T. Wentland - SED

SHEBOYGAN RIVER AND HARBOR

BIODEGRADATION PILOT STUDY
PROJECT UPDATE

TECUMSEH PRODUCTS COMPANY
SHEBOYGAN FALLS, WISCONSIN

FEBRUARY 1992

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BIODEGRADATION PILOT STUDY
PROJECT UPDATE

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BIODEGRADATION PILOT STUDY

PROJECT UPDATE

1. PCB Biodegradation in CTF Sediment

1.1 Introduction

This study was implemented to assess the feasibility of utilizing biodegradation as a remedial treatment for PCB containing sediments. The original mixture in these sediments appeears to have been Aroclor 1248 and much lower levels of Aroclor 1254. As described in the Biodegradation Pilot Study Work Plan (Blasland & Bouck, May 1991), in-vessel PCB biodegradation studies in the CTF constitute a part of the Pilot Study aspect of the project, a bench-scale component is being conducted at the University of Michigan, and in-situ PCB biodegradation is being evaluated at armored areas in the Sheboygan River (see Section 2).

An initial sampling of one of the four CTF cells (#4) was performed in 1990 and the analytical results were used to develop a statistically-based sampling design for monitoring all four cells. Using this design, baseline sampling of the four cells was conducted in July 1991 and the resulting data were evaluated to establish the current degree of PCB dechlorination.

1.2 Experimental Approach

1.2.1 Sampling

During the baseline sampling, 35 cores were removed from each cell and composited in groups of seven to provide five composite samples per cell. Efforts were made to choose samples from widely distributed locations within the cell in order

for the composite to be representative. These samples were collected by gently tapping Lexan[R] tubing into the sediment and then driving it to refusal with a stainless steel core driver. The tubing was then retrieved and the sediment core extruded into a stainless-steel bowl, thoroughly mixed and then placed into laboratory-supplied, glass sample containers. The samples were then shipped to the laboratory and analyzed to provide concentrations of individual PCB congeners, oil and grease (O&G), and total organic carbon (TOC). Four composite samples, one from each of the four cells, were analyzed in triplicate. In addition, one other sample from each of the four cells was also analyzed to provide the distribution of particle sizes in the sediment.

During a subsequent (mid-November, 1991) sampling of CTF sediment and pore water, samples were obtained at about mid-depth and analyzed for several substances (listed at the end of this paragraph) which are among the macro-nutrients required for microorganisms to flourish. At three random locations within each cell, well points, with two feet of 0.05-inch slotted screen were driven such that the top of the screen was located about 6 inches below the sediment surface. An extension was then added to the well point, that rose above the water surface. This arrangement allowed the collection of pore water samples from within the sediment and precluded the intrusion of surface water. Prior to actual sample collection, each well point was purged (about one half gallon water removed) and allowed to recharge. Samples were collected directly into laboratory

supplied containers (with the appropriate preservative) by using a portable peristaltic pump. Additionally, field measurements of pH, temperature, and specific conductivity were obtained for both the pore water samples and the overlying surface water. At the laboratory, the water samples were filtered with a 0.45-micron filter and analyzed for the following: alkalinity, calcium, iron, magnesium, potassium, sodium, chloride, nitrate, nitrite, phosphate (ortho), sulfate, sulfide, ammonia nitrogen, and total phosphorus.

Sediment samples were collected from approximately mid-depth, by hand-turning a stainless steel auger at locations adjacent to the well points. These samples were placed in laboratory-supplied containers with a stainless-steel spatula and submitted for analyses of total Kjeldahl nitrogen (TKN), cation-exchange capacity and total phosphorus.

1.2.2 Analyses

Northeast Analytical Environmental Lab Service performed congener specific PCB, oil and grease, and TOC analyses. Congener-specific PCB analysis was performed with gas chromatography using a 30-meter DB-1 capillary column (Brown et al., 1987). Analysis for TOC was performed using a Dohrmann DC-180 TOC Analyzer as per EPA Method SW846-9060 (September 1986). Total recoverable oil and grease was determined using EPA's Method SW846-9070 (September 1986).

A second laboratory, Hazleton Environmental Services analyzed the CTF pore water and sediments for macro-nutrients. For the CTF pore water and sediment, alkalinity was measured by titration (Standard Methods, 1989); calcium, iron, magnesium,

potassium, and sodium by inductively coupled plasma (ICP) spectroscopy (EPA, 1982, 1984); chloride, nitrite, phosphate (ortho), nitrate and sulfate by ion chromatography (EPA, 1984); sulfide as per Standard Methods (1989); and nitrogen, cation exchange capacity and total phosphorus using EPA-specified methods (March 1983, 1990). Particle sizes were determined by Warzyn, Inc. (a sub-contractor to Hazleton) using the American Society for Testing and Materials (ASTM, 1987) method D422 and classified using the Unified Soils Classification System (USCS).

1.2.3 Data Evaluation

Performance criteria were developed to evaluate the progress of sediment remediation by anaerobic PCB dechlorination during the pilot-scale demonstration (See Biodegradation Pilot Study Work Plan, May 1991). Models of PCB toxicity, PCB bioaccumulation, anaerobic PCB dechlorination, sediment-water PCB partitioning and the composition of PCB Aroclors constitute the bases of the criteria. The developed criteria included the following indices: a three-compound PCB toxicity index of mono-ortho-coplanar congeners; an index of bioaccumulative congeners; the average number of non-ortho-chlorine atoms per biphenyl molecule; characteristic dechlorination products, and relative quantities of individual homologs. These indices are relevant to public-health and environmental issues, relatively easy to monitor, and sensitive to the changes effected by anaerobic dechlorination.

The three-compound toxicity index is made up of the sum of mono-ortho-coplanar PCB congeners with International Union

of Pure and Applied Chemists (IUPAC) numbers 105, 118, and 156. Although each of these congeners has a coeluting partner, (congeners 132, 149, and 171, respectively) the three mono-ortho-coplanar compounds are at higher concentrations in Aroclor 1248 than their coeluting partners.

The group of 18 predominantly bioaccumulative congeners are made up of the following, listed by IUPAC numbers: 28, 74, 90, 99, 118, 138, 153, 156, 170, 180, 183, 187, 194, 196, 201, 203, 206, and 209. Twelve additional congeners, though not predominantly bioaccumulative, complete the group of bioaccumulative congeners. They are, by IUPAC numbers: 33, 44, 49, 52, 61, 66, 70, 84, 87, 105, 128, and 146. Several of these bioaccumulative congeners also have coeluting partners which by circumstance, are also included in the summation.

The products targeted for evaluation were those in the five most abundant product peaks. By IUPAC numbers, these are 1 (2), 4 coeluting with 10 (22' & 26), 5 coeluting with 8 (23 & 24'), 16 co-eluting with 32, (22'3 & 24'6), 17 (22'4), and 19 (22'6). These are all early eluting congeners as would be expected for PCBs with lower molecular weight arising from chlorine losses due to dechlorination.

The analytical results as received from the laboratory provide values for both the weight and mole percent contributions of each chromatographic peak. Some of these peaks contain co-eluting congeners which are indicated on the data sheet provided by the laboratory. Additionally, for each sample, the data sheet contains summaries of total PCBs, the ortho- and non-ortho-

chlorine ratios, and the homolog distributions. Consequently, it is necessary to extract and sum where necessary the mono-ortho-coplanar, bioaccumulative and dechlorinated congeners.

1.3 Results to Date

Apart from laboratory analyses, certain data were collected in the field during each sample collection round. Descriptions of the sediment samples and the depths recovered are presented in Table 1. Temperature, pH and conductivity values for CTF pore water samples are provided in Table 2. These were taken during the macro-nutrient sampling. In addition, sediment samples described in Table 3, were also collected during macro-nutrient sampling. On September 20, 1991 the CTF distribution piping was tested to determine whether there were any obvious blockakges and none were discovered.

The preliminary laboratory results currently under evaluation include total PCBs, ortho- and non-ortho-chlorine ratios, homolog distributions, the respective sums of the mono-ortho-coplanar and the bioaccumulative congeners, dechlorination products, oil and grease, and TOC. The results for each of Cells 1, 2, 3, and 4 and the average of all 4 cells are presented in Tables 4, 5, 6, 7, and 8, respectively. Particle size distributions for one composite from each of the four cells are presented in Table 9 and are expressed in terms of the percent gravel-, sand-, silt-, and clay-sized particles. The particle size distributions for Cells 1, 2, and 3 are similar; the sample from Cell 4 has more silt and clay-sized particles and less gravel, than the other three cells. Results of analyses for select macro-nutrients in CTF pore water include alkalinity, calcium, iron, magnesium, potassium, sodium, chloride, nitrate, nitrite, sulfate, sulfide, ammonia nitrogen, ortho-

phosphate, and total phosphorus (Table 10). Results of analyses for select macro-nutrients in CTF sediment include nitrogen content, cation exchange capacity and total phosphorus (Table 11). Copies of laboratory sheets for analyses described above (except macro-nutrients) are presented in Appendix A.

1.4 Discussion

1.4.1 Extent of Dechlorination

The average ortho-chlorine fraction remained unchanged at 1.56 for each of the four cells. The non-ortho-chlorine fraction was reduced relative to Aroclor 1248 between 13 and 37 percent among the twenty composites, apparently due to dechlorination. Among the individual homologs, the amounts of pentachlorobiphenyls were reduced slightly, though the tetrachlorobiphenyls were substantially reduced, between 35 and 71 percent relative to Aroclor 1248. Increases in the di- (six- to 20- fold) and tri-chlorobiphenyls (11 to 63 percent) were noted. Mono-chlorobiphenyls, absent from Aroclor 1248, were obviously produced since they were evident in the samples. Among the dechlorination products evaluated, the congener 24' was the most predominant (10- to 33-fold increases). The presence of the para-substituted chlorine atom in this product indicates an apparent preference for dechlorination of meta-substituted chlorines in CTF sediment.

In general, sediment from all four cells currently exhibit significant amounts of dechlorination. The greatest degree of dechlorination was observed in composite 4 from Cell 4 in which about half of the higher chlorinated congeners were dechlorinated.

Consequently, a majority of the resulting mixture in this sample contained PCB molecules with one, two, or three chlorine atoms. Decreases in the sum of the thirty bioaccumulative (20 to 60 percent) and the mono-ortho-coplanar congeners were also evident.

The results of the macro-nutrient analyses were compared with the mineral composition of revised anaerobic mineral medium (RAMM) (Shelton and Tiedje, 1984). Based on this comparison, the minerals calcium, iron and magnesium are all in excess of the concentrations required. The minerals that may be added are potassium, phosphate, sulfide and ammonia nitrogen. However, a cation-anion balance indicated some discrepancy in the results.

1.4.2 Statistical Considerations

The pilot study represents a deviation from the controlled conditions of the laboratory and tends toward the greater heterogeneity of the natural environment. Although the size and contents of the CTF are somewhat defined, the distribution of the sediment is fairly heterogeneous. This is partly because sediment was removed from nine different areas and placed in sequential layers without any deliberate mixing of layers. However, Cell 1 was filled concurrently with Cell 2, and Cell 3 was filled concurrently with Cell 4.

It is necessary that samples be sufficiently representative to allow a true assessment of PCB biodegradation. While this can be achieved by increasing the number of subsamples making up a composite, there are practical limitations as to the number of

subsamples that can be taken (e.g., difficulty in uniformly mixing a large amount of sediment).

Using the results for the five composite samples (each comprising seven individual cores) from each cell, the absolute value of the minimum discernable change for the various indices as a percentage of the cell mean, were calculated. The probabilities of committing Type I (concluding that there is no difference between sampling rounds when in fact there is one) and Type II (concluding that there is a difference between sampling rounds when in fact there was none) errors were both taken as 0.1. The results of these calculations are presented in Table 12. Also presented on Table 12 are the observed differences in the various indices for the four cell means, relative to Aroclor 1248.

Based on an evaluation of the information presented in Table 12 it appears as though the observed changes relative to Aroclor 1248 in non-ortho-chlorine ratios; di-, tri-, and tetra-chlorobiphenyl content; and products, are sensitive to detect changes up to 56 percent with the present sampling strategy used. The sum of the mono-ortho-coplanar PCBs appears to be less sensitive for Cell 3 and the sum of all 30 bioaccumulative congeners less sensitive for Cells 1, 3 and 4. The actual level of sensitivity for these indices are presented in Table 12. Changes in the various indices would not necessarily occur by the same amounts between subsequent sampling events as were observed during baseline sampling. However, the relative changes in some of the indices, particularly the PCB homologs,

would exhibit different temporal responses since certain processes occur sequentially. Consideration of the above may be helpful during treatment design and subsequent data evaluation.

Three possible sources of variability were examined. Results of previous duplicate analyses of the same sample from the contracted laboratory were examined for determining analytical variability. Results of analyses of triplicate subsamples were evaluated as per Box et al. (1978) to determine variability of subsamples within a composite, and between composite variability was examined for an estimate of sampling and spatial variability contributed during sampling. The results of triplicate subsampling are presented in Appendix B and duplicate laboratory analysis in Appendix C.

An analysis of the variance components (Appendix D) indicate that analytical, and composite and subsampling are minor contributors to the overall variance. This suggests that the emphasis of field sampling should be on analysis of composites, with only minimum numbers of composite splits and laboratory duplicates needed to assure quality control. The major contribution to total variance was due to variability among cores taken from the same cell. These cores were made up of different depths of recovered sediment as seen on Table 1.

A surprising and important observation was the statistically significant difference between the mean of composite samples collected in 1990 and the composite samples collected in 1991 from Cell 4. The 1990 Cell 4 mean for total PCBs was 320 ppm (See Biodegradation Pilot Study Work Plan, May 1991) while

that for 1991 was 125 ppm (See Table 8). This observation prompted a close review of sampling procedures used during both surveys. The following differences/deficiencies were noted:

- o The number of cores per composite were variable ranging from five to nine.
- o A different sampling team was utilized at each of the two sampling rounds.
- o Lengths of cores recovered, but not lengths of sediment penetrated, were recorded in 1991.
- o Lengths of cores recovered were on average, slightly greater in 1990.

Pending the future course of cooperative work with EPA at the CTF, certain modifications will be employed. New sampling equipment/techniques will be used to ensure better vertical representation of the CTF sediment. More careful logging of individual core samples will be performed noting both length of sediment penetrated and length recovered, if possible with the coring equipment and techniques used.

2. In-Situ Biodegradation

2.1 Introduction

Sampling and subsequent analyses of armored sediment has been conducted to characterize the extent and progression of unamended, in-situ PCB dechlorination. As proposed in the Biodegradation Pilot Study Work Plan (Blasland & Bouck Engineers, May 1991), the data were assessed to determine whether the higher chlorinated congeners had

been degraded to lower chlorinated ones and whether there were reductions in the sums of the mono-ortho-coplanar and the bioaccumulative congeners.

2.2 Sampling

Each of the four sediment areas containing sampling ports, 7, 8, 10, and 11, were sampled in August 1990, April 1991, and November 1991. These sampling ports consist of a 3-foot section of 12-inch PVC pipe containing several small holes which allow the free movement of water. The sampling ports were made flush with the final rock layer and contain both a piece of geotextile fabric filled with gravel and closed into a bag, and a bag of sand.

During sampling, access to the sediment is obtained by removing both the sand and geotextile fabric bags. A single sediment core is then removed from each port by driving Lexan^{R} tubing into the sediment with a stainless steel core driver, until resistance. In order to keep the sediment in the tube during retrieval, a vacuum was created within the Lexan^{R} tube with a hand pump. The samples were extruded, mixed to ensure uniformity, and shipped for congener-specific PCB analysis.

Congener-specific PCB analysis was performed by Northeast Analytical Environmental Lab Services using gas chromatography (Brown, et al., 1987). The data were evaluated as described in Section 1.2.3.

2.3 Results to Date

Congener-specific PCB data were evaluated to provide total PCBs, ortho- and non-ortho-chlorine ratios, homolog distributions, the respective sums of the mono-ortho-coplanar and bioaccumulative congeners, and dechlorination products. Tables 13, 14, and 15 each provide data for

the August 1990, April 1991, and November 1991 sampling rounds, respectively.

All samples exhibited significant reductions in amounts of tetrachlorobiphenyls and increases in dichlorobiphenyls in comparison to unaltered Aroclor 1248. In general, Area 11 samples are least dechlorinated with the Area 10 samples displaying the most dechlorination. For the November 1991 sampling round, the sum of the mono-, di-, and tri-chlorobiphenyls from the Area 10 sample amounts to 87 percent. This represents an increase by 59 percent from an unaltered Aroclor 1248 standard.

The substantial dechlorination observed here has resulted in associated detoxification. Of the 12 samples analyzed during the three sampling rounds, reductions of the three compound index of mono-ortho-coplanar congeners and the bioaccumulative congeners have been observed in the majority of samples.

2.4 Discussion

Despite being unamended, substantial dechlorination and associated detoxification have been observed in sediment samples from the armored areas. The armoring may have served to reduce bioturbation of the sediment thereby limiting its contact with oxygen. The resulting reduction in redox potential may have enhanced anaerobic microbial activity. Dechlorination is not uniform at the four areas sampled. The Area 10 samples are most dechlorinated, followed (in order of decreasing dechlorination) by those from Areas 8, 7, and 11. Results from the last sampling round indicated that in the Area 10 samples the sum of the mono-, di-, and tri-chlorobiphenyls were twice that of the Area 11 sample. It is apparent therefore, that there are

differences among the sediments in these four areas that are affecting PCB dechlorination.

