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TITLE: ANALYSIS OF DELAWARE RIVER PLANT SAMPLES

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ABSTRACT: Soil, water and oil samples from the Delaware River Plant were analyzed for selected analytes. This report summarizes the analytical results.

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MONS 022603

INTRODUCTION

This report summarizes: (1) the analytical results of approximately eighty soil samples for selected analytes; (2) charcoal isotherm results for removal of selected analytes from deionized water; and (3) identification of major components and concentrations in oil sample from well 51-2.

SUMMARY OF RESULTS

Tables 1 - 17 report Aroclor concentrations in approximately eighty soil samples and Tables 18 - 34 report benzyl compound concentrations in these sample samples. One-gram aliquots of each sample were weighed in forty-mL Pierce vials with teflon-lined lids and and ultrasonically extracted with 10 mLs Burdick and Jackson distilled in glass benzene. Pentachlorobenzene was used as a surrogate spiking compound and added to each soil sample before extraction. The recovery of this compound is reported for each sample which did not require extract dilution for Aroclor analysis. Concentrations of Aroclor 1248 and benzyl compounds in the soil samples were calculated assuming 100% extraction efficiencies. The 10-mL benzene extract was analyzed for Aroclor 1248 and benzyl compounds using capillary GC/EC and capillary GC/FID instrumentation, respectively.

Table 35 shows charcoal isotherm results for benzaldehyde, benzyl alcohol and Aroclor 1248 removal from deionized water. Table 36 identifies the major components and their concentrations for the soil sample from well 51-2. Quantification of Table 36 is based upon the response of the internal standard. Therefore, absolute concentrations are <u>not</u> based upon calibration standards. All concentrations in Table 36 should be multiplied by a factor of

4 or 5 in order to account for 100% of the sample (assuming a density of 1 g/mL). Identification of components in Table 36 is based upon a visual comparison of the unknown compound spectrum to one of over 30,000 spectra in the NIH/EPA Mass Spectral Reference Library. If no good match was obtained, the compound is listed as unknown. Compounds which contain the M/M+2 ratio which indicates the presence of a chlorine atom are identified as Cl-containing and compounds which produce a large m/e 149 fragment ion were identified as phthalates. The Cl_3 - Cl_5 biphenyl isomer responses in the 21.8 - 27.3 minute retention time region were summed and were attributed to Aroclor 1248. (A more complete and accurate comparison of the Aroclor 1248 pattern and the polychlorinated biphenyl isomer pattern in well 51-2 was made earlier.)

TABLE 1. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-44 (0/2)	DR4-44 (0/2) duplicate	DR4-44 (15/17)	DR4-44 (15/17) duplicate	DR Method Blank	DR4-44 (20/22)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	243	198	0.6	1.4	ND	ND
Aroclor 1254	GC/EC	1	ND[b]	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	243	198	0.6	1.4	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	101	97	78	84	96	86
Process File			BP149	BP150	BP162	BP163	BP164	BP110
Extract Dilution			1:10	1:10	1:1	1:1	1:1	1:1
HRC Extraction Number	-		PCB083	PCB084	PCB073	PCB074	PCB075	PCB087
Sample Wt. Extracted (g)	-		1.00	1.00	1.04	1.04	0	1.00

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022606

TABLE 2. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-54 (0/2)	DR4-54 (15/17)	DR4-60 (4/6)	DR4-60 (18/20)	DR4-64 (5/7)	DR4-64 (10/12)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	ND	26.7	ND	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	ND	26.7	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobensene	GC/EC	1	81	73	69	100	98	61
Process File			BP168	BP108	BP169	BP157	BP165	BP117
Extract Dilution			1:1	1:1	1:1	1:10	1:1	1:1
NRC Extraction Number	-		PCB079	PCB085	PCB080	PCB109	PCB076	PCB093
Sample Wt. Extracted (g)	-		1.06	0.98	1.00	1.03	1.00	1.17

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022607

TABLE 3. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-64 (15/17)	DR4-66 (18/20)	DR Method Blank	DR4-67 (0/2)	DR4-67 (20/22)	DR Method Blank
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	3.4	ND	1.02	0.92	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	3.4	ND	1.02	0.92	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobensene	GC/EC	1	59	91	106	98	75	97
Process File			BP170	BP129	BP130	BP148	BP113	BP114
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB081	PCB104	PCB105	PCB062	PCB090	PCB091
Sample Wt. Extracted (g)	-		1.05	1.02	0	1.03	1.05	0

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022608

TABLE 4. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-70 (2/4)	DR4-70 (6/8)	DR4-70 (14/16)	DR4-71 (2/4)	DR4-71 (6/8)	DR4-73 (4/6)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	ND	ND	ND	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	**Analysis Method**	**Amount added (µg/g)**	**Recovery (%)**					
Pentachlorobenzene	GC/EC	1	101	85	67	94	81	99
Process File			BP122	BP153	BP115	BP154	BP149	BP109
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB098	PCB067	PCB092	PCB068	PCB063	PCB086
Sample Wt. Extracted (g)	-		1.09	1.15	1.02	1.30	1.25	1.00

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022609

TABLE 5. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-73 (18/20)	DR4-73 (18/20) duplicate	DR4-76 (8/10)	DR4-76 (16/18)	DR4-77 (0/2)	DR4-77 (8/10)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	ND	ND	ND	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	91	84	93	66	87	96
Process File			BP119	BP120	BP161	BP159	BP158	BP121
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB095	PCB096	PCB072	PCB070	PCB069	PCB097
Sample Wt. Extracted (g)	-		1.02	1.02	1.28	1.00	1.00	1.10

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022610

TABLE 6. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-77 (16/18)	DR4-78 (0/2)	DR4-78 (0/2) duplicate	DR Method Blank	DR4-78 (18/20)	DR4-83 (2/4)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	1.12	1.3	ND	27.5	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	1.12	1.3	ND	27.5	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	80	91	94	96	87	82
Process File			BP133	BP145	BP146	BP147	BP152	BP167
Extract Dilution			1:1	1:1	1:1	1:1	1:10	1:1
NBC Extraction Number	-		PCB108	PCB059	PCB060	PCB061	PCB101	PCB078
Sample Wt. Extracted (g)	-		1.05	1.02	1.02	0	1.00	1.08

