC-GW-47, DC-GW-48, DC-GW-50, DC-GW-54, and DC-GW-55

The sample results listed above are considered estimated and qualified "UJ". Their results are biased low.

Most of the selenium PDS results were below the QC limit, however, since the results are already considered unusable due to matrix spike results, no further action is required.

2.10 SAMPLE RESULT VERIFICATION

All sample results are correctly quantitated and reported.

3.0 OVERALL ASSESSMENT

Generally, the data is acceptable Level IV data with the exceptions noted in Section 2.0. The data are qualified due to matrix interference, possibly the result of high organic content. This matrix interference may contribute to false negatives or biased low data. The selenium results are unusable for scoring or risk assessment. The other qualified data are biased low and may be used for scoring.

Form I

Sample No.
DC-BW-44

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2240 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2190	P
3.	Arsenic	34	F	15.	Mercury	0.2 U	CV
4.	Barium	440	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,800	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	45 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager MK

Form I

Sample No.
DC-BW-45

Date 7/20/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2241 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	6840	P
3.	Arsenic	41	F	15.	Mercury	0.2 U	CV
4.	Barium	[123]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	20,800	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	24 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [illegible]

Form I

Sample No.
DC-BW-46

Date 7/20/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2242 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	11,200	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[27]	P	16.	Nickel	[18]	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	120	P	21.	Thallium	10 U	F UJ
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	15,500	P	23.	Vanadium	[18]	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	102 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-BW-47

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2243 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	3530	P
3.	Arsenic	48	F	15.	Mercury	0.2 U	CV
4.	Barium	[194]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	26,900	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	41 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-BW-48

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2244 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	3570	P
3.	Arsenic	45	F	15.	Mercury	0.2 U	CV
4.	Barium	201	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	500 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	27,500	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	62 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-BW-50

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2246 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	2640	P
3.	Arsenic	35	F	15.	Mercury	0.2 U	CV
4.	Barium	[168]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F + COF
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	11,800	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	39 R	P J

Cyanide 14 Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-BW-5

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2247 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR		
2.	Antimony	60 U	P	14.	Manganese	15 U	P	
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV	
4.	Barium	200 U	P	16.	Nickel	40 U	P	
5.	Beryllium	5.0 U	P	17.	Potassium	NR		
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F	R
7.	Calcium	NR		19.	Silver	10 U	P	
8.	Chromium	10 U	P	20.	Sodium	NR		
9.	Cobalt	50 U	P	21.	Thallium	10 U	F	
10.	Copper	25 U	P	22.	Tin	400 U	F	
11.	Iron	[91]	P	23.	Vanadium	50 U	P	
12.	Lead	5.0 U R	F UJ	24.	Zinc	[10] R	P	J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager [signature]

Form I

Sample No.
DC-GW-52

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2305 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1060	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[73]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F
11.	Iron	2990	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	4140 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager M. [illegible]

Form I

Sample No.
DC-GW-53

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171, 5180

SOW NO. 784

LAB SAMPLE ID. NO. 2306 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	665	P
3.	Arsenic	10 U	F	15.	Mercury	0.2 U	CV
4.	Barium	[89]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	[10]	P	22.	Tin	400 U	F
11.	Iron	4600	P	23.	Vanadium	50 U	P
12.	Lead	12 R	F J	24.	Zinc	2000 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-54

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2307 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	1660	P
3.	Arsenic	11	F	15.	Mercury	0.24	CV
4.	Barium	292	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	50 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	115	P	22.	Tin	40 U	F UJ
11.	Iron	21,600	P	23.	Vanadium	50 U	P
12.	Lead	18 R	F J	24.	Zinc	377 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
PC-GW-55

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. 4-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2308 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200 U	P	13.	Magnesium	NR	
2.	Antimony	60 U	P	14.	Manganese	257	P
3.	Arsenic	26	F	15.	Mercury	0.2 U	CV
4.	Barium	[117]	P	16.	Nickel	40 U	P
5.	Beryllium	5.0 U	P	17.	Potassium	NR	
6.	Cadmium	5.0 U	P	18.	Selenium	5.0 U R	F R
7.	Calcium	NR		19.	Silver	10 U	P
8.	Chromium	10 U	P	20.	Sodium	NR	
9.	Cobalt	50 U	P	21.	Thallium	10 U	F
10.	Copper	25 U	P	22.	Tin	400 U	F UJ
11.	Iron	10,600	P	23.	Vanadium	50 U	P
12.	Lead	5.0 U R	F UJ	24.	Zinc	1,350 R	P J