There also appears to be an increasing temporal trend in the levels of ortho-substituted products in the armored sediment. The results of the latest sampling round (November 1991) indicates a greater level of chlorine removal at para-substituted positions. In armored areas, 7, 8, and 10, the sum of the ortho-substituted products (2, 22, 26, and 22'6) are about twice the levels observed in the CTF samples. Hence, the armored sediment may harbor a greater capability for para-substituted chlorine removal than the CTF sediment.

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APPENDIX D

ANALYSIS OF VARIANCE

Sheboygan River and Harbor
EVALUATION OF NEA'S PRECISION
ASP 11 (Nov. 1991) DUPLICATES FOR QA/QC

SAMPLE	TOT PCB ppm	Cl/Biphenyl Ortho	Cl/Biphenyl M+P	Mono mole %	Di mole %	Tri mole %	Tetra mole %	Penta mole %	Hexa mole %	Hept mole %	Sum M-O-C mole %	BIOACC. P mole %	CONG. ALL mole %	CONG. 2 mole %	PRODUCTS 22'&26 mole %	PRODUCTS 24' mole %	PRODUCTS 22'6 mole %	PRODUCTS 22'4 mole %	22'3 24'6 mole %
ASP 11	36.87	1.63	2.11	1.30	10.70	31.39	33.90	15.71	5.89	1.01	3.69	14.35	43.91	0.96	2.37	6.59	0.78	4.29	3.19
ASP 11D	36.30	1.61	2.08	1.26	11.35	32.52	33.96	14.61	5.29	0.90	3.49	14.28	43.83	0.96	2.48	7.02	0.80	4.56	3.45
MEAN	36.59	1.62	2.10	1.28	11.03	31.96	33.93	15.16	5.59	0.96	3.59	14.32	43.87	0.96	2.43	6.80	0.79	4.43	3.32
S DEV	0.28	0.01	0.01	0.02	0.32	0.57	0.03	0.55	0.30	0.05	0.10	0.04	0.04	0.00	0.06	0.21	0.01	0.14	0.13
C VAR	0.01	0.01	0.01	0.02	0.03	0.02	0.00	0.04	0.05	0.06	0.03	0.00	0.00	0.00	0.02	0.03	0.01	0.03	0.04
RSDEV, %	0.39	0.31	0.36	0.78	1.47	0.88	0.04	1.81	2.68	2.88	1.41	0.12	0.05	0.10	1.21	1.56	0.70	1.54	1.96

Sheboygan River and Harbor
EVALUATION OF NEA'S PRECISION

SEWAGE SLUDGE		DUPLICATES FOR QA/QC											BIOACC.	CONG.	PRODUCTS					22'3
SAMPLE	TOT PCB	Cl/Biphenyl		Mono	Di	Tri	Tetra	Penta	Hexa	Hept	Sum M-O-C		P	ALL	2	22'&26	24'	22'6	22'4	24'6
	ppm	Ortho	M+P	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %		mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %
MMSD 12	73.38	1.51	2.13	0.55	11.53	37.98	34.42	9.01	3.24	2.23	2.09		---	---	0.43	0.35	6.39	0.34	3.21	5.49
MMSD 12D	76.43	1.51	2.12	0.59	11.71	38.14	34.18	8.86	3.28	2.23	2.03		---	---	0.41	0.36	6.56	0.35	3.23	5.56
MEAN	74.91	1.51	2.13	0.57	11.62	38.06	34.30	8.94	3.26	2.23	2.06		---	---	0.42	0.35	6.48	0.35	3.22	5.53
S DEV	1.53	0.00	0.00	0.02	0.09	0.08	0.12	0.07	0.02	0.00	0.03		---	---	0.01	0.00	0.08	0.00	0.01	0.04
C VAR	0.02	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.01	0.00	0.01		---	---	0.02	0.01	0.01	0.01	0.00	0.01
RSDEV, %	1.02	0.00	0.12	1.75	0.39	0.11	0.17	0.42	0.31	0.00	0.70		---	---	1.14	0.35	0.63	0.58	0.21	0.32

Sheboygan River and Harbor
EVALUATION OF NEA'S PRECISION
ASP 10 (Apr. 1991) DUPLICATES FOR QA/QC

SAMPLE	TOT PCB	Cl/Biphenyl		Mono	Di	Tri	Tetra	Penta	Hexa	Hept	Sum M-O-C	BIOACC. P	CONG. ALL	PRODUCTS 2	22'&26	24'	22'6	22'4	22'3 24'6
	ppm	Ortho	M+P	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %
ASP 10	73.65	1.50	1.16	6.31	45.60	32.97	9.05	4.32	1.22	0.36	0.30	4.15	9.46	4.50	2.92	41.39	2.97	12.86	8.27
ASP 10D	73.63	1.49	1.16	6.37	45.68	32.92	8.98	4.31	1.22	0.35	0.31	4.12	10.82	4.58	2.94	41.43	3.00	12.87	8.22
MEAN	73.64	1.50	1.16	6.34	45.64	32.95	9.02	4.32	1.22	0.36	0.31	4.13	10.14	4.54	2.93	41.41	2.99	12.86	8.24
S DEV	0.01	0.00	0.00	0.03	0.04	0.02	0.04	0.00	0.00	0.01	0.00	0.02	0.68	0.04	0.01	0.02	0.01	0.01	0.03
C VAR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00	0.00
RSDEV, %	0.01	0.17	0.00	0.24	0.04	0.04	0.19	0.06	0.00	0.70	0.16	0.21	3.36	0.43	0.20	0.03	0.21	0.02	0.17

Sheboygan River and Harbor
EVALUATION OF NEA'S PRECISION
ASP 7 (Aug. 1990) DUPLICATES FOR QA/QC

SAMPLE	TOT PCB	Cl/Biphenyl		Mono	Di	Tri	Tetra	Penta	Hexa	Hept	Sum M-O-C	BIOACC.	CONG.	PRODUCTS					22'3
	ppm	Ortho	M+P	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %	mole %
ASP 7	36.61	1.76	1.78	1.77	14.30	36.87	27.88	14.60	3.83	0.60	2.59	9.93	31.63	1.47	1.58	10.32	1.78	8.29	4.63
ASP 7D	35.15	1.76	1.79	1.40	14.07	37.78	27.68	14.32	3.97	0.63	2.56	9.89	31.18	1.13	1.50	10.17	1.83	8.59	4.77
MEAN	35.88	1.76	1.79	1.59	14.19	37.33	27.78	14.46	3.90	0.62	2.57	9.91	31.40	1.30	1.54	10.24	1.81	8.44	4.70
S DEV	0.73	0.00	0.00	0.19	0.11	0.45	0.10	0.14	0.07	0.02	0.02	0.02	0.23	0.17	0.04	0.08	0.02	0.15	0.07
C VAR	0.02	0.00	0.00	0.12	0.01	0.01	0.00	0.01	0.02	0.02	0.01	0.00	0.01	0.13	0.03	0.01	0.01	0.02	0.02
RSDEV, %	1.02	0.00	0.14	5.84	0.41	0.61	0.18	0.48	0.90	1.22	0.29	0.12	0.36	6.49	1.40	0.38	0.68	0.89	0.76

Sheboygan River and Harbor
EVALUATION OF NEA'S PRECISION
CTF4 (Nov. 1990) DUPLICATES FOR QA/QC

SAMPLE	TOT PCB ppm	Cl/Biphenyl Ortho	Cl/Biphenyl M+P	Mono mole %	Di mole %	Tri mole %	Tetra mole %	Penta mole %	Hexa mole %	Hept mole %	Sum M-O-C mole %	BIOACC. P mole %	CONG. ALL mole %	CONG. 2 mole %	CONG. 22'&26 mole %	PRODUCTS 24' mole %	PRODUCTS 22'6 mole %	PRODUCTS 22'4 mole %	22'3 24'6 mole %
CTF4-4	191.32	1.59	1.90	1.98	19.27	31.77	27.52	14.45	4.09	0.79	3.61	12.93	35.30	1.71	1.60	15.46	1.70	7.44	5.11
CTF4-4D	213.78	1.63	2.13	1.24	14.99	26.71	29.29	20.00	6.54	1.12	5.27	15.59	36.26	1.08	1.05	12.07	1.27	6.03	4.14
MEAN	202.55	1.61	2.02	1.61	17.13	29.24	28.41	17.23	5.32	0.96	4.44	14.26	35.78	1.39	1.32	13.77	1.49	6.73	4.62
S DEV	11.23	0.02	0.11	0.37	2.14	2.53	0.88	2.77	1.22	0.17	0.83	1.33	0.48	0.31	0.28	1.70	0.21	0.70	0.49
C VAR	0.06	0.01	0.06	0.23	0.12	0.09	0.03	0.16	0.23	0.17	0.19	0.09	0.01	0.22	0.21	0.12	0.14	0.10	0.11
RSDEV, %	2.77	0.62	2.85	11.49	6.25	4.33	1.56	8.06	11.52	8.64	9.39	4.66	0.67	11.23	10.50	6.16	7.20	5.22	5.26

APPENDIX C

ANALYTICAL DUPLICATE RESULTS

TABLE B4
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

TRIPLICATE RESULTS OF CTF SEDIMENT SAMPLING

CELL 4

Index	Composite 4	Duplicate	Triplicate
Total PCBs, ppm	132	142	163
Ortho-chlorine ratio	1.51	1.49	1.49
Non-ortho-chlorine ratio	1.54	1.51	1.49
Homologs, mole %			
mono-	2.68	2.31	3.52
di-	33.0	36.1	33.5
tri-	36.5	35.4	37.7
tetra-	17.0	15.8	15.7
penta-	7.40	6.95	6.66
hexa-	2.82	2.70	2.32
hepta-	0.58	0.56	0.46
Sum of mono-ortho-coplanar PCBs, mole %	1.94	1.84	1.67
Sum of 18 predominantly bioaccumulative congeners, mole %	9.92	8.97	10.9
Sum of all 30 bioaccumulative congeners, mole %	23.0	21.2	22.6
Products, mole %			
2	2.15	1.92	3.25
22' & 26	2.23	2.08	2.19
24'	29.4	32.8	30.0
22'6	2.40	2.31	2.40
22'4	10.0	10.0	10.4
22'3 & 24'6	6.49	6.74	6.64
Oil & Grease, mg/g	0.243	0.225	0.229
TOC, %	0.41	0.61	0.38

TABLE B3

SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

TRIPLICATE RESULTS OF CTF SEDIMENT SAMPLING

CELL 3

Index	Composite 1	Duplicate	Triplicate
Total PCBs, ppm	126	70.2	110
Ortho-chlorine ratio	1.53	1.56	1.53
Non-ortho-chlorine ratio	1.68	1.64	1.54
Homologs, mole %			
mono-	2.56	2.63	2.71
di-	23.1	23.2	28.7
tri-	41.1	41.9	41.5
tetra-	21.2	20.2	16.8
penta-	8.58	8.39	7.20
hexa-	2.80	2.89	2.42
hepta-	0.55	0.59	0.54
Sum of mono-ortho-coplanar PCBs, mole %	2.00	2.25	1.85
Sum of 18 predominantly bioaccumulative congeners, mole %	12.0	13.3	13.3
Sum of all 30 bioaccumulative congeners, mole %	28.4	28.0	25.1
Products, mole %			
2	2.33	2.28	2.35
22' & 26	2.10	2.34	2.45
24'	18.8	19.1	24.7
22'6	2.10	2.99	3.00
22'4	9.13	10.4	10.9
22'3 & 24'6	5.54	7.25	7.46
Oil & Grease, mg/g	0.188	0.11	0.192
TOC, %	0.58	0.43	0.46

TABLE B2
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

TRIPLICATE RESULTS OF CTF SEDIMENT SAMPLING

CELL 2

Index	Composite 2	Duplicate	Triplicate
Total PCBs, ppm	112	117	209
Ortho-chlorine ratio	1.55	1.55	1.52
Non-ortho-chlorine ratio	1.73	1.71	1.57
Homologs, mole %			
mono-	2.48	1.94	3.17
di-	23.9	24.4	28.4
tri-	37.0	38.4	40.1
tetra-	22.1	21.4	17.3
penta-	9.76	9.36	7.59
hexa-	3.88	3.65	2.80
hepta-	0.76	0.74	0.56
Sum of mono-ortho-coplanar PCBs, mole %	2.60	2.40	1.83
Sum of 18 predominantly bioaccumulative congeners, mole %	12.1	11.9	12.6
Sum of all 30 bioaccumulative congeners, mole %	29.6	28.5	25.4
Products, mole %			
2	2.13	1.60	2.75
22' & 26	1.84	1.74	2.20
24'	20.4	21.0	24.5
22'6	2.06	2.14	2.37
22'4	9.06	9.56	10.5
22'3 & 24'6	5.60	5.87	6.32
Oil & Grease, mg/g	0.252	0.181	0.330
TOC, %	0.45	1.13	0.41

TABLE B1
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

TRIPLICATE RESULTS OF CTF SEDIMENT SAMPLING

CELL 1

Index	Composite 3	Duplicate	Triplicate
Total PCBs, ppm	252	248	240
Ortho-chlorine ratio	1.52	1.51	1.51
Non-ortho-chlorine ratio	1.62	1.59	1.62
Homologs, mole %			
mono-	2.07	2.25	2.36
di-	30.4	31.8	30.6
tri-	36.2	36.1	35.7
tetra-	19.3	18.5	19.0
penta-	8.45	8.01	8.58
hexa-	2.91	2.68	3.12
hepta-	0.59	0.55	0.63
Sum of mono-ortho-coplanar PCBs, mole %	2.17	2.04	2.27
Sum of 18 predominantly bioaccumulative congeners, mole %	11.4	11.2	11.2
Sum of all 30 bioaccumulative congeners, mole %	25.7	24.8	25.3
Products, mole %			
2	1.88	1.97	2.00
22' & 26	1.95	2.03	1.99
24'	26.9	28.3	27.1
22'6	2.20	2.23	2.20
22'4	9.87	10.0	9.89
22'3 & 24'6	6.07	6.18	6.05
Oil & Grease, mg/g	0.415	0.288	0.234
TOC, %	0.55	0.57	0.74

APPENDIX B

RESULTS OF COMPOSITE SAMPLES ANALYZED IN TRIPLICATE

Cal 4 Comps

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.051	0.036	100
101	0.00	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	38.00	7:2	180	.8362	22'344'55'	0.346	0.245	102
103	38.26	7:2	193	.8397	233'4'55'6	0.018	0.013	103
104	38.58	7:2	191	.8447	233'44'5'6	0.009	0.007	104
105	38.97	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.17	7:2	170	.8740	22'33'44'5	0.344	0.243	106
107	40.48	7:2	190	.8740	233'44'56	0.071	0.050	107
108	41.39	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.62	8:3	201	.8875	22'33'4'55'6	0.043	0.028	109
110	42.19	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.052	0.034	110
111	43.45	7:1	189	.9142	233'44'55'	0.015	0.011	111
112	45.08	8:3	195	.9321	22'33'44'56	0.017	0.011	112
113	45.64	9:4	208	.9320	22'33'455'66'	0.010	0.006	113
114	46.58	9:4	207	.9423	22'33'44'566'	0.003	0.002	114
115	48.15	8:2	194	.9620	22'33'44'55'	0.028	0.018	115
116	49.06	8:2	205	.9678	233'44'55'6	0.002	0.002	116
117	54.53	9:3	206	1.010	22'33'44'55'6	0.016	0.010	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 185.711 PPM

TOTAL MICROMOLES = 0.6654

AVERAGE MOLECULAR WEIGHT = 279.1

NUMBER OF CALIBRATED PEAKS FOUND= 106

Call 4 Comps

34	25.89	4:2	048 075	.4651	22'45 ; 234'6	0.488	0.446	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035	.4738	33'4	0.008	0.009	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.865	1.783	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.307	1.339	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.005	1.916	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096	.5057	22'366'	0.392	0.335	41
42	26.84	4:2	040	.5102	22'33'	0.282	0.270	42
43	27.03	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.411	0.384	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.223	0.208	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.268	0.256	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.869	0.830	46
47	27.55	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	2.112	2.019	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	4.418	4.201	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.581	0.500	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	0.831	0.794	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	2.650	2.266	51
52	28.41	5:3	089	.5779	22'346'	0.052	0.044	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	2.207	1.887	53
54	28.69	5:2	099	.5880	22'44'5	0.971	0.830	54
55	28.92	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.167	0.143	55
56	29.00	5:2	083 109	.6029	22'33'5 ; 233'46	0.250	0.213	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.826	0.706	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	1.227	1.049	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.341	0.292	59
60	29.59	6:4	136	.6257	22'33'66'	0.184	0.142	60
61	29.70	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	4.369	3.861	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.283	0.242	63
64	30.33	6:3	151	.6499	22'355'6	0.421	0.326	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.567	0.452	65
66	30.53	6:3	144	.6584	22'345'6	0.022	0.017	66
67	30.60	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.341	0.282	67
68	30.69	5:1	123	.6658	2'344'5	0.062	0.053	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	3.980	3.291	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.024	0.018	70
71	31.20	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.301	0.241	71
72	31.39	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.069	0.057	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.434	0.336	73
74	31.84	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	2.018	1.619	74
75	31.98	6:2	153	.7036	22'44'55'	1.752	1.355	75
76	32.27	6:2	168	.7068	23'44'5'6	0.002	0.001	76
77	32.54	6:2	141	.7203	22'3455'	0.506	0.391	77
78	32.61	7:4	179	.7205	22'33'566'	0.084	0.060	78
79	32.84	6:2	130	.7284	22'33'45'	0.347	0.268	79
80	32.91	6:2	137	.7329	22'344'5	0.218	0.168	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	2.305	1.783	82
83	33.41	6:2	158	.7429	233'44'6	0.444	0.343	83
84	33.63	6:2	129	.7501	22'33'45	0.365	0.282	84
85	34.00	7:3	178	.7537	22'33'55'6	0.108	0.076	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.28	7:3	175	.7611	22'33'45'6	0.018	0.012	87
88	34.44	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.185	0.131	88
89	34.59	6:2	128	.7761	22'33'44'	0.422	0.326	89
90	34.76	7:3	183	.7720	22'344'5'6	0.149	0.105	90
91	35.05	6:1	167	.7814	23'44'55'	0.097	0.075	91
92	35.41	7:3	185	.7848	22'3455'6	0.016	0.011	92
93	35.79	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.178	0.126	93
94	36.08	7:3	177	.8031	22'33'4'56	0.144	0.102	94
95	36.39	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.777	0.567	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.69	6:1	157	.8184	233'44'5'	0.225	0.174	97
98	36.85	7:3	173	.8152	22'33'456	0.010	0.007	98
99	37.23	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.007	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912330F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 23:58