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022611

TABLE 7. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-83 (16/18)	DR4-83 (18/20)	DR4-85 (14/16)	DR4-87 (0/2)	DR4-87 (14/16)	DR4-90 (0/2)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	ND	1.5	ND	23
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	ND	1.5	ND	23
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	81	78	100	98	84	87
Process File			BP160	BP151	BP128	BP112	BP126	BP152
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB071	PCB065	PCB103	PCB089	PCB102	PCB066
Sample Wt. Extracted (g)	-		1.17	1.00	1.00	1.14	1.00	1.02

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022612

TABLE 8. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-90 (14/16)	DR4-91 (2/4)	DR4-91 (8/10)	DR4-91 (10/12)	DR4-92 (4/6)	DR4-92 (14/16)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	ND	ND	ND	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	62	92	72	77	97	76
Process File			BP150	BP131	BP171	BP111	BP132	BP123
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB064	PCB106	PCB082	PCB088	PCB107	PCB099
Sample Wt. Extracted (g)	-		1.00	1.00	1.00	1.10	1.14	1.00

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022613

TABLE 9. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 13, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-93 (2/4)	DR4-93 (12/14)	DR4-93 (14/16)			
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	0.75	ND[b]	ND			
Aroclor 1254	GC/EC	1	ND	ND	ND			
Aroclor 1260	GC/EC	1	ND	ND	ND			
Total Aroclor	GC/EC	1	0.75	ND	ND			
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	93	102	57			
Process File			BP166	BP124	BP118			
Extract Dilution			1:1	1:1	1:1			
NRC Extraction Number	-		PCB077	PCB100	PCB094			
Sample Wt. Extracted (g)	-		1.04	1.04	1.22			

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022614

TABLE 10. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-44 (10/12)	DR4-44 (10/12) duplicate	DR4-44 (5/7)	DR4-54 (5/7) Red pen ink	DR4-54 (5/7) Black pen ink	DR4-60 (8/10)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	17.5	ND	ND	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	17.5	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	85	86	94	96	79	97
Process File			BP179	BP180	BP181	BP182	BP183	BP184
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB110	PCB111	PCB112	PCB113	PCB114	PCB115
Sample Wt. Extracted (g)	-		1.0134	1.0164	1.1171	1.1550	1.0635	1.010

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022615

TABLE 11. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-60 (12/14)	DR4-66 (0/2)	DR4-66 (4/6)	DR Method Blank	DR4-66 (8/10)	DR4-66 (14/16)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	22.2	1900	ND	241	335
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	22.2	1900	ND	241	335
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	89	115	NA[c]	94	NA	NA
Process File			BP185	BP116	BP187	BP168	BP169	BP186
Extract Dilution			1:1	1:10	1:1000	1:100	1:100	1:100
NRC Extraction Number	-		PCB116	PCB117	PCB118	PCB119	PCB120	PCB121
Sample Wt. Extracted (g)	-		1.0204	1.148	1.0599	0	1.122	1.0128

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

MONS 022616

TABLE 12. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-66 (16/18)	DR4-67 (2/4)	DR4-67 (2/4) duplicate	DR4-67 (8/10)	DR4-67 (14/16)	DB Method Blank
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	482	ND[b]	ND	183	196	ND
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	482	ND	ND	183	196	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	NA[c]	85	65	NA	NA	95
Process File			BP107	BP163	BP165	BP110	BP111	BP112
Extract Dilution			1:100	1:1	1:1	1:100	1:100	1:1
NRC Extraction Number	-		PCB122	PCB123	PCB124	PCB125	PCB126	PCB127
Sample Wt. Extracted (g)	-		1.0738	1.1300	1.0632	0.9731	1.0260	0

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analysed, due to dilution factor.

MONS 022617

TABLE 13. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-67 (16/18)	DR4-70 (12/14)	DR4-71 (10/12)	DR4-71 (14/16)	DR4-73 (8/10)	DR4-73 (12/14)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	12.56	256	2122	2570	396	43.6
Aroclor 1254	GC/EC	1	ND[b]	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	12.56	256	2122	2570	396	43.6
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	77	NA[c]	NA	NA	NA	NA
Process File			BP167	BP114	BP130	BP146	BP133	BP147
Extract Dilution			1:1	1:100	1:1000	1:1000	1:100	1:10
NRC Extraction Number	-		PCB128	PCB129	PCB130	PCB131	PCB132	PCB133
Sample Wt. Extracted (g)	-		1.0342	1.0514	1.0648	1.0528	1.0200	1.0172

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

MONS 022618

TABLE 14. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-78 (4/6)	DR4-78 (4/6) duplicate	DR4-78 (10/12)	DR4-78 (14/16)	DR4-83 (10/12)	DR4-85 (0/2)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	277	243	235	3.7	130	208
Aroclor 1254	GC/EC	1	ND[b]	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	277	243	235	3.7	130	208
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	NA[c]	NA	NA	90	37	NA
Process File			BP134	BP136	BP137	BP165	BP167	BP150
Extract Dilution			1:100	1:100	1:100	1:1	1:10	1:100
NRC Extraction Number	-		PCB134	PCB135	PCB136	PCB137	PCB138	PCB139
Sample Wt. Extracted (g)	-		1.0100	1.0286	1.0026	1.0191	1.0212	1.0719

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

TABLE 15. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR Method Blank	DR4-85 (4/6)	DR4-85 (8/10)	DR4-85 (12/14)	DR4-87 (4/6)	DR4-87 (4/6) duplicate
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	ND	231	ND	543	251
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	ND	231	ND	543	251
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	99	80	NA[c]	53	NA	95
Process File			BP151	BP169	BP153	BP170	BP172	BP173
Extract Dilution			1:1	1:1	1:100	1:1	1:1000	1:100
NRC Extraction Number	-		PCB140	PCB141	PCB142	PCB143	PCB144	PCB145
Sample Wt. Extracted (g)	-		0	1.0521	1.0594	1.0490	1.0222	1.0145

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analysed, due to dilution factor.