Cyanide 10 U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

Form I

Sample No.
DC-GW-56

Date 7-20-87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology and Environment, Inc. CASE NO. U-5171,5180

SOW NO. 784

LAB SAMPLE ID. NO. 2309 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low _____ Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200U	P	13.	Magnesium	NR	
2.	Antimony	60U	P	14.	Manganese	1950	P
3.	Arsenic	10U	F	15.	Mercury	0.2U	CV
4.	Barium	300	P	16.	Nickel	40U	P
5.	Beryllium	5.0U	P	17.	Potassium	NR	
6.	Cadmium	5.0U	P	18.	Selenium	50U R	F R
7.	Calcium	NR		19.	Silver	10U	P
8.	Chromium	10U	P	20.	Sodium	NR	
9.	Cobalt	50U	P	21.	Thallium	10U	F
10.	Copper	25U	P	22.	Tin	400U	F
11.	Iron	17,400	P	23.	Vanadium	50U	P
12.	Lead	5.0U R	F UJ	24.	Zinc	20U R	P UJ

Cyanide 10U Percent Solids (%) _____

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR: Analysis not requested.

Lab Manager _____

(14)

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-4431 and U-4441
Sample Numbers:	DC-SW-01 through DC-SW-13
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	November 5 and November 6, 1986

The data for these 13 samples were reviewed according to EPA document "Laboratory Data Validation functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (From 1s) are attached with appropriate data validation qualifiers. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample results, laboratory control sample results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the interference check sample (ICS). The raw data ~~was~~ were reviewed and the results are within acceptable QC limits.

The cyanide data do~~es~~ not contain the initial calibration. The cyanide results cannot be verified.

2.2 HOLDING TIMES

All holding time requirements are met.

2.3 CALIBRATIONS

Calibrations are acceptable and meet quality control requirements for initial and continuing calibration checks, with the exception of cyanide as indicated in Section 2.1.

2.4 BLANKS

edit

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLE

The interference check samples (ICS) analyzed by inductively coupled plasma (ICP) generally meet the quality control requirements. The laboratory failed to report the results on the appropriate form, however, this reviewer verified that the results are within the required limits.

2.6 LABORATORY CONTROL SAMPLE

The laboratory control samples (LCS) prepared and analyzed with the sample batch are within acceptable quality control limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The duplicate sample results are within acceptable quality control limits.

2.8 MATRIX SPIKE SAMPLE ANALYSIS

Not -- %.

The matrix spike percent recovery (%R) for selenium (46%) is below the lower quality control limit. All selenium sample results for all samples in this sample delivery group are

considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. The indication is that these results are biased low due to the low spike recoveries.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine matrix interference, all graphite furnace samples are analyzed followed by a post-digestion spike (PDS). The following samples have PDS recoveries less than the lower QC limit of 85%.

Analyte	Samples
Arsenic	DC-SW-11
Selenium	DC-SW-08, DC-SW-09, DC-SW-10, and DC-SW-11

positive or negative?

The sample results listed above are considered estimated and qualified "UJ". ~~Their results~~ are biased low.

2.10 SAMPLE RESULT VERIFICATION

For the following samples, the laboratory incorrectly reported the results listed.

Sample	Analyte	Incorrect Result	Correct Result
DC-SW-02	Barium	200 ug/L	200U ug/L
DC-SW-08	Tin	40 ug/L	40U ug/L
DC-SW-12	Arsenic	10U ug/L	240 ug/L
	Barium	200U ug/L	250 ug/L

3.0 OVERALL ASSESSMENT

Generally, the data is acceptable Level IV data with the exceptions noted in Section 2.0 and the correction made in Section 2.10. The data are qualified due to matrix interference, possibly the result of high organic content. This matrix interference may contribute to false negatives or biased low data. The qualified data are biased low and may be used for scoring.