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.137	1.681	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.232	0.344	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.362	1.704	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.172	0.215	6
7	20.98	2:1	006	.2709	23'	0.400	0.500	7
8	21.19	2:1	005 008	.2785	23 ; 24'	13.068	16.348	8
9	21.69	2:0	014	.2973	35	0.019	0.024	9
10	21.87	3:3	019	.3045	22'6	1.814	1.966	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.074	0.093	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.033	0.042	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	0.940	1.053	14
15	22.83	3:2	017	.3398	22'4	7.108	7.704	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	1.250	1.355	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	4.542	4.923	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.187	0.195	19
20	23.96	3:1	029	.3820	245	0.002	0.003	20
21	24.07	3:1	026	.3911	23'5	1.547	1.677	21
22	24.15	3:1	025	.3937	23'4	1.471	1.595	22
23	24.33	3:1	031	.4024	24'5	1.716	1.860	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	5.274	5.716	24
25	24.67	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.155	1.242	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	0.966	1.042	26
27	25.10	4:3	045	.4334	22'36	0.529	0.506	27
28	25.21	3:1	036	.4379	33'5	0.008	0.009	28
29	25.34	4:3	046	.4450	22'36'	0.137	0.130	29
30	25.45	3:1	039	.4488	34'5	0.016	0.017	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	3.189	3.048	31
32	25.74	4:2	049	.4610	22'45	2.193	2.096	32

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912330F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 23:58

Total PCBs in Sample= 185.71 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.37	2.02
Di	15.36	19.19
Tri	28.36	30.71
Tetra	22.48	21.51
Penta	18.72	16.02
Hexa	11.29	8.85
Hepta	2.23	1.59
Octa	0.15	0.10
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.64

Meta + Para Cl / biphenyl Residue = 2.00

TOTAL Cl / biphenyl Residue = 3.64

Cell 4 Comp 4 Dup 22:36

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.019	0.013	100
101	37.77	8:4	197	.8293	22'33'44'66'	0.002	0.001	101
102	38.00	7:2	180	.8362	22'344'55'	0.143	0.093	102
103	38.26	7:2	193	.8397	233'4'55'6	0.010	0.006	103
104	38.59	7:2	191	.8447	233'44'5'6	0.004	0.002	104
105	38.97	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.19	7:2	170	.8740	22'33'44'5	0.123	0.080	106
107	40.48	7:2	190	.8740	233'44'56	0.022	0.014	107
108	41.36	8:3	198	.8845	22'33'455'6	0.003	0.002	108
109	41.62	8:3	201	.8875	22'33'4'55'6	0.054	0.032	109
110	42.20	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.061	0.036	110
111	43.43	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.09	8:3	195	.9321	22'33'44'56	0.018	0.011	112
113	45.64	9:4	208	.9320	22'33'455'66'	0.014	0.008	113
114	46.67	9:4	207	.9423	22'33'44'566'	0.001	0.001	114
115	48.15	8:2	194	.9620	22'33'44'55'	0.031	0.018	115
116	49.09	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.55	9:3	206	1.010	22'33'44'55'6	0.018	0.010	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 142.341 PPM

TOTAL MICROMOLES = 0.5531

AVERAGE MOLECULAR WEIGHT = 257.3

NUMBER OF CALIBRATED PEAKS FOUND= 107

Cell 4 Comp 4 Dup 22:36

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.380	0.335	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.039	0.039	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.438	1.268	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.209	1.143	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	1.715	1.511	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.350	0.276	41
42	26.84	4:2	040	.5102	22'33'	0.257	0.227	42
43	27.03	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.310	0.267	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.180	0.155	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.275	0.242	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.714	0.629	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.188	1.047	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	2.607	2.286	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.394	0.312	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	0.547	0.482	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.381	1.089	51
52	28.41	5:3	089	.5779	22'346'	0.039	0.031	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	0.936	0.738	53
54	28.69	5:2	099	.5880	22'44'5	0.508	0.401	54
55	28.92	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.100	0.079	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.146	0.115	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.374	0.295	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.456	0.360	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.133	0.105	59
60	29.60	6:4	136	.6257	22'33'66'	0.095	0.068	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.078	1.693	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.113	0.089	63
64	30.34	6:3	151	.6499	22'355'6	0.174	0.124	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.282	0.207	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.60	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.148	0.113	67
68	30.69	5:1	123	.6658	2'344'5	0.020	0.016	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.534	1.169	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.014	0.010	70
71	31.20	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.111	0.082	71
72	31.40	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.026	0.020	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.190	0.136	73
74	31.85	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.722	0.534	74
75	31.99	6:2	153	.7036	22'44'55'	0.565	0.403	75
76	32.27	6:2	168	.7068	23'44'5'6	0.001	0.001	76
77	32.54	6:2	141	.7203	22'3455'	0.134	0.095	77
78	32.61	7:4	179	.7205	22'33'566'	0.043	0.028	78
79	32.84	6:2	130	.7284	22'33'45'	0.092	0.066	79
80	32.92	6:2	137	.7329	22'344'5	0.067	0.047	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.694	0.495	82
83	33.41	6:2	158	.7429	233'44'6	0.113	0.081	83
84	33.63	6:2	129	.7501	22'33'45	0.080	0.057	84
85	33.98	7:3	178	.7537	22'33'55'6	0.052	0.034	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.26	7:3	175	.7611	22'33'45'6	0.011	0.007	87
88	34.45	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.111	0.072	88
89	34.59	6:2	128	.7761	22'33'44'	0.115	0.082	89
90	34.77	7:3	183	.7720	22'344'5'6	0.053	0.035	90
91	35.06	6:1	167	.7814	23'44'55'	0.023	0.016	91
92	35.41	7:3	185	.7848	22'3455'6	0.007	0.004	92
93	35.79	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.055	0.036	93
94	36.08	7:3	177	.8031	22'33'4'56	0.066	0.043	94
95	36.39	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.201	0.135	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.68	6:1	157	.8184	233'44'5'	0.044	0.032	97
98	36.88	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.23	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912329D.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 4 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 22:36

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.408	1.920	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.285	0.389	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.799	2.076	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.150	0.173	6
7	20.98	2:1	006	.2709	23'	0.502	0.579	7
8	21.19	2:1	005 008	.2785	23 ; 24'	28.440	32.806	8
9	21.69	2:0	011	.2973	5	0.011	0.012	9
10	21.87	3:3	019	.3045	22'6	2.315	2.313	10
11	22.13	3:2	030	.3165	246	0.004	0.004	11
12	22.12	2:0	011	.3238	33'	0.130	0.150	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.035	0.041	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.154	1.193	14
15	22.83	3:2	017	.3398	22'4	10.017	10.011	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.769	1.768	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	6.741	6.737	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.210	0.201	19
20	23.96	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	1.589	1.588	21
22	24.15	3:1	025	.3937	23'4	1.349	1.348	22
23	24.34	3:1	031	.4024	24'5	2.618	2.617	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	4.631	4.628	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.603	1.590	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.158	1.152	26
27	25.10	4:3	045	.4334	22'36	0.403	0.355	27
28	25.22	3:1	036	.4379	33'5	0.006	0.006	28
29	25.34	4:3	046	.4450	22'36'	0.110	0.097	29
30	25.45	3:1	039	.4488	34'5	0.021	0.021	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	2.339	2.062	31
32	25.74	4:2	049	.4610	22'45	2.001	1.764	32
33	25.84	4:2	047	.4639	22'44'	2.949	2.599	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

VEA FILE NAME: 912329D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 4 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 22:36

Total PCBs in Sample= 142.34 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.69	2.31
Di	31.35	36.13
Tri	35.44	35.39
Tetra	17.93	15.83
Penta	8.79	6.95
Hexa	3.73	2.70
Hepta	0.85	0.56
Octa	0.18	0.11
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.49

Meta + Para Cl / biphenyl Residue = 1.51

TOTAL Cl / biphenyl Residue = 3.00

Cell H Comp 4 dupe 2/1

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.013	0.008	100
101	37.77	8:4	197	.8293	22'33'44'66'	0.002	0.001	101
102	38.00	7:2	180	.8362	22'344'55'	0.115	0.075	102
103	38.32	7:2	193	.8397	233'4'55'6	0.003	0.002	103
104	38.59	7:2	191	.8447	233'44'5'6	0.002	0.002	104
105	38.96	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.18	7:2	170	.8740	22'33'44'5	0.100	0.065	106
107	40.38	7:2	190	.8740	233'44'56	0.015	0.010	107
108	41.36	8:3	198	.8845	22'33'455'6	0.003	0.002	108
109	41.63	8:3	201	.8875	22'33'4'55'6	0.047	0.028	109
110	42.22	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.054	0.032	110
111	43.11	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.10	8:3	195	.9321	22'33'44'56	0.023	0.013	112
113	45.62	9:4	208	.9320	22'33'455'66'	0.013	0.007	113
114	46.60	9:4	207	.9423	22'33'44'566'	0.001	0.001	114
115	48.16	8:2	194	.9620	22'33'44'55'	0.031	0.018	115
116	49.10	8:2	205	.9678	233'44'55'6	0.004	0.002	116
117	54.58	9:3	206	1.010	22'33'44'55'6	0.021	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 163.336 PPM

TOTAL MICROMOLES = 0.6365

AVERAGE MOLECULAR WEIGHT = [illegible]

NUMBER OF CALIBRATED PEAKS FOUND= 106

Field 4 comp 4 dup 21:14

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.435	0.383	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035	.4738	33'4	0.010	0.010	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.281	1.126	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.226	1.155	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	1.765	1.551	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.345	0.271	41
42	26.84	4:2	040	.5102	22'33'	0.234	0.206	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.346	0.297	43
44	27.19	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.187	0.161	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.332	0.292	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.757	0.665	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.135	0.998	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	2.599	2.273	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.401	0.317	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	0.659	0.579	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.377	1.083	51
52	28.42	5:3	089	.5779	22'346'	0.037	0.029	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	0.896	0.704	53
54	28.69	5:2	099	.5880	22'44'5	0.515	0.405	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.102	0.080	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.147	0.116	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.358	0.281	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.393	0.309	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.140	0.110	59
60	29.60	6:4	136	.6257	22'33'66'	0.083	0.059	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	1.955	1.589	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.110	0.087	63
64	30.34	6:3	151	.6499	22'355'6	0.146	0.104	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.232	0.170	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.60	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.147	0.112	67
68	30.69	5:1	123	.6658	2'344'5	0.016	0.013	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.432	1.089	69
70	30.99	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.013	0.009	70
71	31.21	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.098	0.072	71
72	31.41	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.022	0.016	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.181	0.129	73
74	31.84	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.654	0.482	74
75	31.99	6:2	153	.7036	22'44'55'	0.497	0.353	75
76	32.29	6:2	168	.7068	23'44'5'6	0.004	0.003	76
77	32.54	6:2	141	.7203	22'3455'	0.094	0.067	77
78	32.60	7:4	179	.7205	22'33'566'	0.062	0.040	78
79	32.83	6:2	130	.7284	22'33'45'	0.070	0.050	79
80	32.92	6:2	137	.7329	22'344'5	0.054	0.038	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.23	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.573	0.408	82
83	33.42	6:2	158	.7429	233'44'6	0.089	0.064	83
84	33.64	6:2	129	.7501	22'33'45	0.062	0.044	84
85	33.99	7:3	178	.7537	22'33'55'6	0.047	0.030	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.27	7:3	175	.7611	22'33'45'6	0.007	0.005	87
88	34.46	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.092	0.059	88
89	34.59	6:2	128	.7761	22'33'44'	0.086	0.061	89
90	34.78	7:3	183	.7720	22'344'5'6	0.040	0.026	90
91	35.05	6:1	167	.7814	23'44'55'	0.022	0.016	91
92	35.41	7:3	185	.7848	22'3455'6	0.003	0.002	92
93	35.80	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.042	0.027	93
94	36.08	7:3	177	.8031	22'33'4'56	0.056	0.037	94
95	36.39	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.151	0.102	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.69	6:1	157	.8184	233'44'5'	0.038	0.027	97
98	36.87	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.24	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.005	0.003	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

EA FILE NAME: 912328D.mol

USTOMER: BLASLAND & BOUCK ENGINEERS
AMPLE DESCRIPTION: CELL 4 COMP 4 DUPLICATE
OMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
ATE ACQUIRED: 29-AUG-1991 21:14

YPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	2.386	3.245	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.204	0.278	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.899	2.185	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.213	0.245	6
7	20.99	2:1	006	.2709	23'	0.518	0.595	7
8	21.19	2:1	005 008	.2785	23 ; 24'	26.117	30.043	8
9	21.70	2:0	014	.2973	35	0.040	0.046	9
10	21.87	3:3	019	.3045	22'6	2.409	2.401	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.105	0.120	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.026	0.029	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	0.952	0.981	14
15	22.83	3:2	017	.3398	22'4	10.449	10.414	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.764	1.758	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	6.657	6.635	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.240	0.230	19
20	23.97	3:1	029	.3820	245	0.004	0.004	20
21	24.08	3:1	026	.3911	23'5	1.579	1.574	21
22	24.15	3:1	025	.3937	23'4	1.592	1.587	22
23	24.34	3:1	031	.4024	24'5	2.312	2.304	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	6.887	6.863	24
25	24.67	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.522	1.505	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.206	1.197	26
27	25.10	4:3	045	.4334	22'36	0.421	0.370	27
28	25.22	3:1	036	.4379	33'5	0.007	0.007	28
29	25.34	4:3	046	.4450	22'36'	0.104	0.092	29
30	25.46	3:1	039	.4488	34'5	0.020	0.020	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	2.205	1.938	31
32	25.74	4:2	049	.4610	22'45	1.994	1.752	32
33	25.84	4:2	047	.4639	22'44'	2.849	2.504	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912328D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 4 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 21:14

Total PCBs in Sample= 163.34 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	2.59	3.52
Di	29.15	33.51
Tri	37.87	37.71
Tetra	17.83	15.70
Penta	8.44	6.66
Hexa	3.21	2.32
Hepta	0.70	0.46
Octa	0.17	0.10
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.49

Meta + Para Cl / biphenyl Residue = 1.49

TOTAL Cl / biphenyl Residue = 2.98

Cell 4 Comp 4

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.020	0.013	100
101	37.79	8:4	197	.8293	22'33'44'66'	0.001	0.000	101
102	38.01	7:2	180	.8362	22'344'55'	0.148	0.097	102
103	38.28	7:2	193	.8397	233'4'55'6	0.009	0.006	103
104	38.59	7:2	191	.8447	233'44'5'6	0.003	0.002	104
105	38.98	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.20	7:2	170	.8740	22'33'44'5	0.128	0.084	106
107	40.49	7:2	190	.8740	233'44'56	0.024	0.016	107
108	41.38	8:3	198	.8845	22'33'455'6	0.003	0.002	108
109	41.63	8:3	201	.8875	22'33'4'55'6	0.049	0.030	109
110	42.21	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.060	0.036	110
111	43.48	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.11	8:3	195	.9321	22'33'44'56	0.020	0.012	112
113	45.64	9:4	208	.9320	22'33'455'66'	0.013	0.007	113
114	46.62	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.15	8:2	194	.9620	22'33'44'55'	0.031	0.019	115
116	49.09	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.57	9:3	206	1.010	22'33'44'55'6	0.021	0.012	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 131.893 PPM