MONS 022620

TABLE 16. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR Method Blank	DR4-87 (8/10)	DR4-87 (12/14)	DR4-90 (2/4)	DR4-90 (4/6)	DR4-90 (8/10)
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	ND[b]	1060	604	2750	1095	407
Aroclor 1254	GC/EC	1	ND	ND	ND	ND	ND	ND
Aroclor 1260	GC/EC	1	ND	ND	ND	ND	ND	ND
Total Aroclor	GC/EC	1	ND	1060	604	2750	1095	407
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	87	NA[c]	NA	NA	NA	NA
Process File			BP174	BP175	BP176	BP177	BP178	BP179
Extract Dilution			1:1	1:100	1:100	1:100	1:100	1:100
NBC Extraction Number	-		PCB146	PCB147	PCB148	PCB149	PCB150	PCB151
Sample Wt. Extracted (g)	-		0	1.0009	1.0928	1.0924	1.0348	1.0013

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

TABLE 17. RESULTS OF AROCLOR ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-90 (12/14)	DR4-92 (12/14)	DR4-93 (8/10)			
			Concentration (µg/g)					
Aroclor 1248	GC/EC	1	3.42	ND[b]	43			
Aroclor 1254	GC/EC	1	ND	ND	ND			
Aroclor 1260	GC/EC	1	ND	ND	ND			
Total Aroclor	GC/EC	1	3.42	ND	43			
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	87	90	287			
Process File			BP105	BP107	BP109			
Extract Dilution			1:1	1:1	1:10			
NRC Extraction Number	-		PCB152	PCB153	PCB154			
Sample Wt. Extracted (g)	-		0.9980	1.0779	1.0121			

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

TABLE 18. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-44 (0/2)	DR4-44 (0/2) duplicate	DR4-44 (15/17)	DR4-44 (15/17) duplicate	DR Method Blank	DR4-44 (20/22)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	101	97	78	84	96	86
Process File			LP203	LP204	BP219	BP220	MP204	LP207
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB083	PCB084	PCB073	PCB074	PCB075	PCB087
Sample Wt. Extracted (g)	-		1.00	1.00	1.04	1.04	0	1.00

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022623

TABLE 19. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-54 (0/2)	DR4-54 (15/17)	DR4-60 (4/6)	DR4-60 (18/20)	DR4-64 (5/7)	DR4-64 (10/12)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	81	73	69	100	98	61
Process File			BP225	LP205	BP226	LP231	BP222	LP213
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB079	PCB085	PCB080	PCB109	PCB076	PCB093
Sample Wt. Extracted (g)	-		1.06	0.98	1.00	1.03	1.00	1.17

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022624

TABLE 20. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-64 (15/17)	DR4-66 (18/20)	DR Method Blank	DR4-67 (0/2)	DR4-67 (20/22)	DR Method Blank
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	59	91	106	98	75	97
Process File			BP227	LP226	LP227	BP206	LP210	LP211
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
HRC Extraction Number	-		PCB081	PCB104	PCB105	PCB062	PCB090	PCB091
Sample Wt. Extracted (g)	-		1.05	1.02	0	1.03	1.05	0

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022625

TABLE 21. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-70 (2/4)	DR4-70 (6/8)	DR4-70 (14/16)	DR4-71 (2/4)	DR4-71 (6/8)	DR4-73 (4/6)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	101	85	67	94	81	99
Process File			LP220	BP211	LP212	BP212	BP207	LP206
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB098	PCB067	PCB092	PCB068	PCB063	PCB086
Sample Wt. Extracted (g)	-		1.09	1.15	1.02	1.30	1.25	1.00

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022626

TABLE 22. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-73 (18/20)	DR4-73 (18/20) duplicate	DR4-76 (8/10)	DR4-76 (16/18)	DR4-77 (0/2)	DR4-77 (8/10)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	91	84	93	66	87	96
Process File			LP215	LP216	BP218	BP214	BP213	LP219
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
HRC Extraction Number	-		PCB095	PCB096	PCB072	PCB070	PCB069	PCB097
Sample Wt. Extracted (g)	-		1.02	1.02	1.28	1.00	1.00	1.10

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022627

TABLE 23. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-77 (16/18)	DR4-78 (0/2)	DR4-78 (0/2) duplicate	DR Method Blank	DR4-78 (18/20)	DR4-83 (2/4)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	80	91	94	96	87	82
Process File			LP230	BP203	BP204	BP205	LP223	BP224
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB108	PCB059	PCB060	PCB061	PCB181	PCB078
Sample Wt. Extracted (g)	-		1.05	1.02	1.02	0	1.00	1.08

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022628

TABLE 24. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-83 (16/18)	DR4-83 (18/20)	DR4-85 (14/16)	DR4-87 (0/2)	DR4-87 (14/16)	DR4-90 (0/2)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl Chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	81	78	100	98	84	87
Process File			BP217	BP209	LP225	LP209	LP224	BP210
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB071	PCB065	PCB103	PCB089	PCB102	PCB066
Sample Wt. Extracted (g)	-		1.17	1.00	1.00	1.14	1.00	1.02

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022629

TABLE 25. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-90 (14/16)	DR4-91 (2/4)	DR4-91 (8/10)	DR4-91 (10/12)	DR4-92 (4/6)	DR4-92 (14/16)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	62	92	72	77	97	76
Process File			BP208	LP228	BP228	LP208	LP229	LP221
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB064	PCB106	PCB082	PCB088	PCB107	PCB099
Sample Wt. Extracted (g)	-		1.00	1.00	1.00	1.10	1.14	1.00

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022630

TABLE 26. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-93 (2/4)	DR4-93 (12/14)	DR4-93 (14/16)			
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND			
Benzyl chloride	GC/FID	5.0	ND	ND	ND			
Benzyl alcohol	GC/FID	5.0	ND	ND	ND			
Benzal chloride	GC/FID	5.0	ND	ND	ND			
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	93	102	57			
Process File			BP223	LP222	LP214			
Extract Dilution			1:1	1:1	1:1			
NRC Extraction Number	-		PCB077	PCB100	PCB094			
Sample Wt. Extracted (g)	-		1.04	1.04	1.22			