Form I

Sample No.
DC-SW-1

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431 / U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9641 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR			
2.	Antimony	60	U	P	14.	Manganese	15	U	P	
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~	CV
4.	Barium	200	U	P	16.	Nickel	40	U	P	
5.	Beryllium	5	U	P	17.	Potassium	NR			
6.	Cadmium	5	U	P	18.	Selenium	5	R U	F	UJ
7.	Calcium	NR			19.	Silver	10	U	P	
8.	Chromium	10	U	P	20.	Sodium	NR			
9.	Cobalt	50	U	P	21.	Thallium	10	U	F	
10.	Copper	25	U	P	22.	Tin	40	U	F	
11.	Iron	255		P	23.	Vanadium	50	U	P	
12.	Lead	5	U	F	24.	Zinc	20	U	P	
	Cyanide	10	U			Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-2

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9642 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	464		P	13.	Magnesium	NR			
2.	Antimony	60	U	P	14.	Manganese	97		P	
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~	CV
4.	Barium	200	U	P	16.	Nickel	46		P	
5.	Beryllium	5	U	P	17.	Potassium	NR			
6.	Cadmium	5	U	P	18.	Selenium	5	R U	F	UJ
7.	Calcium	NR			19.	Silver	10	U	P	
8.	Chromium	14		P	20.	Sodium	NR			
9.	Cobalt	50	U	P	21.	Thallium	10	U	F	
10.	Copper	51		P	22.	Tin	40	U	F	
11.	Iron	937		P	23.	Vanadium	50	U	P	
12.	Lead	6.4		F	24.	Zinc	186		P	
	Cyanide	10	U			Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Cohrbach

Form I

Sample No.
DC-SW-3

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9643 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR			
2.	Antimony	60	U	P	14.	Manganese	95		P	
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~ CV	
4.	Barium	200	U	P	16.	Nickel	40	U	P	
5.	Beryllium	5	U	P	17.	Potassium	NR			
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F	UJ
7.	Calcium	NR			19.	Silver	10	U	P	
8.	Chromium	10	U	P	20.	Sodium	NR			
9.	Cobalt	50	U	P	21.	Thallium	10	U	F	
10.	Copper	46		P	22.	Tin	40	U	F	
11.	Iron	350		P	23.	Vanadium	50	U	P	
12.	Lead	5	U	F	24.	Zinc	73		P	
Cyanide		10	U		Percent Solids (%)					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-4

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9644 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	1090		P	13.	Magnesium	NR			
2.	Antimony	60	U	P	14.	Manganese	188		P	
3.	Arsenic	10	U	F	15.	Mercury	8.6		~~P~~ CV	
4.	Barium	200	U	P	16.	Nickel	40	U	P	
5.	Beryllium	5	U	P	17.	Potassium	NR			
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F	UJ
7.	Calcium	NR			19.	Silver	10	U	P	
8.	Chromium	10	U	P	20.	Sodium	NR			
9.	Cobalt	50	U	P	21.	Thallium	10	U	F	
10.	Copper	660		P	22.	Tin	40	U	F	
11.	Iron	1510		P	23.	Vanadium	50	U	P	
12.	Lead	77		F	24.	Zinc	404		P	
Cyanide		10	U		Percent Solids (%)					

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager: Bruce H Rohrbach

Form I

Sample No.
DC-SW-5

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9645 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	204		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	66		P
3.	Arsenic	10	U	P	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	239		P	22.	Tin	40	U	F
11.	Iron	495		P	23.	Vanadium	50	U	P
12.	Lead	17		F	24.	Zinc	302		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-6

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9646 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	9080		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	222		P
3.	Arsenic	31		F	15.	Mercury	0.2	U	~~P~~ AMCV
4.	Barium	7130		P	16.	Nickel	1500		P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	25		P	18.	Selenium	5 R	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	99		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	17900		P	22.	Tin	60		F
11.	Iron	24500		P	23.	Vanadium	50	U	P
12.	Lead	1300		F	24.	Zinc	10300		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Pohlbach

Form I

Sample No.
DC-SW-7

Date 12-26-86.