TOTAL MICROMOLES = 0.5092

AVERAGE MOLECULAR WEIGHT = 259.0

NUMBER OF CALIBRATED PEAKS FOUND= 106

Cell H Comp Y

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.403	0.357	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.010	0.010	36
37	26.23	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.516	1.345	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.296	1.232	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	1.885	1.672	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.372	0.296	41
42	26.84	4:2	040	.5102	22'33'	0.280	0.249	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.344	0.298	43
44	27.19	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.196	0.170	44
45	27.32	4:1	058 063	.5267	233'5' ; 234'5	0.283	0.251	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.768	0.681	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.319	1.170	47
48	27.66	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	2.832	2.499	48
49	27.90	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.444	0.354	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	0.654	0.580	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.481	1.175	51
52	28.42	5:3	089	.5779	22'346'	0.042	0.034	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	0.974	0.773	53
54	28.69	5:2	099	.5880	22'44'5	0.540	0.428	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.109	0.086	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.156	0.124	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.395	0.314	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.483	0.383	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.149	0.118	59
60	29.60	6:4	136	.6257	22'33'66'	0.092	0.066	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.143	1.758	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.121	0.096	63
64	30.34	6:3	151	.6499	22'355'6	0.188	0.135	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.302	0.224	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.61	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.161	0.124	67
68	30.69	5:1	123	.6658	2'344'5	0.021	0.017	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.609	1.235	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.013	0.009	70
71	31.21	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.119	0.088	71
72	31.41	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.027	0.021	72
73	31.70	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.203	0.146	73
74	31.85	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.763	0.568	74
75	31.99	6:2	153	.7036	22'44'55'	0.598	0.429	75
76	32.27	6:2	168	.7068	23'44'5'6	0.002	0.002	76
77	32.54	6:2	141	.7203	22'3455'	0.134	0.096	77
78	32.62	7:4	179	.7205	22'33'566'	0.052	0.034	78
79	32.84	6:2	130	.7284	22'33'45'	0.093	0.067	79
80	32.92	6:2	137	.7329	22'344'5	0.066	0.048	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.23	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.719	0.516	82
83	33.42	6:2	158	.7429	233'44'6	0.117	0.084	83
84	33.64	6:2	129	.7501	22'33'45	0.087	0.062	84
85	33.98	7:3	178	.7537	22'33'55'6	0.049	0.032	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.27	7:3	175	.7611	22'33'45'6	0.011	0.007	87
88	34.45	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.114	0.075	88
89	34.60	6:2	128	.7761	22'33'44'	0.116	0.083	89
90	34.77	7:3	183	.7720	22'344'5'6	0.054	0.036	90
91	35.06	6:1	167	.7814	23'44'55'	0.027	0.019	91
92	35.41	7:3	185	.7848	22'3455'6	0.007	0.005	92
93	35.81	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.057	0.037	93
94	36.08	7:3	177	.8031	22'33'4'56	0.068	0.045	94
95	36.40	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.207	0.140	95
96	36.70	8:4	203	.8089	22'33'55'66'	0.007	0.004	96
97	0.00	6:1	157	.8184	233'44'5'	0.000	0.000	97
98	36.88	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.24	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.004	0.003	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912327F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 19:52

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.566	2.149	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.389	0.534	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.924	2.234	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.193	0.224	6
7	20.99	2:1	006	.2709	23'	0.543	0.631	7
8	21.19	2:1	005 008	.2785	23 ; 24'	25.297	29.370	8
9	21.69	2:0	014	.2973	35	0.012	0.014	9
10	21.87	3:3	019	.3045	22'6	2.381	2.395	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.110	0.128	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.050	0.058	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.172	1.219	14
15	22.83	3:2	017	.3398	22'4	9.977	10.036	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.769	1.779	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	6.449	6.487	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.226	0.219	19
20	23.97	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	1.738	1.748	21
22	24.15	3:1	025	.3937	23'4	1.540	1.549	22
23	24.34	3:1	031	.4024	24'5	2.590	2.605	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	5.300	5.331	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.626	1.623	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.228	1.230	26
27	25.10	4:3	045	.4334	22'36	0.475	0.422	27
28	25.22	3:1	036	.4379	33'5	0.006	0.006	28
29	25.35	4:3	046	.4450	22'36'	0.127	0.112	29
30	25.45	3:1	039	.4488	34'5	0.021	0.021	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	2.495	2.213	31
32	25.74	4:2	049	.4610	22'45	2.076	1.841	32
33	25.84	4:2	047	.4639	22'44'	2.892	2.566	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912327F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 19:52

Total PCBs in Sample= 131.89 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.95	2.68
Di	28.42	32.96
Tri	36.28	36.46
Tetra	19.09	16.97
Penta	9.29	7.40
Hexa	3.86	2.82
Hepta	0.88	0.58
Octa	0.18	0.11
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.51

Meta + Para Cl / biphenyl Residue = 1.54

TOTAL Cl / biphenyl Residue = 3.05

Q44 Comp 3

100	37.51	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.025	0.017	100
101	37.81	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	38.02	7:2	180	.8362	22'344'55'	0.182	0.124	102
103	38.28	7:2	193	.8397	233'4'55'6	0.007	0.005	103
104	38.63	7:2	191	.8447	233'44'5'6	0.005	0.003	104
105	38.99	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.20	7:2	170	.8740	22'33'44'5	0.164	0.112	106
107	40.50	7:2	190	.8740	233'44'56	0.033	0.023	107
108	41.39	8:3	198	.8845	22'33'455'6	0.003	0.002	108
109	41.66	8:3	201	.8875	22'33'4'55'6	0.058	0.036	109
110	42.22	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.078	0.049	110
111	43.48	7:1	189	.9142	233'44'55'	0.007	0.005	111
112	45.11	8:3	195	.9321	22'33'44'56	0.021	0.013	112
113	45.69	9:4	208	.9320	22'33'455'66'	0.015	0.009	113
114	46.68	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.18	8:2	194	.9620	22'33'44'55'	0.035	0.022	115
116	49.14	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.61	9:3	206	1.010	22'33'44'55'6	0.018	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 106.249 PPM

TOTAL MICROMOLES = 0.3946

AVERAGE MOLECULAR WEIGHT = 269.2

NUMBER OF CALIBRATED PEAKS FOUND= 106

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.519	0.478	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.012	0.013	36
37	26.23	5:4 4:2	104 044	.4832	22'466' ; 22'35'	3.215	2.964	37
38	26.34	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.989	1.965	38
39	26.63	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	3.160	2.914	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.386	0.318	41
42	26.85	4:2	040	.5102	22'33'	0.608	0.560	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.356	0.321	43
44	27.19	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.203	0.183	44
45	27.32	4:1	058 063	.5267	233'5' ; 234'5	0.283	0.261	45
46	27.46	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.058	0.975	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	2.177	2.007	47
48	27.66	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	4.083	3.745	48
49	27.90	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.519	0.430	49
50	28.15	4:1	056 060	.5676	233'4' ; 2344'	1.113	1.026	50
51	28.34	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.956	1.613	51
52	28.42	5:3	089	.5779	22'346'	0.066	0.054	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	1.169	0.964	53
54	28.69	5:2	099	.5880	22'44'5	0.600	0.495	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.110	0.090	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.199	0.164	56
57	29.20	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.544	0.449	57
58	29.35	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.745	0.615	58
59	29.49	5:2	085 116	.6224	22'344' ; 23456?	0.261	0.215	59
60	29.60	6:4	136	.6257	22'33'66'	0.128	0.096	60
61	29.72	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.882	2.457	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2	082	.6453	22'33'4	0.236	0.195	63
64	30.34	6:3	151	.6499	22'355'6	0.207	0.154	64
65	30.48	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.362	0.278	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.61	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.179	0.143	67
68	30.69	5:1	123	.6658	2'344'5	0.050	0.041	68
69	30.82	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.998	1.594	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.015	0.011	70
71	31.23	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.165	0.128	71
72	31.41	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.029	0.023	72
73	31.71	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.195	0.146	73
74	31.85	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	1.177	0.911	74
75	31.99	6:2	153	.7036	22'44'55'	0.667	0.498	75
76	32.29	6:2	168	.7068	23'44'5'6	0.002	0.002	76
77	32.55	6:2	141	.7203	22'3455'	0.193	0.144	77
78	32.62	7:4	179	.7205	22'33'566'	0.059	0.040	78
79	32.85	6:2	130	.7284	22'33'45'	0.126	0.094	79
80	32.93	6:2	137	.7329	22'344'5	0.085	0.063	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.24	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.891	0.664	82
83	33.42	6:2	158	.7429	233'44'6	0.160	0.120	83
84	33.64	6:2	129	.7501	22'33'45	0.128	0.095	84
85	33.99	7:3	178	.7537	22'33'55'6	0.054	0.037	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.28	7:3	175	.7611	22'33'45'6	0.014	0.009	87
88	34.46	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.125	0.085	88
89	34.60	6:2	128	.7761	22'33'44'	0.161	0.120	89
90	34.78	7:3	183	.7720	22'344'5'6	0.075	0.051	90
91	35.06	6:1	167	.7814	23'44'55'	0.032	0.024	91
92	35.43	7:3	185	.7848	22'3455'6	0.009	0.006	92
93	35.81	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.078	0.053	93
94	36.10	7:3	177	.8031	22'33'4'56	0.072	0.049	94
95	36.41	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.273	0.193	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.71	6:1	157	.8184	233'44'5'	0.073	0.054	97
98	36.89	7:3	173	.8152	22'33'456	0.004	0.003	98
99	37.25	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.005	0.003	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912326F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 18:30

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.25	1:1	001	.1544	2	1.625	2.318	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.213	0.304	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.518	1.832	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.193	0.233	6
7	20.99	2:1	006	.2709	23'	0.673	0.812	7
8	21.20	2:1	005 008	.2785	23 ; 24'	14.113	17.032	8
9	21.69	2:0	014	.2973	35	0.014	0.017	9
10	21.88	3:3	019	.3045	22'6	1.759	1.839	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.220	0.265	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.074	0.090	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.709	1.848	14
15	22.84	3:2	017	.3398	22'4	7.283	7.615	15
16	23.13	3:2	024 027	.3508	236 ; 23'6	1.181	1.235	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	4.875	5.097	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.205	0.206	19
20	23.98	3:1	029	.3820	245	0.003	0.003	20
21	24.08	3:1	026	.3911	23'5	2.721	2.845	21
22	24.16	3:1	025	.3937	23'4	2.312	2.418	22
23	24.34	3:1	031	.4024	24'5	3.491	3.650	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	4.926	5.151	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	2.200	2.283	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.599	1.664	26
27	25.11	4:3	045	.4334	22'36	0.738	0.681	27
28	25.22	3:1	036	.4379	33'5	0.006	0.006	28
29	25.35	4:3	046	.4450	22'36'	0.261	0.241	29
30	25.45	3:1	039	.4488	34'5	0.023	0.025	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	3.950	3.642	31
32	25.74	4:2	049	.4610	22'45	2.829	2.608	32
33	25.84	4:2	047	.4639	22'44'	2.391	2.204	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912326F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 18:30

Total PCBs in Sample= 106.25 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.84	2.62
Di	17.23	20.74
Tri	34.78	36.31
Tetra	27.77	25.65
Penta	12.11	10.03
Hexa	4.95	3.76
Hepta	1.08	0.74
Octa	0.20	0.13
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.55

Meta + Para Cl / biphenyl Residue = 1.79

TOTAL Cl / biphenyl Residue = 3.35

Cell 4 Comp 2.

100	37.52	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.028	0.019	100
101	37.82	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	38.02	7:2	180	.8362	22'344'55'	0.198	0.135	102
103	38.30	7:2	193	.8397	233'4'55'6	0.009	0.006	103
104	38.64	7:2	191	.8447	233'44'5'6	0.005	0.004	104
105	39.00	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.20	7:2	170	.8740	22'33'44'5	0.186	0.126	106
107	40.51	7:2	190	.8740	233'44'56	0.036	0.024	107
108	41.41	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.66	8:3	201	.8875	22'33'4'55'6	0.051	0.032	109
110	42.22	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.063	0.039	110
111	43.49	7:1	189	.9142	233'44'55'	0.009	0.006	111
112	45.12	8:3	195	.9321	22'33'44'56	0.019	0.012	112
113	45.69	9:4	208	.9320	22'33'455'66'	0.000	0.000	113
114	46.55	9:4	207	.9423	22'33'44'566'	0.006	0.003	114
115	48.20	8:2	194	.9620	22'33'44'55'	0.034	0.021	115
116	49.12	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.60	9:3	206	1.010	22'33'44'55'6	0.017	0.010	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 123.362 PPM

TOTAL MICROMOLES = 0.4586

AVERAGE MOLECULAR WEIGHT = 269.0

NUMBER OF CALIBRATED PEAKS FOUND= 105

Cell 4 Comp 2

	[illegible]	4:2		[illegible]	.4659	[illegible]			
34	25.89	4:2		048 075	.4651	22'45 ; 244'6	0.577	0.531	34
35	0.00	4:2		065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0		035	.4738	33'4	0.014	0.014	36
37	26.23	5:4	4:2	104 044	.4832	22'466' ; 22'35'	2.351	2.166	37
38	26.31	3:0	4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.557	1.538	38
39	26.63	4:2		064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.592	2.388	39
40	0.00	4:1		068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4		096	.5057	22'366'	0.369	0.304	41
42	26.85	4:2		040	.5102	22'33'	0.451	0.415	42
43	27.04	5:3	4:1	103 067	.5155	22'45'6 ; 233'5	0.329	0.286	43
44	27.19	5:3	4:1	100 067	.5212	22'44'6 ; 23'4'5	0.196	0.177	44
45	27.32	4:1		058 063	.5267	233'5' ; 234'5	0.287	0.264	45
46	27.46	4:1	5:3	074 094	.5340	234'5 ; 22'356'	1.071	0.986	46
47	27.56	4:1		070 061	.5407	23'4'5 ; 2'345 ; 2345?	2.354	2.169	47
48	27.66	4:1	5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	4.117	3.774	48
49	27.90	5:3	4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.501	0.415	49
50	28.15	4:1		096 060	.5676	233'4' ; 2344'	1.234	1.137	50
51	28.34	6:4	5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.859	1.532	51
52	28.42	5:3		089	.5779	22'346'	0.054	0.045	52
53	28.53	5:2		101 090	.5814	22'34'5 ; 22'455'	1.357	1.118	53
54	28.69	5:2		099	.5880	22'44'5	0.675	0.556	54
55	28.93	6:4	5:3	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.114	0.094	55
56	29.01	5:2		083 109	.6029	22'33'5 ; 233'46	0.191	0.157	56
57	29.20	6:4	5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.604	0.498	57
58	29.35	5:2		087 111	.6175	22'345' ; 233'55' ; 2344'6	0.883	0.728	58
59	29.49	5:2		085 116	.6224	22'344' ; 23456?	0.288	0.237	59
60	29.60	6:4		136	.6257	22'33'66'	0.115	0.086	60
61	29.71	4:0	5:2	077 110	.6295	33'44' ; 233'4'6	2.886	2.459	61
62	0.00	6:3		151	.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2		082	.6453	22'33'4	0.252	0.208	63
64	30.31	6:3		151	.6499	22'355'6	0.239	0.178	64
65	30.47	6:3	5:1	135 121	.6563	22'33'56' ; 2'344'5	0.442	0.339	65
66	0.00	6:3		141	.6584	22'345'6	0.000	0.000	66
67	30.61	5:1	6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.221	0.176	67
68	30.70	5:1		123	.6658	2'344'5	0.048	0.040	68
69	30.82	6:3	5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.363	1.883	69
70	30.99	6:3		139 140	.6707	22'344'6 ; 22'344'6'	0.024	0.018	70
71	31.22	6:3	5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.199	0.154	71
72	31.41	5:1	6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.039	0.031	72
73	31.70	6:2		146 161	.6955	22'34'55' ; 233'45'6	0.241	0.180	73
74	31.85	6:3	5:1	132 105	.7035	22'33'46' ; 233'44'	1.347	1.042	74
75	31.99	6:2		153	.7036	22'44'55'	0.880	0.656	75
76	32.29	6:2		103	.7068	23'44'5'6	0.001	0.001	76
77	32.55	6:2		141	.7203	22'3455'	0.251	0.187	77
78	32.63	7:4		179	.7205	22'33'566'	0.067	0.045	78
79	32.85	6:2		130	.7284	22'33'45'	0.171	0.127	79
80	32.93	6:2		137	.7329	22'344'5	0.111	0.083	80
81	0.00	7:4		176	.7305	22'33'466'	0.000	0.000	81
82	33.24	6:2		138 163	.7403	22'344'5' ; 233'4'56 ; +2	1.150	0.857	82
83	33.43	6:2		158	.7429	233'44'6	0.217	0.162	83
84	33.65	6:2		129	.7501	22'33'45	0.180	0.134	84
85	33.99	7:3		178	.7537	22'33'55'6	0.065	0.044	85
86	0.00	6:2		166	.7572	2344'56	0.000	0.000	86
87	34.29	7:3		175	.7611	22'33'45'6	0.013	0.009	87
88	34.46	7:3		187 182	.7653	22'34'55'6 ; 22'344'56'	0.128	0.087	88
89	34.61	6:2		128	.7761	22'33'44'	0.212	0.158	89
90	34.78	7:3		183	.7720	22'344'5'6	0.078	0.053	90
91	35.06	6:1		167	.7814	23'44'55'	0.045	0.034	91
92	35.42	7:3		185	.7848	22'3455'6	0.009	0.006	92
93	35.80	7:3		174 181	.7965	22'33'456' ; 22'344'56	0.096	0.066	93
94	36.10	7:3		177	.8031	22'33'4'56	0.087	0.059	94
95	36.41	7:3	6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.364	0.256	95
96	0.00	8:4		202	.8089	22'33'55'66'	0.000	0.000	96
97	36.72	6:1		157	.8184	233'44'5'	0.098	0.073	97
98	36.89	7:3		173	.8152	22'33'456	0.004	0.003	98
99	37.27	8:4		200 204	.8197	22'33'45'66' ; 22'344'566'	0.003	0.002	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912325f.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 15:46

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.485	2.117	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.322	0.459	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.609	1.940	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.170	0.205	6
7	20.99	2:1	006	.2709	23'	0.525	0.634	7
8	21.20	2:1	005 008	.2785	23 ; 24'	16.283	19.633	8
9	21.69	2:0	014	.2973	35	0.010	0.012	9
10	21.88	3:3	019	.3045	22'6	2.017	2.107	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.141	0.170	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.056	0.068	13
14	22.76	3:2 2:0	018 015	.3387	22'5 ; 44'	1.454	1.571	14
15	22.84	3:2	017	.3398	22'4	8.297	8.668	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.339	1.398	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	5.421	5.664	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.211	0.212	19
20	23.97	3:1	029	.3820	245	0.003	0.003	20
21	24.08	3:1	026	.3911	23'5	1.680	1.756	21
22	24.16	3:1	025	.3937	23'4	1.583	1.653	22
23	24.34	3:1	031	.4024	24'5	2.631	2.748	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	5.534	5.782	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.702	1.764	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.433	1.490	26
27	25.11	4:3	045	.4334	22'36	0.619	0.570	27
28	25.24	3:1	036	.4379	33'5	0.008	0.008	28
29	25.35	4:3	046	.4450	22'36'	0.203	0.187	29
30	25.45	3:1	039	.4488	34'5	0.018	0.019	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	3.158	2.910	31
32	25.74	4:2	049	.4610	22'45	2.262	2.084	32
33	25.85	4:2	047	.4639	22'44'	2.491	2.295	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912325f.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 15:46

Total PCBs in Sample= 123.36 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.81	2.58
Di	19.15	23.05
Tri	33.66	35.13
Tetra	24.90	22.98
Penta	12.86	10.62
Hexa	6.18	4.67
Hepta	1.24	0.85
Octa	0.18	0.11
Nona	0.02	0.01
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.56

Meta + Para Cl / biphenyl Residue = 1.78

TOTAL Cl / biphenyl Residue = 3.34

Cell 4 Comp 1.