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022631

TABLE 27. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-44 (10/12)	DR4-44 (10/12) duplicate	DR4-44 (5/7)	DR4-54 (5/7) Red pen ink	DR4-54 (5/7) Black pen ink	DR4-60 (8/10)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	ND	ND	44	ND	12
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	ND	ND	1.0×10^3	ND	70
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	85	66	94	96	79	97
Process File			MP205	MP206	MP224	MP208	XP203	XP204
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB110	PCB111	PCB112	PCB113	PCB114	PCB115
Sample Wt. Extracted (g)	-		1.0134	1.0164	1.1171	1.1550	1.0635	1.01

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022632

TABLE 28. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-60 (12/14)	DR4-66 (0/2)	DR4-66 (4/6)	DR Method Blank	DR4-66 (8/10)	DR4-66 (14/16)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	60	ND[b]	1.1×10^3	ND	1.8×10^2	4.2×10^2
Benzyl chloride	GC/FID	5.0	ND	ND	90	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	1.8×10^3	ND	3.3×10^2	ND	5.5×10^2	2.0×10^3
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	89	115	NA[c]	94	NA	NA
Process File			KP205	KP206	KP207	KP208	KP209	KP210
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB116	PCB117	PCB118	PCB119	PCB120	PCB121
Sample Wt. Extracted (g)	-		1.0204	1.148	1.0599	0	1.122	1.0128

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

MONS 022633

TABLE 29. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-66 (16/18)	DR4-67 (2/4)	DR4-67 (2/4) duplicate	DR4-67 (8/10)	DR4-67 (14/16)	DR Method Blank
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	2.2×10^2	ND	ND	1.6×10^2	9.2×10^2	ND
Benzyl chloride	GC/FID	5.0	ND[b]	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	5.4×10^2	ND	ND	1.7×10^2	2.9×10^3	ND
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	NA[c]	85	65	NA	NA	95
Process File			KP211	KP212	KP213	KP214	KP215	KP217
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NRC Extraction Number	-		PCB122	PCB123	PCB124	PCB125	PCB126	PCB127
Sample Wt. Extracted (g)	-		1.0738	1.1300	1.0632	0.9731	1.0260	0

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

MONS 022634

TABLE 30. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-67 (16/18)	DR4-70 (12/14)	DR4-71 (10/12)	DR4-71 (14/16)	DR4-73 (8/10)	DR4-73 (12/14)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	8.5×10^2	2.7×10^3	3.3×10^3	1.5×10^2	6.3×10^2
Benzyl chloride	GC/FID	5.0	ND	5.6	2.5×10^3	4.5×10^3	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	3.0×10^3	1.2×10^4	1.2×10^4	2.8×10^2	1.1×10^3
Benzal chloride	GC/FID	5.0	ND	ND	7.7	6.6	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	77	NA[c]	NA	NA	NA	NA
Process File			KP218	KP219	KP220	KP221	KP222	KP223
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB128	PCB129	PCB130	PCB131	PCB132	PCB133
Sample Wt. Extracted (g)	-		1.0342	1.0514	1.0648	1.0528	1.0200	1.0172

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

MONS 022635

TABLE 31. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-78 (4/6)	DR4-78 (4/6) duplicate	DR4-78 (10/12)	DR4-78 (14/16)	DR4-83 (10/12)	DR4-85 (0/2)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	100	1.6×10^2	1.4×10^2	ND[b]	3.2×10^2	ND
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	20
Benzyl alcohol	GC/FID	5.0	77	96	1.1×10^3	ND	5.8×10^2	54
Benzal chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	NA[c]	NA	NA	90	37	NA
Process File			KP224	KP225	KP226	KP227	KP228	KP229
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB134	PCB135	PCB136	PCB137	PCB138	PCB139
Sample Wt. Extracted (g)	-		1.0100	1.0286	1.0026	1.0191	1.0212	1.0719

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

MONS 022636

TABLE 32. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR Method Blank	DR4-85 (4/6)	DR4-85 (8/10)	DR4-85 (12/14)	DR4-87 (4/6)	DR4-87 (4/6) duplicate
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	5.3×10^2	9.9×10^2	2.3×10^2	5.3	5.1
Benzyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	68	7.6×10^2	1.3×10^3	7.2	6.6
Benzoyl chloride	GC/FID	5.0	ND	ND	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	99	NA[c]	NA	53	NA	95
Process File			KP230	KP231	KP232	MP209	MP210	MP225
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB140	PCB141	PCB142	PCB143	PCB144	PCB145
Sample Wt. Extracted (g)	-		0	1.0521	1.0594	1.0490	1.0222	1.0145

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analysed, due to dilution factor.

MONS 022637

TABLE 33. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR Method Blank	DR4-87 (8/10)	DR4-87 (12/14)	DR4-90 (2/4)	DR4-90 (4/6)	DR4-90 (8/10)
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	ND[b]	3.8×10^3	2.5×10^2	2.8×10^2	15	1.2×10^3
Benzyl chloride	GC/FID	5.0	ND	19	ND	ND	ND	ND
Benzyl alcohol	GC/FID	5.0	ND	4.7×10^3	2.3×10^2	77	ND	4.8×10^2
Benzal chloride	GC/FID	5.0	ND	9.0	ND	ND	ND	ND
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	NA[c]	NA	NA	NA	NA	NA
Process File			MP212	MP213	MP214	MP226	MP217	MP220
Extract Dilution			1:1	1:1	1:1	1:1	1:1	1:1
NBC Extraction Number	-		PCB146	PCB147	PCB148	PCB149	PCB150	PCB151
Sample Wt. Extracted (g)	-		0	1.0009	1.0928	1.0924	1.0348	1.0013

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

[c] NA = not analyzed, due to dilution factor.