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431 / U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9647 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR			
2.	Antimony	60	U	P	14.	Manganese	141			P
3.	Arsenic	10	U	F	15.	Mercury	1.9			~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	83			P
5.	Beryllium	5	U	P	17.	Potassium	NR			
6.	Cadmium	5	U	P	18.	Selenium	5	R	U	F UJ
7.	Calcium	NR			19.	Silver	10		U	P
8.	Chromium	10	U	P	20.	Sodium	NR			
9.	Cobalt	50	U	P	21.	Thallium	10		U	F
10.	Copper	226		P	22.	Tin	40		U	F
11.	Iron	528		P	23.	Vanadium	50		U	P
12.	Lead	710		F	24.	Zinc	537			P
	Cyanide	10	U			Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-8

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9648 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	767		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	234		P
3.	Arsenic	10	U	F	15.	Mercury	0.2		~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5 R	U	F US
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	84		P	22.	Tin	40	U	F
11.	Iron	2790		P	23.	Vanadium	50	U	P
12.	Lead	30		F	24.	Zinc	247		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-9

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9649 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	5000		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	196		P
3.	Arsenic	10	U	F	15.	Mercury	0.26		~~P~~ CV
4.	Barium	274		P	16.	Nickel	189		P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	8.1		P	18.	Selenium	5	R U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	12		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	619		P	22.	Tin	40	U	F
11.	Iron	7470		P	23.	Vanadium	50	U	P
12.	Lead	89		F	24.	Zinc	1090		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Peterson

Form I

Sample No.
DC-SW-10

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9650 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	1190		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	28		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5	R U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	57		P	22.	Tin	40	U	F
11.	Iron	1570		P	23.	Vanadium	50	U	P
12.	Lead	36		F	24.	Zinc	185		P
	Cyanide	10	U			Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager Bruce H Rohrbach

Form I

Sample No.
DC-SW-11

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9680 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

(ug/L) or mg/kg dry weight (Circle One)

1.	Aluminum	323		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	15	U	P
3.	Arsenic	10	U	F UJ	15.	Mercury	0.2	U	~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	25	U	P	22.	Tin	40	U	F
11.	Iron	100	U	P	23.	Vanadium	50	U	P
12.	Lead	5	U	F	24.	Zinc	20	U	P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager [signature]

Form I

Sample No.
DC-SW-12

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9681 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	354		P	13.	Magnesium	NR		
2.	Antimony	115		P	14.	Manganese	68		P
3.	Arsenic 240	10	U	F	15.	Mercury	0.59		~~P~~ CV
4.	Barium 250	200	U	P	16.	Nickel	2600		P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	75		P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	16		P
8.	Chromium	81		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	7030		P	22.	Tin	499		F
11.	Iron	2040		P	23.	Vanadium	50	U	P
12.	Lead	3060		F	24.	Zinc	1450		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = Not Requested

Lab Manager [illegible]

Form I

Sample No.
DC-SW-13

Date 12-26-86

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-4431/U-4441

SOW NO. 784

LAB SAMPLE ID. NO. 9682 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	294		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	252		P
3.	Arsenic	10	U	F	15.	Mercury	0.2		~~P~~ CV
4.	Barium	200	U	P	16.	Nickel	667		P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	23		P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	65		P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	2410		P	22.	Tin	40	U	F
11.	Iron	724		P	23.	Vanadium	50	U	P
12.	Lead	76		F	24.	Zinc	480		P
Cyanide		10		U	Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: NR = NOT REQUESTED

Lab Manager [signature]

INORGANIC DATA VALIDATION REPORT

1.0 INTRODUCTION

Site:	Sauget Landfill
Laboratory:	Ecology and Environment, Inc.
Validation:	PRC Environmental Management, Inc.
Review Date:	May 1993
Case Number:	U-5920
Sample Numbers:	DC-GW-34A, DC-GW-38A, DC-GW-39A, DC-GW-40A, DC-GW-41A, DC-GW-43A, and DC-GW-57
Analyses:	Target Analyte List (TAL) Metals and Cyanide
Collection Dates:	July 14, 1987

The data for these 7 samples were reviewed according to EPA document "Laboratory Data Validation functional Guidelines for Evaluating Inorganics Analyses" (July 1988). Data sheets (From 1s) are attached with appropriate data validation qualifiers. The justifications for qualification of sample results are discussed in the following section.