100	37.51	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.033	0.022	100
101	37.79	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	38.02	7:2	180	.8362	22'344'55'	0.225	0.154	102
103	38.28	7:2	193	.8397	233'4'55'6	0.016	0.011	103
104	38.61	7:2	191	.8447	233'44'5'6	0.006	0.004	104
105	38.95	8:4	199	.8494	22'33'4566'	0.004	0.003	105
106	40.20	7:2	170	.8740	22'33'44'5	0.204	0.139	106
107	40.50	7:2	190	.8740	233'44'56	0.037	0.025	107
108	41.38	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.64	8:3	201	.8875	22'33'4'55'6	0.058	0.036	109
110	42.22	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.068	0.043	110
111	43.46	7:1	189	.9142	233'44'55'	0.009	0.006	111
112	45.12	8:3	195	.9321	22'33'44'56	0.022	0.014	112
113	45.73	9:4	208	.9320	22'33'455'66'	0.021	0.012	113
114	46.65	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.18	8:2	194	.9620	22'33'44'55'	0.038	0.024	115
116	49.11	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.58	9:3	206	1.010	22'33'44'55'6	0.017	0.010	117
118	60.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 65.540 PPM

TOTAL MICROMOLES = 0.2425

AVERAGE MOLECULAR WEIGHT = 270.3

NUMBER OF CALIBRATED PEAKS FOUND= 106

Cell 4 Comp 1

1	35.89	7:3		048	075	.6651	22'45 ; 344'	.575	.502	1
2	0.00	8:3		065	092	.6365	2346 ; 2356	.000	.000	2
3	36.08	7:3		035		.6738	23'4	.017	.017	3
4	36.22	7:3	4:2	104	044	.6332	22'466' ; 22'34'	.688	.604	4
5	36.34	8:3	4:2	037	042	.6870	344' ; 22'34' ; 233'5	.651	.555	5
6	36.63	7:2		064	071	.6990	23'34 ; 234'5 ; 22'4'6 -	.736	.552	6
7	0.00	4:1		068		.6040	23'45' ?	.000	.000	40
8	36.75	7:4		096		.6057	22'366'	.358	.297	41
9	36.84	4:2		040		.6102	22'33'	.486	.449	42
10	37.04	5:3	4:1	103	057	.6155	22'45'6 ; 233'5	.307	.278	43
11	37.19	7:3	4:1	100	067	.6212	22'44'6 ; 23'4'5	.189	.171	44
12	37.32	4:1		058	063	.6267	233'5' ; 234'5	.267	.247	45
13	37.46	4:1	5:3	074	094	.6340	344'5 ; 22'356'	1.389	1.308	46
14	37.56	4:1		070	061	.6407	23'4'5 ; 2'345 ; 2345?	2.660	2.462	47
15	37.66	4:1	5:3	066	095	.6447	23'44' ; 22'356 ; 22'35'6	4.399	4.051	48
16	37.90	8:3	4:1	091	098	.6549	22'34'6 ; 22'3'46 ; 233'4	6.501	6.417	49
17	38.15	4:1		056	060	.6676	233'4' ; 2344'	1.319	1.349	50
18	38.33	6:4	5:3	155	084	.6666	22'44'66' ; 22'33'6; 22'355'	1.936	1.603	51
19	38.42	5:3		089		.6779	22'346'	0.063	0.052	52
20	38.53	5:2		101	090	.6814	22'34'5 ; 22'455'	1.437	1.190	53
21	38.69	7:2		099		.6880	22'44'5	0.695	0.575	54
22	38.92	8:4	5:2	150	112	.6969	22'34'66' ; 233'56 ; 22'44'5	0.107	0.089	55
23	39.01	7:3		083	109	.7029	22'33'5 ; 233'46	0.191	0.150	56
24	39.19	8:4	5:2	152	097	.7062	22'3566' ; 22'345 ; 22'2'5	1.650	1.333	57
25	39.35	7:3		087	111	.6175	22'345' ; 233'55' ; 2344'	0.949	0.786	58
26	39.48	7:3		085	110	.6224	22'344' ; 22'56?	0.309	0.256	59
27	39.60	8:4		136		.6257	22'33'66'	0.120	0.090	60
28	39.71	8:3	5:2	077	113	.6295	23'44' ; 233'4'6	1.049	1.610	61
29	0.00	6:3		154		.6349	22'44'56'	0.000	0.000	62
30	40.06	5:2		082		.6453	22'33'4	0.279	0.231	63
31	40.24	7:3		151		.6499	22'355'6	0.245	0.184	64
32	40.48	6:3	5:1	135	124	.6563	22'33'56' ; 2'344'5	0.455	0.351	65
33	0.00	6:3		144		.6584	22'345'6	0.000	0.000	66
34	40.61	5:1	6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.224	0.180	67
35	40.70	5:1		123		.6658	2'344'5	0.060	0.050	68
36	40.82	6:3	5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.484	1.989	69
37	40.99	7:3		139	140	.6707	22'344'6 ; 22'344'6'	0.028	0.021	70
38	41.22	8:3	5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.204	0.159	71
39	41.41	5:1	6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.039	0.031	72
40	41.70	6:2		146	161	.6955	22'34'55' ; 233'45'6	0.242	0.181	73
41	41.84	6:3	5:1	132	105	.7035	22'33'46' ; 233'44'	1.443	1.122	74
42	41.99	6:2		153		.7036	22'44'55'	0.926	0.693	75
43	42.29	6:2		168		.7068	23'44'5'6	0.003	0.002	76
44	42.55	6:2		141		.7203	22'3455'	0.279	0.209	77
45	42.62	7:4		179		.7205	22'33'566'	0.058	0.039	78
46	42.85	6:2		130		.7284	22'33'45'	0.176	0.132	79
47	42.93	6:2		137		.7329	22'344'5	0.118	0.088	80
48	0.00	7:4		176		.7305	22'33'466'	0.000	0.000	81
49	43.22	6:2		138	103	.7403	22'344'5' ; 233'4'56 ; 24	1.204	0.901	82
50	43.43	6:2		158		.7429	233'44'6	0.231	0.173	83
51	43.64	6:2		129		.7501	22'33'45	0.188	0.141	84
52	43.99	7:3		178		.7537	22'33'55'6	0.066	0.045	85
53	0.00	6:2		166		.7572	2344'56	0.000	0.000	86
54	44.27	7:3		175		.7611	22'33'45'6	0.014	0.009	87
55	44.45	7:3		187	182	.7653	22'34'55'6 ; 22'344'56'	0.131	0.090	88
56	44.60	6:2		128		.7761	22'33'44'	0.221	0.166	89
57	44.77	7:3		183		.7720	22'344'5'6	0.085	0.058	90
58	45.06	5:1		167		.7814	23'44'55'	0.048	0.036	91
59	45.42	7:3		185		.7848	22'3455'6	0.010	0.007	92
60	45.81	7:3		174	181	.7965	22'33'456' ; 22'344'56	0.100	0.068	93
61	46.09	7:3		177		.8031	22'33'4'56	0.084	0.058	94
62	46.41	7:3	6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.379	0.268	95
63	0.00	8:4		202		.8089	22'33'55'66'	0.000	0.000	96
64	46.70	6:1		157		.8184	233'44'5'	0.099	0.074	97
65	46.89	7:3		173		.8152	22'33'456	0.005	0.003	98
66	47.25	8:4		200	204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

DATA FILE NAME: A0004F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 14:24

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.316	1.927	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.210	0.301	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.432	1.735	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.143	0.173	6
7	20.99	2:1	006	.2709	23'	0.505	0.612	7
8	21.20	2:1	005 008	.2785	23 ; 24'	16.924	20.502	8
9	21.68	2:0	014	.2973	35	0.009	0.011	9
10	21.87	3:3	019	.3045	22'6	1.812	1.902	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	3:0	011	.3238	33'	0.134	0.163	12
13	22.60	3:0	012 013	.3297	34 ; 34'	0.055	0.066	13
14	22.75	3:2 2:3	018 015	.3387	22'5 ; 34'	1.398	1.517	14
15	22.83	3:2	017	.3398	22'4	7.720	8.103	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.243	1.305	16
17	23.19	3:2	016 032	.3555	22'3 ; 24'6	6.123	6.249	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.196	0.198	19
20	23.97	3:1	029	.3820	345	0.003	0.003	20
21	24.08	3:1	026	.3911	23'5	1.672	1.755	21
22	24.16	3:1	025	.3937	23'4	1.540	1.617	22
23	24.34	3:1	031	.4024	24'5	2.627	2.757	23
24	24.38	3:1 4:2	028 050	.4031	244' ; 22'46	4.283	4.495	24
25	24.68	3:1 4:2	021 033	.4170	233' ; 234 ; 22'56'	1.718	1.790	25
26	24.90	3:1 4:2	022 051	.4267	234' ; 22'46'	1.448	1.513	26
27	25.11	4:3	045	.4334	22'36	0.624	0.578	27
28	25.23	3:1	036	.4379	33'5	0.004	0.004	28
29	25.34	4:3	046	.4450	22'36'	0.213	0.197	29
30	25.45	3:1	039	.4488	34'5	0.017	0.018	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	3.343	3.094	31
32	25.74	4:2	049	.4610	22'45	2.310	2.138	32
33	25.84	4:2	047	.4639	22'44'	2.393	2.215	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912324F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 4 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 14:24

Total PCBs in Sample= 65.54 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.56	2.23
Di	19.55	23.64
Tri	31.18	32.69
Tetra	26.17	24.26
Penta	13.49	11.20
Hexa	6.49	4.93
Hepta	1.32	0.91
Octa	0.20	0.13
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.56

Meta + Para Cl / biphenyl Residue = 1.82

TOTAL Cl / biphenyl Residue = 3.38

Cell 3 Comp 5

100	37.52	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.020	0.014	100
101	37.81	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	38.02	7:2	180	.8362	22'344'55'	0.182	0.124	102
103	38.30	7:2	193	.8397	233'4'55'6	0.013	0.009	103
104	38.60	7:2	191	.8447	233'44'5'6	0.004	0.003	104
105	38.99	8:4	199	.8494	22'33'4566'	0.004	0.002	105
106	40.21	7:2	170	.8740	22'33'44'5	0.136	0.093	106
107	40.51	7:2	190	.8740	233'44'56	0.027	0.018	107
108	41.39	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.66	8:3	201	.8875	22'33'4'55'6	0.067	0.042	109
110	42.22	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.079	0.050	110
111	43.49	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.13	8:3	195	.9321	22'33'44'56	0.033	0.021	112
113	45.71	9:4	208	.9320	22'33'455'66'	0.020	0.011	113
114	46.66	9:4	207	.9423	22'33'44'566'	0.005	0.003	114
115	48.19	8:2	194	.9620	22'33'44'55'	0.042	0.026	115
116	49.15	8:2	205	.9678	233'44'55'6	0.004	0.002	116
117	54.62	9:3	206	1.010	22'33'44'55'6	0.021	0.012	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 132.866 PPM

TOTAL MICROMOLES = 0.4924

AVERAGE MOLECULAR WEIGHT = 269.8

NUMBER OF CALIBRATED PEAKS FOUND= 106

Col 3 Comp 5

34	25.90	4:2	048	075	.4651	22'45 ; 244'6	0.719	0.664	34
35	0.00	4:2	065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035		.4738	33'4	0.014	0.015	36
37	26.23	5:4 4:2	104	044	.4832	22'466' ; 22'35'	1.778	1.643	37
38	26.34	3:0 4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.611	1.596	38
39	26.63	4:2	064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	3.105	2.869	39
40	0.00	4:1	068		.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096		.5057	22'366'	0.380	0.314	41
42	26.84	4:2	040		.5102	22'33'	0.347	0.321	42
43	27.04	5:3 4:1	103	057	.5155	22'45'6 ; 233'5	0.330	0.298	43
44	27.19	5:3 4:1	100	067	.5212	22'44'6 ; 23'4'5	0.195	0.176	44
45	27.32	4:1	058	063	.5267	233'5' ; 234'5	0.406	0.375	45
46	27.46	4:1 5:3	074	094	.5340	244'5 ; 22'356'	1.487	1.374	46
47	27.56	4:1	070	061	.5407	23'4'5 ; 2'345 ; 2345?	2.195	2.028	47
48	27.66	4:1 5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	4.459	4.099	48
49	27.90	5:3 4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.536	0.446	49
50	28.15	4:1	056	060	.5676	233'4' ; 2344'	1.758	1.625	50
51	28.34	6:4 5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.684	1.392	51
52	28.42	5:3	089		.5779	22'346'	0.069	0.057	52
53	28.53	5:2	101	090	.5814	22'34'5 ; 22'455'	1.249	1.032	53
54	28.69	5:2	099		.5880	22'44'5	0.748	0.619	54
55	28.93	6:4 5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.108	0.089	55
56	29.01	5:2	083	109	.6029	22'33'5 ; 233'46	0.189	0.156	56
57	29.20	6:4 5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.639	0.528	57
58	29.35	5:2	087	111	.6175	22'345' ; 233'55' ; 2344'6	0.885	0.732	58
59	29.49	5:2	085	116	.6224	22'344' ; 23456?	0.339	0.281	59
60	29.64	6:4	136		.6257	22'33'66'	0.109	0.081	60
61	29.71	4:0 5:2	077	110	.6295	33'44' ; 233'4'6	2.593	2.215	61
62	0.00	6:3	154		.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2	082		.6453	22'33'4	0.277	0.229	63
64	30.34	6:3	151		.6499	22'355'6	0.157	0.117	64
65	30.48	6:3 5:1	135	124	.6563	22'33'56' ; 2'344'5	0.298	0.230	65
66	0.00	6:3	144		.6584	22'345'6	0.000	0.000	66
67	30.61	5:1 6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.209	0.168	67
68	30.70	5:1	123		.6658	2'344'5	0.064	0.053	68
69	30.82	6:3 5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.178	1.742	69
70	30.98	6:3	139	140	.6707	22'344'6 ; 22'344'6'	0.027	0.020	70
71	31.23	6:3 5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.195	0.152	71
72	31.41	5:1 6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.025	0.020	72
73	31.70	6:2	146	161	.6955	22'34'55' ; 233'45'6	0.169	0.127	73
74	31.85	6:3 5:1	132	105	.7035	22'33'46' ; 233'44'	1.347	1.045	74
75	31.99	6:2	153		.7036	22'44'55'	0.556	0.415	75
76	32.28	6:2	168		.7068	23'44'5'6	0.003	0.002	76
77	32.55	6:2	141		.7203	22'3455'	0.153	0.115	77
78	32.63	7:4	179		.7205	22'33'566'	0.057	0.039	78
79	32.85	6:2	130		.7284	22'33'45'	0.103	0.077	79
80	32.93	6:2	137		.7329	22'344'5	0.071	0.053	80
81	0.00	7:4	176		.7305	22'33'466'	0.000	0.000	81
82	33.24	6:2	138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.699	0.523	82
83	33.43	6:2	158		.7429	233'44'6	0.120	0.090	83
84	33.64	6:2	129		.7501	22'33'45	0.095	0.071	84
85	33.99	7:3	178		.7537	22'33'55'6	0.046	0.031	85
86	0.00	6:2	166		.7572	2344'56	0.000	0.000	86
87	34.28	7:3	175		.7611	22'33'45'6	0.014	0.010	87
88	34.46	7:3	187	182	.7653	22'34'55'6 ; 22'344'56'	0.122	0.083	88
89	34.60	6:2	128		.7761	22'33'44'	0.119	0.089	89
90	34.78	7:3	183		.7720	22'344'5'6	0.060	0.041	90
91	35.06	6:1	167		.7814	23'44'55'	0.023	0.017	91
92	35.43	7:3	185		.7848	22'3455'6	0.009	0.006	92
93	35.82	7:3	174	181	.7965	22'33'456' ; 22'344'56	0.067	0.046	93
94	36.10	7:3	177		.8031	22'33'4'56	0.065	0.044	94
95	36.41	7:3 6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.204	0.144	95
96	0.00	8:4	202		.8089	22'33'55'66'	0.000	0.000	96
97	36.70	6:1	157		.8184	233'44'5'	0.052	0.039	97
98	36.90	7:3	173		.8152	22'33'456	0.002	0.001	98
99	37.24	8:4	200	204	.8197	22'33'45'66' ; 22'344'566'	0.008	0.005	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912323F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 13:02