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TABLE 34. RESULTS OF BENZYL COMPOUND ANALYSES OF DELAWARE RIVER PLANT SOIL SAMPLES

483.42718 August 31, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: DR4-90 (12/14)	DR4-92 (12/14)	DR4-93 (8/10)			
			Concentration (µg/g)					
Benzaldehyde	GC/FID	5.0	4.1×10^2	7.0	2.8×10^2			
Benzyl chloride	GC/FID	5.0	ND[b]	ND	ND			
Benzyl alcohol	GC/FID	5.0	1.3×10^2	3.4×10^2	2.0×10^2			
Benzal chloride	GC/FID	5.0	ND	ND	ND			
Surrogate Spiking Compound	Analysis Method	Amount added (µg/g)	Recovery (%)					
Pentaclorobenzene	GC/EC	1	87	90	287			
Process File			MP221	MP222	MP223			
Extract Dilution			1:1	1:1	1:1			
NBC Extraction Number	-		PCB152	PCB153	PCB154			
Sample Wt. Extracted (g)	-		0.9980	1.0779	1.0121			

[a] L.O.D. = limit of detection in µg/g.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022639

TABLE 35. CHARCOAL ISOTHERM STUDY USING DEIONIZED WATER

483.42718 August 16, 1983

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: Clean H_2O	Clean H_2O	0 mg/L Charcoal Calgon F-200	5 mg/L Charcoal Calgon F-200	50 mg/L Charcoal Calgon F-200	500 mg/L Charcoal Calgon F-200
			Concentration (µg/L)					
Benzaldehyde	GC/MS	10	ND[b]	ND	11501	9657	9901	7810
Benzyl alcohol	GC/MS	10	ND	ND	5253	4195	4214	3453
Aroclor 1248	GC/EC	1	ND	ND	16.6	9.74	3.74	5.99
Surrogate Spiking Compound	Analysis Method	Amount added (µg/L)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	95	79	100	102	101	107
NRC Extraction Number	-		DRC-012	DRC-013	DRC-014	DRC-015	DRC-016	DRC-017
Sample Vol. Extracted (L)	-		0.1	0.1	0.1	0.1	0.1	0.1

MONS 022640

TABLE 35 (continued)

Analyte	Analysis Method	L.O.D.[a]	Sample Identification: 5,000 mg/L Charcoal Calgon F-200	50,000 mg/L Charcoal Calgon F-200				
			Concentration (µg/L)					
Benzaldehyde	GC/MS	10	3078	1347				
Benzyl alcohol	GC/MS	10	1243	405				
Aroclor 1248	GC/EC	1	4.8	3.18				
Surrogate Spiking Compound	Analysis Method	Amount added (µg/L)	Recovery (%)					
Pentachlorobenzene	GC/EC	1	116	102				
NRC Extraction Number	-		DRC-018	DRC-019				
Sample Vol. Extracted (L)	-		0.1	0.1				

[a] L.O.D. = limit of detection.

[b] ND = none detected with a detection limit given by the L.O.D. value for each compound.

MONS 022641

TABLE 36. MAJOR ORGANIC COMPONENTS OF OIL LAYER FROM DELAWARE RIVER WELL 51-2

Retention time	Identification	Concentration, µg/mL
6.05	Chloromethylbenzene (isomer)	1.2×10^3
6.20	Chloromethylbenzene (isomer)	7.1×10^2
6.42	Benzaldehyde	2.5×10^4
7.75	Chloromethylbenzene (isomer)	2.6×10^4
8.45	Benzyl alcohol	3.7×10^4
10.07	Dichloromethylbenzene (isomer)	5.8×10^2
10.13	Dichloromethylbenzene (isomer)	3.5×10^2
10.72	Dichloromethylbenzene (isomer)	1.7×10^2
11.60	Dichloromethylbenzene (isomer)	1.1×10^3
11.83	Dichloromethylbenzene (isomer)	95
11.90	Dichloromethylbenzene (isomer)	5.8×10^2
11.15	Unknown	91
12.92	Unknown	1.2×10^3
15.72	Unknown - Cl containing compound	3.3×10^2
15.97	Unknown - Cl containing compound	1.5×10^3
17.02	Unknown - Cl containing compound	1.9×10^2
17.08	Unknown - Cl containing compound	100
17.80	Methyl(phenylmethyl)benzene (isomer)	3.5×10^4
17.93	Methyl(phenylmethyl)benzene (isomer)	4.0×10^3
19.42	Unknown	2.5×10^3
19.70	Benzene,1,1'-[oxybis(methylene)]bis-	1.8×10^4
19.95	Unknown - Cl containing compound	5.5×10^2
20.30	Unknown - Cl containing compound	4.7×10^2
20.33	Unknown - Cl containing compound	4.7×10^2
20.65	Unknown - Cl containing compound	6.8×10^2
20.78	Unknown	2.5×10^2
21.05	Unknown - Cl containing compound	1.2×10^4
21.20	Unknown	1.8×10^3
21.33	Unknown	1.7×10^3

MONS 022642

TABLE 36 (continued)

Retention time	Identification		Concentration, µg/mL
21.62	Anthracene-d_{10} (internal standard)		
21.80-27.3	Arochlor 1248		2.3×10^4
28.52	Phthalate		1.4×10^4
28.92	Unknown		9.8×10^3
29.28	Unknown		7.1×10^2
29.92	Unknown		9.6×10^2
30.43	Phthalate		3.5×10^3
31.37	Phthalate		1.4×10^2
31.93	Phthalate		3.1×10^2
32.57	Phthalate		7.0×10^2
		Total	2.3×10^5

MONS 022643

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ASG/ESC (DEPT /SECTION) — ANALYTICAL REPORT (TYPE OF REPORT)

REPORT NO.: Addendum to MDA-394

JOB/PROJECT NO.: 483.4270

DATE: November 16, 1983

PERIOD COVERED:

TITLE: ANALYSES OF DELAWARE RIVER PLANT SAMPLES

AUTHORS: B. M. Hughes

ABSTRACT: Additional analyses requested by the Delaware River Plant, on previously submitted samples, were performed to evaluate a commercially available material ability to solubilize Aroclor 1248. The results of these analyses are shown in this report.

Technical Approval _____
J. J. Brooks
Research Group Leader

Approved by: _____
Robert F. Ivory
Environmental Sciences Center
Service Project Manager

Approval date: 11-14-83

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ACKNOWLEDGEMENT

Contributions of the following Dayton Laboratory personnel to this project are gratefully acknowledged:

Analyses: B. M. Hughes
D. McKenzie
C. Trang

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ANALYSIS REPORT

DATE: November 3, 1983

LOG NUMBER: 1-83-08-15-03 PROJECT NO: 483.42718

Title: Evaluation of Power Cleaner for Aroclor 1248 Solubalization

Standard Sampling Method No(s): N/A

Standard Extraction Method No(s): WSEX01

Standard Analysis Method No(s): ECAN02, FIAN01

Final Report File No(s): A42718

Table File No(s): B42718, C42718, D42718, E42718, F42718, G42718

BACKGROUND: A series of experiments were conducted to evaluate whether a commercially available material (called Power Cleaner #155, supplied by E. Jamrow) can be used to solubalize Aroclor 1248 present in oil and contaminated soil samples. The following sections describe experiments which were conducted using this power cleaner in conjunction with oil and soil samples obtained from the Delaware River Plant.