2.0 DATA REVIEW REQUIREMENTS

The quality control (QC) criteria reviewed include data completeness, holding times, calibrations, blanks, interference check sample results, laboratory control sample results, duplicate sample results, matrix spike sample results, furnace QC, and sample results verification. The criteria are discussed below.

2.1 DATA COMPLETENESS

The laboratory failed to complete the appropriate report form for the analysis of the interference check sample (ICS). The raw data ~~was~~ were reviewed and the results are within acceptable QC limits.

The laboratory failed to submit raw data for selenium and tin. Sample results for selenium and tin cannot be verified.

2.2 HOLDING TIMES

All holding time requirements are met.

2.3 CALIBRATIONS

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The first continuing calibration check for barium is above the acceptable limit. However, no samples from this case are associated with this check, therefore, the samples are unaffected and acceptable on this basis.

All other calibrations are acceptable and meet QC requirements for initial and continuing calibration checks.

2.4 BLANKS

All blank results are less than the contract required detection limit (CRDL) and therefore do not indicate any presence of contamination.

2.5 INTERFERENCE CHECK SAMPLE

The interference check samples (ICS) analyzed by inductively coupled plasma (ICP) generally meet the quality control requirements except for silver, which is below the lower acceptable limit. Since the sample matrix is not similar to the ICS matrix, the data are unaffected and acceptable on this basis.

The laboratory failed to report the ICS results on the appropriate form, however, the data was reviewed and the results are within acceptable limits with the exception noted above.

2.6 LABORATORY CONTROL SAMPLE

The laboratory control samples (LCS) prepared and analyzed with the sample batch are within acceptable quality control limits.

2.7 DUPLICATE SAMPLE ANALYSIS

The duplicate sample results are within acceptable quality control limits.

2.8 MATRIX SPIKE SAMLPE ANALYSIS

The matrix spike percent recovery (%R) for tin (59%) is below the lower quality control limit. All tin sample results for all samples in this sample delivery group are considered estimated and qualified "UJ" if the result is less than the CRDL and "J" if the result is positive. The indication is that these results are biased low due to the low spike recoveries.

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The spike for lead was not recovered (0% recovery) in the matrix spike sample analysis. All selenium results are less than the CRDL and are therefore considered unusable. ~~The results are highly suspect, since there exists the~~ with a potential for false negatives.

2.9 FURNACE ATOMIC ABSORPTION QC

To determine matrix interference, all graphite furnace samples are analyzed followed by a post-digestion spike (PDS). The following samples have PDS recoveries less than the lower QC limit of 85%.

Analyte	Samples
Selenium	DC-GW-34A, DC-GW-38A, DC-GW-39A, DC-GW-40A, DC-GW-41A, DC-GW-43A, and DC-GW-57
Thallium	DC-GW-39A and DC-GW-41A
Tin	all samples in this case

The sample results listed above are considered estimated and qualified "UJ". Their results are biased low.

Most of the lead PDS results were below the QC limit, however, since the results are already considered unusable due to matrix spike results, no further action is required.

2.10 SAMPLE RESULT VERIFICATION

All sample results were verified with the exception of selenium and tin (Section 2.1).

3.0 OVERALL ASSESSMENT

Generally, the data is acceptable Level IV data with the exceptions noted in Section 2.0. The data are qualified due to matrix interference, possibly the result of high organic content. This matrix interference may contribute to false negatives or biased low data. The lead results are unusable for scoring or risk assessment. The other qualified data are biased low and may be used for scoring.