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.257	1.798	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.112	0.160	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.723	2.084	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.303	0.367	6
7	20.99	2:1	006	.2709	23'	0.630	0.762	7
8	21.20	2:1	005 008	.2785	23 ; 24'	11.689	14.138	8
9	21.69	2:0	014	.2973	35	0.020	0.025	9
10	21.87	3:3	019	.3045	22'6	2.760	2.892	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.194	0.235	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.053	0.064	13
14	22.76	3:2 2:0	018 015	.3387	22'5 ; 44'	0.968	1.049	14
15	22.84	3:2	017	.3398	22'4	9.327	9.774	15
16	23.13	3:2	024 027	.3508	236 ; 23'6	1.640	1.719	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	6.861	7.190	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.254	0.255	19
20	23.98	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	1.395	1.462	21
22	24.16	3:1	025	.3937	23'4	1.872	1.961	22
23	24.34	3:1	031	.4024	24'5	1.835	1.923	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	8.976	9.406	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.433	1.490	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.957	2.041	26
27	25.11	4:3	045	.4334	22'36	0.569	0.526	27
28	25.23	3:1	036	.4379	33'5	0.007	0.008	28
29	25.35	4:3	046	.4450	22'36'	0.178	0.165	29
30	25.45	3:1	039	.4488	34'5	0.018	0.019	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	2.648	2.447	31
32	25.74	4:2	049	.4610	22'45	2.132	1.970	32
33	25.84	4:2	047	.4639	22'44'	2.995	2.768	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912323F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 13:02

Total PCBs in Sample= 132.87 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.37	1.96
Di	14.85	17.93
Tri	39.78	41.63
Tetra	25.94	24.01
Penta	12.36	10.24
Hexa	4.46	3.41
Hepta	0.95	0.66
Octa	0.24	0.15
Nona	0.05	0.03
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.59

Meta + Para Cl / biphenyl Residue = 1.78

TOTAL Cl / biphenyl Residue = 3.36

Cell 3 Comp 4.

100	37.51	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.021	0.014	100
101	37.79	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	38.01	7:2	180	.8362	22'344'55'	0.176	0.118	102
103	38.28	7:2	193	.8397	233'4'55'6	0.010	0.007	103
104	38.61	7:2	191	.8447	233'44'5'6	0.004	0.003	104
105	38.97	8:4	199	.8494	22'33'4566'	0.004	0.002	105
106	40.20	7:2	170	.8740	22'33'44'5	0.139	0.093	106
107	40.50	7:2	190	.8740	233'44'56	0.029	0.019	107
108	41.38	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.63	8:3	201	.8875	22'33'4'55'6	0.068	0.042	109
110	42.22	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.082	0.050	110
111	43.49	7:1	189	.9142	233'44'55'	0.005	0.003	111
112	45.11	8:3	195	.9321	22'33'44'56	0.031	0.019	112
113	45.67	9:4	208	.9320	22'33'455'66'	0.010	0.006	113
114	46.64	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.17	8:2	194	.9620	22'33'44'55'	0.044	0.027	115
116	49.12	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.62	9:3	206	1.010	22'33'44'55'6	0.022	0.013	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 76.327 PPM

TOTAL MICROMOLES = 0.2875

AVERAGE MOLECULAR WEIGHT = 265.5

NUMBER OF CALIBRATED PEAKS FOUND= 107

34	25.89	4:2	048 073	.4651	22'45 ; 244'6	0.010	0.008	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.016	0.016	36
37	26.23	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.845	1.678	37
38	26.34	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.542	1.502	38
39	26.63	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.833	2.575	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.388	0.316	41
42	26.84	4:2	040	.5102	22'33'	0.368	0.335	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.306	0.272	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.190	0.168	44
45	27.32	4:1	058 063	.5267	233'5' ; 234'5	0.337	0.306	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.206	1.096	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	2.246	2.042	47
48	27.66	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	4.187	3.787	48
49	27.90	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.511	0.418	49
50	28.15	4:1	056 060	.5676	233'4' ; 2344'	1.322	1.202	50
51	28.34	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.622	1.319	51
52	28.42	5:3	089	.5779	22'346'	0.066	0.054	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	1.150	0.936	53
54	28.69	5:2	099	.5880	22'44'5	0.648	0.527	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.101	0.082	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.177	0.144	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.571	0.465	57
58	29.35	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.676	0.550	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.312	0.254	59
60	29.64	6:4	136	.6257	22'33'66'	0.102	0.075	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.500	2.102	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2	082	.6453	22'33'4	0.234	0.190	63
64	30.34	6:3	151	.6499	22'355'6	0.158	0.116	64
65	30.48	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.288	0.218	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.61	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.189	0.149	67
68	30.70	5:1	123	.6658	2'344'5	0.048	0.039	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.952	1.536	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.022	0.016	70
71	31.23	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.163	0.124	71
72	31.41	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.023	0.018	72
73	31.70	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.167	0.123	73
74	31.85	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	1.129	0.861	74
75	31.99	6:2	153	.7036	22'44'55'	0.539	0.396	75
76	32.27	6:2	168	.7068	23'44'5'6	0.002	0.001	76
77	32.55	6:2	141	.7203	22'3455'	0.146	0.107	77
78	32.61	7:4	179	.7205	22'33'566'	0.056	0.038	78
79	32.84	6:2	130	.7284	22'33'45'	0.098	0.072	79
80	32.92	6:2	137	.7329	22'344'5	0.070	0.051	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.23	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.680	0.500	82
83	33.42	6:2	158	.7429	233'44'6	0.115	0.084	83
84	33.64	6:2	129	.7501	22'33'45	0.094	0.069	84
85	33.98	7:3	178	.7537	22'33'55'6	0.052	0.035	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.26	7:3	175	.7611	22'33'45'6	0.012	0.008	87
88	34.46	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.123	0.082	88
89	34.60	6:2	128	.7761	22'33'44'	0.118	0.087	89
90	34.77	7:3	183	.7720	22'344'5'6	0.060	0.041	90
91	35.05	6:1	167	.7814	23'44'55'	0.024	0.017	91
92	35.42	7:3	185	.7848	22'3455'6	0.009	0.006	92
93	35.81	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.069	0.046	93
94	36.09	7:3	177	.8031	22'33'4'56	0.066	0.044	94
95	36.41	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.205	0.142	95
96	36.70	8:4	202	.8089	22'33'55'66'	0.007	0.004	96
97	0.00	6:1	157	.8184	233'44'5'	0.000	0.000	97
98	36.89	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.24	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.008	0.005	99

eu 3 comp 4

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912322F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 11:40

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.732	2.437	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.301	0.424	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.852	2.204	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.310	0.368	6
7	20.99	2:1	006	.2709	23'	0.630	0.749	7
8	21.19	2:1	005 008	.2785	23 ; 24'	16.724	19.901	8
9	21.69	2:0	014	.2973	35	0.015	0.017	9
10	21.87	3:3	019	.3045	22'6	2.427	2.502	10
11	22.14	3:2	030	.3165	246	0.003	0.003	11
12	22.41	2:0	011	.3238	33'	0.196	0.233	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.057	0.068	13
14	22.76	3:2 2:0	018 015	.3387	22'5 ; 44'	1.048	1.117	14
15	22.83	3:2	017	.3398	22'4	9.563	9.860	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.505	1.552	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	6.266	6.460	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.246	0.243	19
20	23.97	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	1.661	1.712	21
22	24.16	3:1	025	.3937	23'4	2.102	2.168	22
23	24.34	3:1	031	.4024	24'5	2.254	2.324	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	6.578	6.782	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.379	1.411	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.512	1.551	26
27	25.10	4:3	045	.4334	22'36	0.564	0.513	27
28	25.23	3:1	036	.4379	33'5	0.005	0.005	28
29	25.34	4:3	046	.4450	22'36'	0.162	0.147	29
30	25.45	3:1	039	.4488	34'5	0.025	0.026	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	2.603	2.367	31
32	25.74	4:2	049	.4610	22'45	2.076	1.887	32
33	25.84	4:2	047	.4639	22'44'	2.790	2.536	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912322F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 11:40

Total PCBs in Sample= 76.33 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	2.03	2.86
Di	20.04	23.82
Tri	37.01	38.11
Tetra	24.25	22.08
Penta	11.32	9.23
Hexa	4.10	3.08
Hepta	0.96	0.65
Octa	0.25	0.15
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.55

Meta + Para Cl / biphenyl Residue = 1.69

TOTAL Cl / biphenyl Residue = 3.24

CCUS comp 3

100	37.49	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.027	0.018	100
101	0.00	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	38.00	7:2	180	.8362	22'344'55'	0.201	0.139	102
103	38.26	7:2	193	.8397	233'4'55'6	0.010	0.007	103
104	38.60	7:2	191	.8447	233'44'5'6	0.006	0.004	104
105	38.95	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.18	7:2	170	.8740	22'33'44'5	0.186	0.128	106
107	40.48	7:2	190	.8740	233'44'56	0.037	0.025	107
108	41.37	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.63	8:3	201	.8875	22'33'4'55'6	0.047	0.030	109
110	42.19	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.062	0.039	110
111	43.47	7:1	189	.9142	233'44'55'	0.010	0.007	111
112	45.10	8:3	195	.9321	22'33'44'56	0.017	0.011	112
113	45.64	9:4	208	.9320	22'33'455'66'	0.008	0.005	113
114	46.63	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.15	8:2	194	.9620	22'33'44'55'	0.029	0.018	115
116	49.10	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.59	9:3	206	1.010	22'33'44'55'6	0.012	0.007	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 96.277 PPM

TOTAL MICROMOLES = 0.3543

AVERAGE MOLECULAR WEIGHT = 271.8

NUMBER OF CALIBRATED PEAKS FOUND= 105

35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.013	0.014	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	2.221	2.067	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.704	1.700	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.686	2.500	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.493	0.410	41
42	26.84	4:2	040	.5102	22'33'	0.397	0.369	42
43	27.03	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.551	0.501	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.353	0.321	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.350	0.326	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.051	0.978	46
47	27.55	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.738	1.618	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	4.352	4.030	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.556	0.465	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	1.031	0.960	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	2.329	1.939	51
52	28.41	5:3	089	.5779	22'346'	0.061	0.051	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	1.598	1.331	53
54	28.69	5:2	099	.5880	22'44'5	0.961	0.800	54
55	28.92	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.226	0.189	55
56	29.00	5:2	083 109	.6029	22'33'5 ; 233'46	0.269	0.224	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.628	0.523	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.551	0.459	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.233	0.194	59
60	29.60	6:4	136	.6257	22'33'66'	0.154	0.116	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	3.539	3.045	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.170	0.141	63
64	30.33	6:3	151	.6499	22'355'6	0.292	0.220	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.435	0.337	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.60	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.317	0.256	67
68	30.69	5:1	123	.6658	2'344'5	0.033	0.028	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.592	2.087	69
70	30.97	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.017	0.013	70
71	31.20	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.190	0.148	71
72	31.40	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.034	0.028	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.352	0.265	73
74	31.85	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	1.154	0.901	74
75	31.98	6:2	153	.7036	22'44'55'	1.102	0.830	75
76	32.28	6:2	168	.7068	23'44'5'6	0.002	0.001	76
77	32.54	6:2	141	.7203	22'3455'	0.141	0.106	77
78	32.61	7:4	179	.7205	22'33'566'	0.057	0.039	78
79	32.84	6:2	130	.7284	22'33'45'	0.101	0.076	79
80	32.92	6:2	137	.7329	22'344'5	0.102	0.077	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.23	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.968	0.729	82
83	33.41	6:2	158	.7429	233'44'6	0.124	0.093	83
84	33.63	6:2	129	.7501	22'33'45	0.085	0.064	84
85	33.98	7:3	178	.7537	22'33'55'6	0.063	0.043	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.27	7:3	175	.7611	22'33'45'6	0.011	0.008	87
88	34.45	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.148	0.102	88
89	34.59	6:2	128	.7761	22'33'44'	0.134	0.101	89
90	34.77	7:3	183	.7720	22'344'5'6	0.074	0.051	90
91	35.05	6:1	167	.7814	23'44'55'	0.031	0.023	91
92	35.41	7:3	185	.7848	22'3455'6	0.007	0.005	92
93	35.80	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.081	0.056	93
94	36.09	7:3	177	.8031	22'33'4'56	0.097	0.067	94
95	36.40	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.257	0.183	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.69	6:1	157	.8184	233'44'5'	0.058	0.044	97
98	36.84	7:3	173	.8152	22'33'456	0.003	0.002	98
99	37.23	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.004	0.003	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912321F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 10:18

TYPE FOR MIXED PEAK DECONVOLUTION= 3

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.186	1.708	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.216	0.311	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.561	1.901	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.245	0.299	6
7	20.98	2:1	006	.2709	23'	0.544	0.663	7
8	21.19	2:1	005 008	.2785	23 ; 24'	12.832	15.631	8
9	21.68	2:0	014	.2973	35	0.008	0.009	9
10	21.87	3:3	019	.3045	22'6	2.119	2.236	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.226	0.276	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.054	0.065	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.115	1.217	14
15	22.83	3:2	017	.3398	22'4	7.962	8.404	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.334	1.408	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	5.098	5.380	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.218	0.221	19
20	23.97	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	2.375	2.506	21
22	24.15	3:1	025	.3937	23'4	2.333	2.463	22
23	24.34	3:1	031	.4024	24'5	2.980	3.145	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	6.618	6.985	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.561	1.634	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.303	1.369	26
27	25.10	4:3	045	.4334	22'36	0.572	0.532	27
28	25.22	3:1	036	.4379	33'5	0.006	0.006	28
29	25.34	4:3	046	.4450	22'36'	0.162	0.151	29
30	25.45	3:1	039	.4488	34'5	0.024	0.026	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	3.365	3.132	31
32	25.74	4:2	049	.4610	22'45	2.838	2.641	32
33	25.84	4:2	047	.4639	22'44'	2.658	2.474	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912321F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 10:18

Total PCBs in Sample= 96.28 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.40	2.02
Di	15.75	19.15
Tri	35.56	37.48
Tetra	25.46	23.72
Penta	14.64	12.24
Hexa	5.83	4.47
Hepta	1.18	0.81
Octa	0.16	0.10
Nona	0.02	0.01
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.58

Meta + Para Cl / biphenyl Residue = 1.84

TOTAL Cl / biphenyl Residue = 3.42

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.017	0.011	100
101	37.79	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.99	7:2	180	.8362	22'344'55'	0.162	0.108	102
103	38.29	7:2	193	.8397	233'4'55'6	0.012	0.008	103
104	38.58	7:2	191	.8447	233'44'5'6	0.005	0.003	104
105	38.97	8:4	199	.8494	22'33'4566'	0.004	0.003	105
106	40.18	7:2	170	.8740	22'33'44'5	0.124	0.083	106
107	40.46	7:2	190	.8740	233'44'56	0.026	0.017	107
108	41.35	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.61	8:3	201	.8875	22'33'4'55'6	0.070	0.043	109
110	42.20	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.078	0.048	110
111	43.45	7:1	189	.9142	233'44'55'	0.007	0.005	111
112	45.09	8:3	195	.9321	22'33'44'56	0.038	0.023	112
113	45.65	9:4	208	.9320	22'33'455'66'	0.025	0.014	113
114	46.59	9:4	207	.9423	22'33'44'566'	0.005	0.003	114
115	48.12	8:2	194	.9620	22'33'44'55'	0.045	0.028	115
116	49.05	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.54	9:3	206	1.010	22'33'44'55'6	0.025	0.014	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 97.997 PPM