EXPERIMENTAL METHODS: See listing of ESC Standard Extraction and Analysis Methods referenced above.

OIL SOLUBALIZATION STUDY: A set of experiments was conducted using distilled water, distilled water with pH = 10, distilled water with 10% power cleaner (by volume), and distilled water with 10% power cleaner with

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pH = 10, to solubalize Aroclor 1248 in an oil sample from well 51-2. This oil sample contains approximately 10% Aroclor 1248.

Five mls oil was added to one liter of the above four different water matrices and the water was analyzed for Aroclor 1248, benzaldehyde, benzyl chloride, benzyl alcohol and benzal chloride. Ten ml. water samples were extracted using ESC Standard Extraction Method (SEM) WSANO1. Initial water sampling problems were encountered in which small amounts of oil floating on top of the water layer were difficult to eliminate from the 10 ml. aliquots without first separating the oil film by inserting a 25-ml disposable pipette into the 1-liter sample and then removing an oil-less water sample from within the 25-ml pipette using a 10-ml disposable pipette. For this reason, no data points are available for Aroclor 1248 on the first day of the oil solubalization studies. Tables 1 - 3 summarize the results of these experiments.

SOIL SOLUBALIZATION STUDY: Similar experiments were conducted on water/soil mixtures in which 2 g. of contaminated soil Sample #1 were added the four types of water matrices described in the previous section. No oil contamination problems were encountered as described for the oil solubalization study. Tables 4 - 6 summarize the results of these experiments.

DISCUSSION OF RESULTS: There appears to be no experimentally significant differences for the concentrations of the water soluble components (benzaldehyde, benzyl chloride, benzyl alcohol and benzal chloride) and only marginal differences in Aroclor 1248 concentrations when power cleaner is added to the various types of water matrices. Even the double pipette technique of collecting water samples in the oil/water studies did not appear to remove all residual oil from the water aliquots. Therefore any positive values for Aroclor 1248 in the oil/water study may be artificially high, due to this contamination problem. If you have any questions concerning these results, feel free to call me at extensions 396, 409 or 209.

ANALYSTS: B. M. Hughes, D. McKenzie, and C. Trans

ANALYST APPROVAL: B. M. Hughes

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TABLE 1. Results of Capillary GC/EC and GC/FID Analyses of Oil Solubalization Study

ESC Project No: 483.42718 Date: November 3, 1983

ANALYTE	ESC ANALYTICAL METHOD	LOD	SAMPLE IDENTIFICATION: 10% Power Cleaner at pH=10 Method Blank	5ml Oil + 1liter Water Day 5	5ml Oil + 10% Power Cleaner Day 1
			CONCENTRATION (ug/L)		
Aroclor 1248	ECAN02	1.100	ND	410	NA
Benzaldehyde	FIAN01	10.1000	8.5	4.9X10(5)	3.7X10(5)
Benzyl Chloride	FIAN01	10.1000	1.5X10(2)	2.2X10(4)	5.5X10(4)
Benzyl Alcohol	FIAN01	10.1000	1.4X10(3)	1.3X10(6)	1.0X10(6)
Benzal Chloride	FIAN01	10.1000	14	1.7X10(3)	9.3X10(2)
SURROGATE SPIKING COMPOUND		AMOUNT ADDED (ug/L)		RECOVERY (%)	
CL5-benzene	ECAN02	10.100	NA	67	NA
DOCUMENTATION					
ESC Extraction Method			WSEX01	WSEX01	WSEX01
Sample Amt Extracted (g)			100	10	10
Extract Final Volume (ml)			1.0	10	10
Aroclor Extract Dilution			1:1	1:1	-
Aroclor Process File			BP171	BP116	-
Benzyl Extract Dilution			1:1	1:1	1:1
Benzyl Process File			BP212	BP209	BP237
ESC Extract Number			DRC-074	DRM-065	DRM-052

EXPLANATION OF ABBREVIATIONS:

LOD = limit of detection in ug/L

ND = none detected with a detection limit given by the LOD value

NA = not analyzed

TABLE FILE NO: B42718:MH:22

MONS 022648

TABLE 2. Results of Capillary GC/EC and GC/FID Analyses of Oil Solubalization Study

ESC Project No: 483.42718 Date: November 3, 1983

		SAMPLE IDENTIFICATION		
		5ml Oil + 10% Power Cleaner	5ml Oil + 10% Power Cleaner pH=10	5ml Oil + 10% Power Cleaner pH=11
		Day2-Benzyl Day11-Aroclor	Day 1	Day2-Benzyl Day11-Aroclor
ANALYTE	ESC ANALYTICAL METHOD	LOD	CONCENTRATION (ug/L)		
Aroclor 1248	ECAN02	100	2.7X10(3)	NA	3.1X10(3)
Benzaldehyde	FIAN01	1000	3.7X10(5)	4.1X10(5)	4.0X10(5)
Benzyl Chloride	FIAN01	1000	3.3X10(4)	5.6X10(4)	3.8X10(4)
Benzyl Alcohol	FIAN01	1000	8.9X10(5)	1.1X10(6)	9.7X10(5)
Benzal Chloride	FIAN01	1000	1.2X10(3)	9.3X10(2)	1.4X10(3)
SURROGATE SPIKING COMPOUND		AMOUNT ADDED (ug/L)	RECOVERY (%)		
CL5-benzene	ECAN02	100	325	NA	289
DOCUMENTATION					
ESC Extraction Method			WSEX01	WSEX01	WSEX01
Sample Amt Extracted (g)			10	10	10
Extract Final Volume (ml)			10	10	10
Aroclor Extract Dilution			1:10	-	1:10
Aroclor Process File			BP129	-	BP130
Benzyl Extract Dilution			1:1	1:1	1:1
Benzyl Process File			BP208	BP236	BP207
ESC Extract Number			DRM-064	DRM-051	DRM-063

EXPLANATION OF ABBREVIATIONS:

LOD = limit of detection in ug/L

ND = none detected with a detection limit given by the LOD value

NA = not analyzed

TABLE FILE NO: C42718:MH:22

MONS 022649

TABLE 3. Results of Capillary GC/EC and GC/FID Analyses of Oil Solubalization Study

ESC Project No: 483.42718 Date: November 3, 1983

ANALYTE	ESC ANALYTICAL METHOD	LOD	SAMPLE IDENTIFICATION: 5ml Oil + 1 liter Water pH=10 Day 1	SAMPLE IDENTIFICATION: 5ml Oil + 1 liter Water pH=10 Day2-Benzyl Day11-Aroclor
			CONCENTRATION (ug/L)	
Aroclor 1248	ECAN02	100	NA	3.3X10(3)
Benzaldehyde	FIAN01	1000	3.9X10(5)	4.6X10(5)
Benzyl Chloride	FIAN01	1000	1.0X10(5)	7.8X10(4)
Benzyl Alcohol	FIAN01	1000	9.4X10(5)	1.1X10(6)
Benzal Chloride	FIAN01	1000	7.9X10(2)	1.5X10(3)
SURROGATE SPIKING COMPOUND		AMOUNT ADDED (ug/L)		
			RECOVERY (%)	
CL5-benzene	ECAN02	100	NA	44
DOCUMENTATION				
ESC Extraction Method			WSEX01	WSEX01
Sample Amt Extracted (g)			10	10
Extract Final Volume (ml)			10	10
Aroclor Extract Dilution			-	1:10
Aroclor Process File			-	BP127
Benzyl Extract Dilution			1:1	1:1
Benzyl Process File			BP235	BP206
ESC Extract Number			DRM-050	DRM-062

EXPLANATION OF ABBREVIATIONS:

LOD = limit of detection in ug/L

ND = none detected with a detection limit given by the LOD value

NA = not analyzed

TABLE FILE NO: D42718:MH:22

TABLE 4. Results of Capillary GC/EC and GC/FID Analyses of Soil Solubalization Study

ESC Project No: 483.42718 Date: November 3, 1983

ANALYTE	ESC ANALYTICAL METHOD	LOD	SAMPLE IDENTIFICATION: 2g Soil + 1 liter Water, Day 1	2g Soil + 1 liter Water, Day 2	2g Soil + 10% Power Cleaner, Day 1
			CONCENTRATION (ug/L)		
Aroclor 1248	ECAN02	10	ND	ND	100
Benzaldehyde	FIAN01	100	8.7X10(2)	5.5X10(2)	1.1X10(3)
Benzyl Chloride	FIAN01	100	ND	ND	69
Benzyl Alcohol	FIAN01	100	2.5X10(3)	2.7X10(3)	5.5X10(3)
Benzal Chloride	FIAN01	100	ND	ND	ND
SURROGATE SPIKING COMPOUND		**AMOUNT ADDED (ug/L)**	RECOVERY (%)		
CL5-benzene	ECAN02	10	116	89	97
DOCUMENTATION					
ESC Extraction Method			WSEX01	WSEX01	WSEX01
Sample Amt Extracted			100	100	100
Extract Final Volume			10	10	10
Aroclor Extract Dilution			1:1	1:1	1:1
Aroclor Process File			BP130	BP123	BP133
Benzyl Extract Dilution			1:1	1:1	1:1
Benzyl Process File			MP228	MP234	MP233
ESC Extract Number			DRC-045	DRC-057	DRC-048

EXPLANATION OF ABBREVIATIONS:

LOD = limit of detection in ug/L

ND = none detected with a detection limit given by the LOD value

NA = not analyzed

TABLE FILE NO: E42718:MH:22

MONS 022651

TABLE 5. Results of Capillary GC/EC and GC/FID Analyses of Soil Solubalization Study

ESC Project No: 483.42718 Date: November 3, 1983

			SAMPLE IDENTIFICATION		
			2g Soil + 10% Power Cleaner	2g Soil + 1 liter Water pH=10	2g Soil + 1 liter Water pH=10
			Day 2	Day 1	Day 2
ANALYTE	ESC ANALYTICAL METHOD	LOD	CONCENTRATION (ug/L)		
Aroclor 1248	ECAN02	10	160	ND	ND
Benzaldehyde	FIAN01	100	9.7X10(2)	6.9X10(2)	7.2X10(2)
Benzyl Chloride	FIAN01	100	58	ND	ND
Benzyl Alcohol	FIAN01	100	4.2X10(3)	2.3X10(3)	2.7X10(3)
Benzal Chloride	FIAN01	100	ND	ND	ND
SURROGATE SPIKING COMPOUND		AMOUNT ADDED (ug/L)	RECOVERY (%)		
CL5-benzene	ECAN02	10	84	100	97
DOCUMENTATION					
ESC Extraction Method			WSEX01	WSEX01	WSEX01
Sample Amt Extracted			100	100	100
Extract Final Volume			10	10	10
Aroclor Extract Dilution			1:1	1:1	1:1
Aroclor Process File			BP125	BP131	BP124
Benzyl Extract Dilution			1:1	1:1	1:1
Benzyl Process File			BP203	MP229	MP235
ESC Extract Number			DRC-059	DRC-046	DRC-058

EXPLANATION OF ABBREVIATIONS:

LOD = limit of detection in ug/L

ND = none detected with a detection limit given by the LOD value

NA = not analyzed

TABLE FILE NO: F42718:MH:22

TABLE 6. Results of Capillary GC/EC and GC/FID Analyses of Soil Solubalization Study

ESC Project No: 483.42718 Date: November 3, 1983

ANALYTE	ESC ANALYTICAL METHOD	LOD	SAMPLE IDENTIFICATION: 2g Soil + 10% Power Cleaner pH=10 Day 1	SAMPLE IDENTIFICATION: 2g Soil + 10% Power Cleaner pH=10 Day 2
			CONCENTRATION (ug/L)	CONCENTRATION (ug/L)
Aroclor 1248	ECAN02	10	270	220
Benzaldehyde	FIAN01	100	8.3X10(2)	9.0X10(2)
Benzyl Chloride	FIAN01	100	69	77
Benzyl Alcohol	FIAN01	100	4.5X10(3)	4.6X10(3)
Benzal Chloride	FIAN01	100	ND	ND
SURROGATE SPIKING COMPOUND		AMOUNT ADDED (ug/L)	RECOVERY (%)	RECOVERY (%)
CL5-benzene	ECAN02	10	75	76
DOCUMENTATION				
ESC Extraction Method			WSEX01	WSEX01
Sample Amt Extracted (g)			100	100
Extract Final Volume (ml)			10	10
Aroclor Extract Dilution			1:1	1:1
Aroclor Process File			BP132	BP126
Benzyl Extract Dilution			1:1	1:1
Benzyl Process File			MP232	BP204
ESC Extract Number			DRC-047	DRC-060