Form I

Sample No.
DC-GW-34A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6735 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	1510		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	CV
4.	Barium	[51]		P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	[10]		P	21.	Thallium	10	U	F
10.	Copper	25	U	P	22.	Tin	40	U	F UJ
11.	Iron	2860		P	23.	Vanadium	50	U	P
12.	Lead	5 R	U	F R	24.	Zinc	31		P
	Cyanide	10	U			Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager B. Hm

Form I

Sample No.
DC-GW-38A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. M-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6736 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200		P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	3270		P
3.	Arsenic	10	U	F	15.	Mercury	0.2	U	CV
4.	Barium	[135]		P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	5	U	P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F
10.	Copper	25	U	P	22.	Tin	80	U	F UJ
11.	Iron	15900		P	23.	Vanadium	50	U	P
12.	Lead	5 R	U	F R	24.	Zinc	57		P
	Cyanide	10	U			Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

Sample No.
DC-GW-39A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6737 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U	P	13.	Magnesium	NR		
2.	Antimony	60	U	P	14.	Manganese	6350		P
3.	Arsenic	123		F	15.	Mercury	0.2	U	CV
4.	Barium	500		P	16.	Nickel	40	U	P
5.	Beryllium	5	U	P	17.	Potassium	NR		
6.	Cadmium	11		P	18.	Selenium	5	U	F UJ
7.	Calcium	NR			19.	Silver	10	U	P
8.	Chromium	10	U	P	20.	Sodium	NR		
9.	Cobalt	50	U	P	21.	Thallium	10	U	F UJ
10.	Copper	25	U	P	22.	Tin	40	UF	UJ
11.	Iron	171,000		P	23.	Vanadium	55		P
12.	Lead	5 R	U	F R	24.	Zinc	40		P
Cyanide		10	U		Percent Solids (%)				

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager M. [illegible]

Form I

Sample No.
DC-GW-40A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6738 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	1330	P
3.	Arsenic	17	F	15.	Mercury	0.2	U CV
4.	Barium	[152]	P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	16,800	P	23.	Vanadium	50	U P
12.	Lead	5 R U	F R	24.	Zinc	[15]	P
	Cyanide	10	U		Percent Solids (%)		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager JTsh

Form I

Sample No.
DC-GW-41A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6739 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	4540	P
3.	Arsenic	15	F	15.	Mercury	0.2	U CV
4.	Barium	204	P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F UJ
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	29,200	P	23.	Vanadium	50	U P
12.	Lead	5 R	U F R	24.	Zinc	25	P
	Cyanide	10	U		Percent Solids (%)		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager JJ [illegible]

Form I

Sample No.
DC-GW-43A

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6740 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	1520	P
3.	Arsenic	10	U F	15.	Mercury	0.2	U CV
4.	Barium	[92]	P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	2360	P	23.	Vanadium	50	U P
12.	Lead	5	R U F R	24.	Zinc	24	P
Cyanide		10	U	Percent Solids (%)			

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]

Form I

Sample No.
DC-GW-57

Date 9/9/87

INORGANIC ANALYSIS DATA SHEET

LAB NAME Ecology & Environment Inc. CASE NO. U-5920

SOW NO. 784

LAB SAMPLE ID. NO. 6744 QC REPORT NO. _____

Elements Identified and Measured

Concentration: Low X Medium _____

Matrix: Water X Soil _____ Sludge _____ Other _____

ug/L or mg/kg dry weight (Circle One)

1.	Aluminum	200	U P	13.	Magnesium	NR	
2.	Antimony	60	U P	14.	Manganese	15	U P
3.	Arsenic	10	U F	15.	Mercury	0.2	U CV
4.	Barium	200	U P	16.	Nickel	40	U P
5.	Beryllium	5	U P	17.	Potassium	NR	
6.	Cadmium	5	U P	18.	Selenium	5	U F UJ
7.	Calcium	NR		19.	Silver	10	U P
8.	Chromium	10	U P	20.	Sodium	NR	
9.	Cobalt	50	U P	21.	Thallium	10	U F
10.	Copper	25	U P	22.	Tin	40	U F UJ
11.	Iron	[87]	P	23.	Vanadium	50	U P
12.	Lead	5	R U F R	24.	Zinc	10	U P
	Cyanide	10	U		Percent Solids (%)		

Footnotes: For reporting results to EPA, standard result qualifiers are used as defined on Cover Page. Additional flags or footnotes explaining results are encouraged. Definition of such flags must be explicit and contained on Cover Page, however.

Comments: _____

Lab Manager [signature]