TOTAL MICROMOLES = 0.3717

AVERAGE MOLECULAR WEIGHT = 263.6

NUMBER OF CALIBRATED PEAKS FOUND= 106

34	25.88	4:2	048 075	.4651	22'45 ; 244'6	0.545	0.492	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035	.4738	33'4	0.012	0.012	36
37	26.21	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.615	1.458	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.348	1.304	38
39	26.61	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.570	2.320	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096	.5057	22'366'	0.410	0.331	41
42	26.83	4:2	040	.5102	22'33'	0.318	0.287	42
43	27.03	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.395	0.348	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.184	0.162	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.365	0.330	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.961	0.868	46
47	27.55	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.746	1.576	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.414	3.066	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.479	0.389	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	0.985	0.889	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.552	1.253	51
52	28.41	5:3	089	.5779	22'346'	0.057	0.046	52
53	28.52	5:2	101 090	.5814	22'34'5 ; 22'455'	0.982	0.793	53
54	28.69	5:2	099	.5880	22'44'5	0.547	0.441	54
55	28.92	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.119	0.096	55
56	29.00	5:2	083 109	.6029	22'33'5 ; 233'46	0.177	0.143	56
57	29.18	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.449	0.363	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.544	0.439	58
59	29.47	5:2	085 116	.6224	22'344' ; 23456?	0.238	0.192	59
60	29.59	6:4	136	.6257	22'33'66'	0.097	0.071	60
61	29.70	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.307	1.926	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.175	0.141	63
64	30.33	6:3	151	.6499	22'355'6	0.160	0.117	64
65	30.46	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.269	0.202	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.59	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.160	0.125	67
68	30.68	5:1	123	.6658	2'344'5	0.034	0.027	68
69	30.80	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.618	1.264	69
70	30.97	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.018	0.013	70
71	31.22	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.137	0.104	71
72	31.40	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.024	0.018	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.175	0.128	73
74	31.83	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.917	0.695	74
75	31.98	6:2	153	.7036	22'44'55'	0.477	0.349	75
76	32.26	6:2	168	.7068	23'44'5'6	0.002	0.002	76
77	32.53	6:2	141	.7203	22'3455'	0.115	0.084	77
78	32.61	7:4	179	.7205	22'33'566'	0.053	0.036	78
79	32.84	6:2	130	.7284	22'33'45'	0.076	0.056	79
80	32.92	6:2	137	.7329	22'344'5	0.065	0.047	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.596	0.435	82
83	33.41	6:2	158	.7429	233'44'6	0.088	0.065	83
84	33.63	6:2	129	.7501	22'33'45	0.066	0.048	84
85	33.97	7:3	178	.7537	22'33'55'6	0.052	0.035	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.26	7:3	175	.7611	22'33'45'6	0.014	0.009	87
88	34.44	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.127	0.084	88
89	34.59	6:2	128	.7761	22'33'44'	0.095	0.069	89
90	34.76	7:3	183	.7720	22'344'5'6	0.053	0.036	90
91	35.05	6:1	167	.7814	23'44'55'	0.017	0.012	91
92	35.40	7:3	185	.7848	22'3455'6	0.007	0.005	92
93	35.79	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.056	0.038	93
94	36.07	7:3	177	.8031	22'33'4'56	0.066	0.044	94
95	36.39	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.168	0.116	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.68	6:1	157	.8184	233'44'5'	0.042	0.031	97
98	36.86	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.23	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.008	0.005	99

lcu 3 comp 2

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912160F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 8:56

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.376	1.922	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.210	0.293	4
5	19.60	2:2	004 010	.2245	22' ; 26	1.767	2.088	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.456	0.539	6
7	20.98	2:1	006	.2709	23'	0.705	0.834	7
8	21.18	2:1	005 008	.2785	23 ; 24'	17.340	20.490	8
9	21.68	2:0	014	.2973	35	0.020	0.023	9
10	21.86	3:3	019	.3045	22'6	2.551	2.612	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.191	0.226	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.047	0.056	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.322	1.400	14
15	22.83	3:2	017	.3398	22'4	10.439	10.688	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	1.747	1.789	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	7.037	7.205	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.291	0.286	19
20	23.95	3:1	029	.3820	245	0.001	0.001	20
21	24.07	3:1	026	.3911	23'5	1.585	1.623	21
22	24.15	3:1	025	.3937	23'4	1.916	1.962	22
23	24.33	3:1	031	.4024	24'5	1.887	1.932	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	8.636	8.841	24
25	24.67	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.772	1.801	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	1.439	1.467	26
27	25.09	4:3	045	.4334	22'36	0.491	0.444	27
28	25.22	3:1	036	.4379	33'5	0.009	0.009	28
29	25.33	4:3	046	.4450	22'36'	0.145	0.131	29
30	25.44	3:1	039	.4488	34'5	0.025	0.025	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	2.491	2.249	31
32	25.73	4:2	049	.4610	22'45	2.132	1.925	32
33	25.83	4:2	047	.4639	22'44'	2.976	2.687	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912160F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 8:56

Total PCBs in Sample= 98.00 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.59	2.22
Di	20.85	24.60
Tri	40.87	41.81
Tetra	21.90	19.81
Penta	10.03	8.13
Hexa	3.57	2.65
Hepta	0.89	0.60
Octa	0.25	0.15
Nona	0.06	0.03
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.55

Meta + Para Cl / biphenyl Residue = 1.64

TOTAL Cl / biphenyl Residue = 3.18

cell 3 comp 1 inj 1.33

100	37.46	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.016	0.011	100
101	37.74	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.97	7:2	180	.8362	22'344'55'	0.140	0.092	102
103	38.25	7:2	193	.8397	233'4'55'6	0.010	0.006	103
104	38.56	7:2	191	.8447	233'44'5'6	0.003	0.002	104
105	38.93	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.14	7:2	170	.8740	22'33'44'5	0.131	0.086	106
107	40.45	7:2	190	.8740	233'44'56	0.020	0.013	107
108	41.32	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.59	8:3	201	.8875	22'33'4'55'6	0.058	0.035	109
110	42.15	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.065	0.040	110
111	43.41	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.04	8:3	195	.9321	22'33'44'56	0.027	0.016	112
113	45.63	9:4	208	.9320	22'33'455'66'	0.012	0.007	113
114	46.58	9:4	207	.9423	22'33'44'566'	0.006	0.003	114
115	48.10	8:2	194	.9620	22'33'44'55'	0.036	0.022	115
116	49.08	8:2	205	.9678	233'44'55'6	0.004	0.002	116
117	54.50	9:3	206	1.010	22'33'44'55'6	0.020	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 110.326 PPM

TOTAL MICROMOLES = 0.4246

AVERAGE MOLECULAR WEIGHT = 259.8

NUMBER OF CALIBRATED PEAKS FOUND= 107

34	25.87	4:2	048	075	.4651	22'45 ; 244'6	0.498	0.443	34
35	0.00	4:2	065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.06	3:0	035		.4738	33'4	0.009	0.009	36
37	26.21	5:4 4:2	104	044	.4832	22'466' ; 22'35'	1.172	1.043	37
38	26.32	3:0 4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.201	1.146	38
39	26.61	4:2	064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.011	1.790	39
40	0.00	4:1	068		.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096		.5057	22'366'	0.415	0.330	41
42	26.83	4:2	040		.5102	22'33'	0.226	0.201	42
43	27.02	5:3 4:1	103	057	.5155	22'45'6 ; 233'5	0.429	0.373	43
44	27.17	5:3 4:1	100	067	.5212	22'44'6 ; 23'4'5	0.180	0.157	44
45	27.30	4:1	058	063	.5267	233'5' ; 234'5	0.401	0.357	45
46	27.44	4:1 5:3	074	094	.5340	244'5 ; 22'356'	0.847	0.753	46
47	27.54	4:1	070	061	.5407	23'4'5 ; 2'345 ; 2345?	1.313	1.168	47
48	27.64	4:1 5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	2.843	2.517	48
49	27.88	5:3 4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.442	0.354	49
50	28.13	4:1	056	060	.5676	233'4' ; 2344'	0.745	0.663	50
51	28.32	6:4 5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.414	1.125	51
52	28.40	5:3	089		.5779	22'346'	0.044	0.035	52
53	28.51	5:2	101	090	.5814	22'34'5 ; 22'455'	0.921	0.733	53
54	28.67	5:2	099		.5880	22'44'5	0.537	0.428	54
55	28.91	6:4 5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.110	0.088	55
56	28.99	5:2	083	109	.6029	22'33'5 ; 233'46	0.162	0.129	56
57	29.17	6:4 5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.391	0.311	57
58	29.33	5:2	087	111	.6175	22'345' ; 233'55' ; 2344'6	0.470	0.374	58
59	29.46	5:2	085	116	.6224	22'344' ; 23456?	0.189	0.151	59
60	29.60	6:4	136		.6257	22'33'66'	0.092	0.066	60
61	29.69	4:0 5:2	077	110	.6295	33'44' ; 233'4'6	1.958	1.611	61
62	0.00	6:3	154		.6349	22'44'56'	0.000	0.000	62
63	30.04	5:2	082		.6453	22'33'4	0.135	0.108	63
64	30.32	6:3	151		.6499	22'355'6	0.160	0.116	64
65	30.45	6:3 5:1	135	124	.6563	22'33'56' ; 2'344'5	0.250	0.185	65
66	0.00	6:3	144		.6584	22'345'6	0.000	0.000	66
67	30.58	5:1 6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.161	0.125	67
68	30.67	5:1	123		.6658	2'344'5	0.026	0.021	68
69	30.79	6:3 5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.511	1.163	69
70	30.97	6:3	139	140	.6707	22'344'6 ; 22'344'6'	0.014	0.010	70
71	31.19	6:3 5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.121	0.090	71
72	31.38	5:1 6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.023	0.018	72
73	31.67	6:2	146	161	.6955	22'34'55' ; 233'45'6	0.173	0.124	73
74	31.82	6:3 5:1	132	105	.7035	22'33'46' ; 233'44'	0.775	0.579	74
75	31.97	6:2	153		.7036	22'44'55'	0.467	0.336	75
76	32.25	6:2	168		.7068	23'44'5'6	0.002	0.001	76
77	32.51	6:2	141		.7203	22'3455'	0.098	0.070	77
78	32.58	7:4	179		.7205	22'33'566'	0.051	0.034	78
79	32.82	6:2	130		.7284	22'33'45'	0.067	0.049	79
80	32.89	6:2	137		.7329	22'344'5	0.060	0.043	80
81	0.00	7:4	176		.7305	22'33'466'	0.000	0.000	81
82	33.20	6:2	138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.557	0.401	82
83	33.40	6:2	158		.7429	233'44'6	0.079	0.057	83
84	33.61	6:2	129		.7501	22'33'45	0.059	0.042	84
85	33.95	7:3	178		.7537	22'33'55'6	0.049	0.032	85
86	0.00	6:2	166		.7572	2344'56	0.000	0.000	86
87	34.24	7:3	175		.7611	22'33'45'6	0.011	0.007	87
88	34.42	7:3	187	182	.7653	22'34'55'6 ; 22'344'56'	0.115	0.076	88
89	34.57	6:2	128		.7761	22'33'44'	0.085	0.061	89
90	34.74	7:3	183		.7720	22'344'5'6	0.051	0.034	90
91	35.02	6:1	167		.7814	23'44'55'	0.018	0.013	91
92	35.38	7:3	185		.7848	22'3455'6	0.007	0.004	92
93	35.77	7:3	174	181	.7965	22'33'456' ; 22'344'56	0.051	0.034	93
94	36.05	7:3	177		.8031	22'33'4'56	0.064	0.042	94
95	36.37	7:3 6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.155	0.106	95
96	0.00	8:4	202		.8089	22'33'55'66'	0.000	0.000	96
97	36.66	6:1	157		.8184	233'44'5'	0.039	0.028	97
98	36.84	7:3	173		.8152	22'33'456	0.002	0.001	98
99	37.21	8:4	200	204	.8197	22'33'45'66' ; 22'344'566'	0.010	0.006	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912159D.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 1 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 7:33

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.704	2.346	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.263	0.362	4
5	19.59	2:2	004 010	.2245	22' ; 26	2.106	2.452	5
6	20.63	2:1	007 009	.2566	24 ; 25	0.289	0.337	6
7	20.97	2:1	006	.2709	23'	0.690	0.803	7
8	21.18	2:1	005 008	.2785	23 ; 24'	21.192	24.681	8
9	21.67	2:0	014	.2973	35	0.013	0.015	9
10	21.86	3:3	019	.3045	22'6	2.977	3.004	10
11	22.12	3:2	030	.3165	246	0.005	0.005	11
12	22.40	2:0	011	.3238	33'	0.123	0.144	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.040	0.047	13
14	22.74	3:2 2:0	018 015	.3387	22'5 ; 44'	0.938	0.979	14
15	22.82	3:2	017	.3398	22'4	10.793	10.891	15
16	23.10	3:2	024 027	.3508	236 ; 23'6	1.921	1.938	16
17	23.38	3:2	016 032	.3625	22'3 ; 24'6	7.394	7.461	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.78	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.307	0.298	19
20	23.95	3:1	029	.3820	245	0.002	0.002	20
21	24.06	3:1	026	.3911	23'5	1.387	1.400	21
22	24.14	3:1	025	.3937	23'4	2.124	2.143	22
23	24.32	3:1	031	.4024	24'5	1.561	1.575	23
24	24.37	3:1 4:3	028 050	.4031	244' ; 22'46	8.852	8.932	24
25	24.66	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.329	1.331	25
26	24.88	3:1 4:3	022 051	.4267	234' ; 22'46'	1.294	1.300	26
27	25.09	4:3	045	.4334	22'36	0.458	0.407	27
28	25.20	3:1	036	.4379	33'5	0.020	0.020	28
29	25.33	4:3	046	.4450	22'36'	0.106	0.094	29
30	25.43	3:1	039	.4488	34'5	0.029	0.029	30
31	25.58	4:2	052 073	.4554	22'55' ; 23'5'6	2.091	1.861	31
32	25.72	4:2	049	.4610	22'45	1.879	1.672	32
33	25.82	4:2	047	.4639	22'44'	3.085	2.745	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912159D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 1 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 7:33

Total PCBs in Sample= 110.33 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.97	2.71
Di	24.69	28.72
Tri	41.18	41.52
Tetra	18.78	16.74
Penta	9.02	7.20
Hexa	3.30	2.42
Hepta	0.82	0.54
Octa	0.21	0.12
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.53

Meta + Para Cl / biphenyl Residue = 1.54

TOTAL Cl / biphenyl Residue = 3.07

Cell 3 Comp 1 Dup 6:12

100	37.48	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.018	0.012	100
101	0.00	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	37.98	7:2	180	.8362	22'344'55'	0.158	0.105	102
103	38.25	7:2	193	.8397	233'4'55'6	0.007	0.005	103
104	38.54	7:2	191	.8447	233'44'5'6	0.004	0.002	104
105	38.91	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.14	7:2	170	.8740	22'33'44'5	0.134	0.089	106
107	40.43	7:2	190	.8740	233'44'56	0.019	0.013	107
108	41.32	8:3	198	.8845	22'33'455'6	0.004	0.003	108
109	41.58	8:3	201	.8875	22'33'4'55'6	0.057	0.035	109
110	42.16	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.071	0.044	110
111	43.42	7:1	189	.9142	233'44'55'	0.005	0.003	111
112	45.05	8:3	195	.9321	22'33'44'56	0.023	0.014	112
113	45.58	9:4	208	.9320	22'33'455'66'	0.018	0.010	113
114	46.59	9:4	207	.9423	22'33'44'566'	0.003	0.001	114
115	48.09	8:2	194	.9620	22'33'44'55'	0.042	0.026	115
116	49.05	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.50	9:3	206	1.010	22'33'44'55'6	0.020	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 70.171 PPM