EXPLANATION OF ABBREVIATIONS:

LOD = limit of detection in ug/L

ND = none detected with a detection limit given by the LOD value

NA = not analyzed

TABLE FILE NO: G42718:MH:22

MONS 022653

The following pages describe Standard Extraction Methods and Standard Analysis Methods used for this project.

ESC Standard Analysis Method (SAM) — ESC Standard Analysis Method No:
TITLE: Aroclor Formulations in Solvents — ECAN02

ANALYTICAL INSTRUMENT AND MODE OF OPERATION: HP-5880 Capillary GC/EC interfaced to an HP-3356-LAS Laboratory Data System

---

TYPICAL ANALYTE	TYPICAL INSTRUMENT LEVEL OF DETECTION (LOD) (ug/ml)	TYPICAL PRECISION @ 10X LOD (%)	TYPICAL ACCURACY @ 10X LOD (%)
Aroclor formulations 1232, 1248, 1254, 1260 and 1262	0.1	30	30

INTERFERENCES AND LIMITATIONS: Any electron capturing species in the retention time region of trichlorobiphenyl through octachlorobiphenyl isomers are potential interferences. Exact retention times of most likely PCB isomers can be obtained from the analysis of Aroclor 1248, Aroclor 1254 or Aroclor 1260 formulations.

CHROMATOGRAPHIC COLUMN: 30-meter fused silica J&W DB-5 (0.25 uM) with wide bore (0.32mm).

COLUMN TEMPERATURE PROGRAM: 130(1)/4/300 — INJECTION TYPE: Splitless

---

CALIBRATION AND STANDARDIZATION: Use internal standard quantitation technique and calibrate instrument response factors from authentic Aroclor formulation standards. Use a minimum of 10 PCB isomers for the determination of formulation identity and quantity.

CALCULATIONS: Formulation concentration = (isomer area)/(isomer RRF)

where: RRF is the relative response factor for the appropriate PCB isomer in a given formulation. Formulation concentration is obtained from the average of at least 10 such calculations.

SAFETY PRECAUTIONS: See PCB handling protocols in laboratory safety manual.

DATES OF METHOD CREATION AND METHOD UPDATES: 10/25/83

ESC Standard Analysis Method (SAM) ESC Standard Analysis Method No:
TITLE: Organic Compounds in Solvents FIAN01

ANALYTICAL INSTRUMENT AND MODE OF OPERATION: HP-5880 Capillary GC/FID interfaced to an HP-3356-LAS Laboratory Data System

---

TYPICAL ANALYTE	TYPICAL INSTRUMENT LEVEL OF DETECTION (LOD) (ug/ml)	TYPICAL PRECISION @ 10X LOD (%)	TYPICAL ACCURACY @ 10X LOD (%)
Organic Compounds eluting between toluene and n-C34-ane	1	30	30

INTERFERENCES AND LIMITATIONS: Any organic compounds in the solvent are potential interferences. Analytes must be completely resolved from other organic compounds in the solvent and identification of analytes is based solely upon retention times. Confirmation of analyte presence may use SAMs MSAN01 or MSAN02 mass spectrometric analytical methods.

CHROMATOGRAPHIC COLUMN: 30-meter fused silica J&W DB-5 (0.25 uM) with wide bore (0.32 mm)

COLUMN TEMPERATURE PROGRAM: 50(4)/8/300 INJECTION TYPE: Splitless

---

CALIBRATION AND STANDARDIZATION: Use internal standard quantitation technique and calibrate instrument response factors from authentic analyte standards.

CALCULATIONS: Analyte concentration = (analyte area)/(analyte RRF)

where: RRF is the relative response factor for the appropriate analyte.

SAFETY PRECAUTIONS: See PCB handling protocols in laboratory safety manual.

DATES OF METHOD CREATION AND METHOD UPDATES: 11/3/83

ESC Standard Extraction Method (SEM)
TITLE: Organic Compounds in Water

ESC Standard Extraction Method No: WSEX01

MATRI(X),(CES):

Water

TYPICAL SAMPLE SIZE (g)	TYPICAL EXTRACT VOLUME (ml)
1 - 4000	1 - 10

TYPICAL ANALYTES: Aroclors 1232, 1248, 1254, 1260, 1262, trichlorobiphenyl isomers through octachlorobiphenyl isomers, organic compounds eluting between toluene and n-C34-ane

ESC Standard Analysis Method Nos: ECAN01, ECAN02, MSAN01, MSAN02, FIAN01

INTERFERENCES: Any electron capturing species in the retention time region of trichlorobiphenyl isomers through octachlorobiphenyl isomers for ECAN01 and ECAN02.

TYPICAL SURROGATES	TYPICAL RECOVERIES (%)
phenol-d5	20 - 80
CL-phenol-d4	20 - 80
CL2-benzene-d4	50 - 120
naphthalene-d8	50 - 120
pyrene-d10	50 - 120
chrysene-d12	50 - 120
pentachlorobenzene	50 - 120
2,4,6-trichlorobiphenyl	50 - 120

APPARATUS AND MATERIALS:
Burdick and Jackson methylene chloride for sample extraction. Disposable glassware for sample sizes below 20 g and separatory funnels for larger sizes. Larger sample sizes also require sodium sulfate columns for extract drying.

LIMITATIONS: Method applies only to matrices which do not contain electron capturing species in the trichlorobiphenyl through octachlorobiphenyl isomer retention time region for ECAN01 and ECAN02.

SAFETY PRECAUTIONS: See PCB handling protocols in laboratory safety manual.

DATES OF METHOD CREATION AND UPDATES: 10/31/83