TOTAL MICROMOLES = 0.2655

AVERAGE MOLECULAR WEIGHT = 264.3

NUMBER OF CALIBRATED PEAKS FOUND= 105

level 5 comp 1 dup 6:12

34	25.87	4:2	048	075	.4651	22'45 ; 244'6	0.564	0.510	34
35	0.00	4:2	065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.06	3:0	035		.4738	33'4	0.012	0.012	36
37	26.21	5:4 4:2	104	044	.4832	22'466' ; 22'35'	1.638	1.482	37
38	26.32	3:0 4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.486	1.441	38
39	26.61	4:2	064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.459	2.225	39
40	0.00	4:1	068		.5040	23'45' ?	0.000	0.000	40
41	26.74	5:4	096		.5057	22'366'	0.401	0.325	41
42	26.83	4:2	040		.5102	22'33'	0.317	0.287	42
43	27.02	5:3 4:1	103	057	.5155	22'45'6 ; 233'5	0.363	0.321	43
44	27.17	5:3 4:1	100	067	.5212	22'44'6 ; 23'4'5	0.185	0.164	44
45	27.30	4:1	058	063	.5267	233'5' ; 234'5	0.365	0.331	45
46	27.44	4:1 5:3	074	094	.5340	244'5 ; 22'356'	1.042	0.943	46
47	27.54	4:1	070	061	.5407	23'4'5 ; 2'345 ; 2345?	1.838	1.663	47
48	27.64	4:1 5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	3.555	3.202	48
49	27.88	5:3 4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.483	0.393	49
50	28.13	4:1	056	060	.5676	233'4' ; 2344'	1.063	0.962	50
51	28.32	6:4 5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.549	1.254	51
52	28.40	5:3	089		.5779	22'346'	0.056	0.045	52
53	28.51	5:2	101	090	.5814	22'34'5 ; 22'455'	1.047	0.848	53
54	28.67	5:2	099		.5880	22'44'5	0.592	0.479	54
55	28.91	6:4 5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.104	0.085	55
56	28.99	5:2	083	109	.6029	22'33'5 ; 233'46	0.170	0.137	56
57	29.17	6:4 5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.492	0.399	57
58	29.33	5:2	087	111	.6175	22'345' ; 233'55' ; 2344'6	0.641	0.519	58
59	29.46	5:2	085	116	.6224	22'344' ; 23456?	0.231	0.187	59
60	29.59	6:4	136		.6257	22'33'66'	0.100	0.073	60
61	29.69	4:0 5:2	077	110	.6295	33'44' ; 233'4'6	2.234	1.870	61
62	0.00	6:3	154		.6349	22'44'56'	0.000	0.000	62
63	30.04	5:2	082		.6453	22'33'4	0.196	0.158	63
64	30.32	6:3	151		.6499	22'355'6	0.164	0.120	64
65	30.45	6:3 5:1	135	124	.6563	22'33'56' ; 2'344'5	0.278	0.210	65
66	0.00	6:3	144		.6584	22'345'6	0.000	0.000	66
67	30.58	5:1 6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.177	0.139	67
68	30.68	5:1	123		.6658	2'344'5	0.039	0.031	68
69	30.79	6:3 5:1	119	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.750	1.370	69
70	30.96	6:3	139	140	.6707	22'344'6 ; 22'344'6'	0.016	0.012	70
71	31.20	6:3 5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.149	0.113	71
72	31.38	5:1 6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.026	0.021	72
73	31.67	6:2	146	161	.6955	22'34'55' ; 233'45'6	0.176	0.129	73
74	31.81	6:3 5:1	132	105	.7035	22'33'46' ; 233'44'	0.994	0.755	74
75	31.96	6:2	153		.7036	22'44'55'	0.514	0.376	75
76	32.27	6:2	168		.7068	23'44'5'6	0.002	0.001	76
77	32.51	6:2	141		.7203	22'3455'	0.137	0.101	77
78	32.58	7:4	179		.7209	22'33'566'	0.053	0.035	78
79	32.82	6:2	130		.7284	22'33'45'	0.090	0.066	79
80	32.90	6:2	137		.7329	22'344'5	0.061	0.044	80
81	0.00	7:4	176		.7305	22'33'466'	0.000	0.000	81
82	33.20	6:2	138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.653	0.478	82
83	33.39	6:2	158		.7429	233'44'6	0.103	0.075	83
84	33.61	6:2	129		.7501	22'33'45	0.080	0.059	84
85	33.95	7:3	178		.7537	22'33'55'6	0.048	0.032	85
86	0.00	6:2	166		.7572	2344'56	0.000	0.000	86
87	34.24	7:3	175		.7611	22'33'45'6	0.010	0.007	87
88	34.42	7:3	187	182	.7653	22'34'55'6 ; 22'344'56'	0.124	0.083	88
89	34.57	6:2	128		.7761	22'33'44'	0.107	0.079	89
90	34.74	7:3	183		.7720	22'344'5'6	0.057	0.038	90
91	35.02	6:1	167		.7814	23'44'55'	0.020	0.015	91
92	35.38	7:3	185		.7848	22'3455'6	0.008	0.005	92
93	35.76	7:3	174	181	.7965	22'33'456' ; 22'344'56	0.058	0.039	93
94	36.05	7:3	177		.8031	22'33'4'56	0.065	0.044	94
95	36.37	7:3 6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.185	0.128	95
96	0.00	8:4	202		.8089	22'33'55'66'	0.000	0.000	96
97	36.66	6:1	157		.8184	233'44'5'	0.050	0.037	97
98	36.83	7:3	173		.8152	22'33'456	0.001	0.001	98
99	37.21	8:4	200	204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912158D.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 1 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 6:12

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.628	2.281	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.252	0.353	4
5	19.59	2:2	004 010	.2245	22' ; 26	1.976	2.341	5
6	20.63	2:1	007 009	.2566	24 ; 25	0.290	0.344	6
7	20.97	2:1	006	.2709	23'	0.728	0.862	7
8	21.18	2:1	005 008	.2785	23 ; 24'	16.135	19.115	8
9	21.68	2:0	014	.2973	35	0.015	0.018	9
10	21.86	3:3	019	.3045	22'6	2.916	2.993	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.40	2:0	011	.3238	33'	0.186	0.220	12
13	22.58	2:0	012 013	.3297	34 ; 34'	0.060	0.071	13
14	22.74	3:2 2:0	018 015	.3387	22'5 ; 44'	1.129	1.199	14
15	22.82	3:2	017	.3398	22'4	10.134	10.401	15
16	23.10	3:2	024 027	.3508	236 ; 23'6	1.869	1.918	16
17	23.38	3:2	016 032	.3625	22'3 ; 24'6	7.063	7.249	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.78	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.279	0.275	19
20	23.97	3:1	029	.3820	245	0.003	0.004	20
21	24.06	3:1	026	.3911	23'5	1.727	1.773	21
22	24.14	3:1	025	.3937	23'4	2.258	2.318	22
23	24.32	3:1	031	.4024	24'5	1.994	2.047	23
24	24.36	3:1 4:3	028 050	.4031	244' ; 22'46	8.036	8.248	24
25	24.66	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.508	1.536	25
26	24.88	3:1 4:3	022 051	.4267	234' ; 22'46'	1.540	1.573	26
27	25.09	4:3	045	.4334	22'36	0.522	0.473	27
28	25.20	3:1	036	.4379	33'5	0.006	0.006	28
29	25.33	4:3	046	.4450	22'36'	0.152	0.138	29
30	25.43	3:1	039	.4488	34'5	0.037	0.038	30
31	25.58	4:2	052 073	.4554	22'55' ; 23'5'6	2.509	2.271	31
32	25.72	4:2	049	.4610	22'45	2.055	1.860	32
33	25.82	4:2	047	.4639	22'44'	3.022	2.735	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912158D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 1 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 6:12

Total PCBs in Sample= 70.17 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.88	2.63
Di	19.67	23.27
Tri	40.86	41.89
Tetra	22.26	20.19
Penta	10.33	8.39
Hexa	3.87	2.89
Hepta	0.88	0.59
Octa	0.21	0.13
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.56

Meta + Para Cl / biphenyl Residue = 1.64

TOTAL Cl / biphenyl Residue = 3.20

Col 3 Grp 1

100	37.15	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.021	0.014	100
101	37.75	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.97	7:2	180	.8362	22'344'55'	0.135	0.091	102
103	38.25	7:2	193	.8397	233'4'55'6	0.009	0.006	103
104	38.58	7:2	191	.8447	233'44'5'6	0.003	0.002	104
105	38.96	8:4	199	.8494	22'33'4566'	0.004	0.003	105
106	40.15	7:2	170	.8740	22'33'44'5	0.120	0.080	106
107	40.43	7:2	190	.8740	233'44'56	0.022	0.015	107
108	41.31	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.58	8:3	201	.8875	22'33'4'55'6	0.041	0.025	109
110	42.17	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.067	0.041	110
111	43.39	7:1	189	.9142	233'44'55'	0.005	0.003	111
112	45.07	8:3	195	.9321	22'33'44'56	0.025	0.015	112
113	45.62	9:1	208	.9320	22'33'455'66'	0.016	0.009	113
114	46.62	9:4	207	.9423	22'33'44'566'	0.004	0.002	114
115	48.08	8:2	194	.9620	22'33'44'55'	0.033	0.020	115
116	49.09	8:2	205	.9678	233'44'55'6	0.004	0.002	116
117	54.52	9:3	206	1.010	22'33'44'55'6	0.020	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 125.864 PPM

TOTAL MICROMOLES = 0.4755

AVERAGE MOLECULAR WEIGHT = 264.7

NUMBER OF CALIBRATED PEAKS FOUND= 106

34	25.87	4:2		048	075	.4651	22'45 ; 244'6	0.546	0.495	34
35	0.00	4:2		065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0		035		.4738	33'4	0.026	0.026	36
37	26.21	5:4	4:2	104	044	.4832	22'466' ; 22'35'	2.347	2.128	37
38	26.32	3:0	4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.764	1.714	38
39	26.61	4:2		064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.591	2.349	39
40	0.00	4:1		068		.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4		096		.5057	22'366'	0.452	0.366	41
42	26.83	4:2		040		.5102	22'33'	0.467	0.423	42
43	27.02	5:3	4:1	103	057	.5155	22'45'6 ; 233'5	0.464	0.411	43
44	27.17	5:3	4:1	100	067	.5212	22'44'6 ; 23'4'5	0.268	0.238	44
45	27.30	4:1		058	063	.5267	233'5' ; 234'5	0.365	0.331	45
46	27.44	4:1	5:3	074	094	.5340	244'5 ; 22'356'	0.836	0.758	46
47	27.54	4:1		070	061	.5407	23'4'5 ; 2'345 ; 2345?	1.396	1.266	47
48	27.64	4:1	5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	3.188	2.875	48
49	27.88	5:3	4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.503	0.410	49
50	28.13	4:1		056	060	.5676	233'4' ; 2344'	0.703	0.637	50
51	28.32	6:4	5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.873	1.519	51
52	28.40	5:3		089		.5779	22'346'	0.053	0.043	52
53	28.51	5:2		101	090	.5814	22'34'5 ; 22'455'	1.092	0.886	53
54	28.68	5:2		099		.5880	22'44'5	0.602	0.488	54
55	28.91	6:4	5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.136	0.110	55
56	28.99	5:2		083	109	.6029	22'33'5 ; 233'46	0.191	0.155	56
57	29.18	6:4	5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.424	0.344	57
58	29.33	5:2		087	111	.6175	22'345' ; 233'55' ; 2344'6	0.443	0.359	58
59	29.46	5:2		085	116	.6224	22'344' ; 23456?	0.156	0.126	59
60	29.58	6:4		136		.6257	22'33'66'	0.114	0.084	60
61	29.69	4:0	5:2	077	110	.6295	33'44' ; 233'4'6	2.515	2.108	61
62	0.00	6:3		154		.6349	22'44'56'	0.000	0.000	62
63	30.04	5:2		082		.6453	22'33'4	0.119	0.096	63
64	30.32	6:3		151		.6499	22'355'6	0.190	0.139	64
65	30.45	6:3	5:1	135	124	.6563	22'33'56' ; 2'344'5	0.296	0.224	65
66	0.00	6:3		144		.6584	22'345'6	0.000	0.000	66
67	30.59	5:1	6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.177	0.139	67
68	30.67	5:1		123		.6658	2'344'5	0.016	0.013	68
69	30.79	6:3	5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.665	1.305	69
70	30.95	6:3		139	140	.6707	22'344'6 ; 22'344'6'	0.013	0.009	70
71	31.18	6:3	5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.118	0.090	71
72	31.39	5:1	6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.025	0.020	72
73	31.67	6:2		146	161	.6955	22'34'55' ; 233'45'6	0.224	0.164	73
74	31.82	6:3	5:1	132	105	.7035	22'33'46' ; 233'44'	0.759	0.577	74
75	31.97	6:2		153		.7036	22'44'55'	0.615	0.451	75
76	32.26	6:2		168		.7068	23'44'5'6	0.004	0.003	76
77	32.52	6:2		141		.7203	22'3455'	0.103	0.076	77
78	32.60	7:4		179		.7205	22'33'566'	0.059	0.039	78
79	32.81	6:2		130		.7284	22'33'45'	0.073	0.054	79
80	32.90	6:2		137		.7329	22'344'5	0.062	0.046	80
81	0.00	7:4		176		.7305	22'33'466'	0.000	0.000	81
82	33.21	6:2		138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.671	0.492	82
83	33.40	6:2		158		.7429	233'44'6	0.093	0.068	83
84	33.61	6:2		129		.7501	22'33'45	0.064	0.047	84
85	33.95	7:3		178		.7537	22'33'55'6	0.041	0.027	85
86	0.00	6:2		166		.7572	2344'56	0.000	0.000	86
87	34.24	7:3		175		.7611	22'33'45'6	0.010	0.007	87
88	34.43	7:3		187	182	.7653	22'34'55'6 ; 22'344'56'	0.111	0.075	88
89	34.57	6:2		128		.7761	22'33'44'	0.101	0.074	89
90	34.74	7:3		183		.7720	22'344'5'6	0.047	0.031	90
91	35.02	6:1		167		.7814	23'44'55'	0.018	0.013	91
92	35.40	7:3		185		.7848	22'3455'6	0.006	0.004	92
93	35.77	7:3		174	181	.7965	22'33'456' ; 22'344'56	0.055	0.037	93
94	36.05	7:3		177		.8031	22'33'4'56	0.064	0.043	94
95	36.37	7:3	6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.166	0.115	95
96	36.65	8:4		202		.8089	22'33'55'66'	0.005	0.003	96
97	0.00	6:1		157		.8184	233'44'5'	0.000	0.000	97
98	36.84	7:3		173		.8152	22'33'456	0.002	0.002	98
99	37.20	8:4		200	204	.8197	22'33'45'66' ; 22'344'566'	0.008	0.005	99

Cell 3 comp +

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912157F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 1:50

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.663	2.333	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.161	0.226	4
5	19.59	2:2	004 010	.2245	22' ; 26	1.769	2.098	5
6	20.63	2:1	007 009	.2566	24 ; 25	0.320	0.380	6
7	20.97	2:1	006	.2709	23'	0.871	1.033	7
8	21.18	2:1	005 008	.2785	23 ; 24'	15.829	18.779	8
9	21.68	2:0	014	.2973	35	0.030	0.035	9
10	21.86	3:3	019	.3045	22'6	2.044	2.101	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.40	2:0	011	.3238	33'	0.254	0.301	12
13	22.58	2:0	012 013	.3297	34 ; 34'	0.085	0.101	13
14	22.74	3:2 2:0	018 015	.3387	22'5 ; 44'	1.483	1.576	14
15	22.82	3:2	017	.3398	22'4	8.886	9.134	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	1.447	1.487	16
17	23.38	3:2	016 032	.3625	22'3 ; 24'6	5.388	5.538	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.78	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.258	0.254	19
20	23.94	3:1	029	.3820	245	0.003	0.003	20
21	24.06	3:1	026	.3911	23'5	2.841	2.921	21
22	24.14	3:1	025	.3937	23'4	2.830	2.909	22
23	24.32	3:1	031	.4024	24'5	3.957	4.068	23
24	24.37	3:1 4:3	028 050	.4031	244' ; 22'46	6.955	7.149	24
25	24.66	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.940	1.979	25
26	24.88	3:1 4:3	022 051	.4267	234' ; 22'46'	1.490	1.524	26
27	25.09	4:3	045	.4334	22'36	0.681	0.617	27
28	25.20	3:1	036	.4379	33'5	0.011	0.011	28
29	25.33	4:3	046	.4450	22'36'	0.223	0.203	29
30	25.43	3:1	039	.4488	34'5	0.028	0.029	30
31	25.58	4:2	052 073	.4554	22'55' ; 23'5'6	3.280	2.973	31
32	25.73	4:2	049	.4610	22'45	2.668	2.418	32
33	25.82	4:2	047	.4639	22'44'	2.580	2.338	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912157F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 3 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 4:50

Total PCBs in Sample= 125.86 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.82	2.56
Di	19.52	23.12
Tri	39.99	41.06
Tetra	23.33	21.20
Penta	10.53	8.58
Hexa	3.75	2.80
Hepta	0.81	0.55
Octa	0.19	0.12
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.53

Meta + Para Cl / biphenyl Residue = 1.68

TOTAL Cl / biphenyl Residue = 3.21

Cell 2 comp 5

100	37.49	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.014	0.009	100
101	37.78	8:4	197	.8293	22'33'44'66'	0.002	0.001	101
102	37.99	7:2	180	.8362	22'344'55'	0.128	0.084	102
103	38.28	7:2	193	.8397	233'4'55'6	0.009	0.006	103
104	38.59	7:2	191	.8447	233'44'5'6	0.002	0.001	104
105	38.93	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.16	7:2	170	.8740	22'33'44'5	0.103	0.068	106
107	40.46	7:2	190	.8740	233'44'56	0.016	0.011	107
108	41.36	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.61	8:3	201	.8875	22'33'4'55'6	0.059	0.036	109
110	42.19	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.062	0.037	110
111	43.43	7:1	189	.9142	233'44'55'	0.004	0.003	111
112	45.07	8:3	195	.9321	22'33'44'56	0.023	0.014	112
113	45.66	9:4	208	.9320	22'33'455'66'	0.011	0.006	113
114	46.58	9:4	207	.9423	22'33'44'566'	0.005	0.003	114
115	48.13	8:2	194	.9620	22'33'44'55'	0.041	0.025	115
116	49.17	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.57	9:3	206	1.010	22'33'44'55'6	0.023	0.013	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 125.035 PPM

TOTAL MICROMOLES = 0.4801

AVERAGE MOLECULAR WEIGHT = 260.4

NUMBER OF CALIBRATED PEAKS FOUND= 106

34	25.88	4:2	048	075	.4651	22'45 ; 344'6	0.535	0.477	34
35	0.00	4:2	065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035		.4738	33'4	0.012	0.012	36
37	26.21	5:4 4:2	104	044	.4832	22'466' ; 22'35'	1.007	0.898	37
38	26.32	3:0 4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.134	1.084	38
39	26.61	4:2	064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	1.922	1.715	39
40	0.00	4:1	068		.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096		.5057	22'366'	0.415	0.331	41
42	26.83	4:2	040		.5102	22'33'	0.194	0.173	42
43	27.03	5:3 4:1	103	057	.5155	22'45'6 ; 233'5	0.383	0.334	43
44	27.18	5:3 4:1	100	067	.5212	22'44'6 ; 23'4'5	0.182	0.158	44
45	27.30	4:1	058	063	.5267	233'5' ; 234'5	0.415	0.370	45
46	27.45	4:1 5:3	074	094	.5340	244'5 ; 22'356'	0.792	0.707	46
47	27.55	4:1	070	061	.5407	23'4'5 ; 2'345 ; 2345?	1.481	1.320	47
48	27.65	4:1 5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	2.964	2.630	48
49	27.89	5:3 4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.398	0.319	49
50	28.13	4:1	056	060	.5676	233'4' ; 2344'	0.675	0.602	50
51	28.33	6:4 5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.311	1.046	51
52	28.41	5:3	089		.5779	22'346'	0.038	0.031	52
53	28.52	5:2	101	090	.5814	22'34'5 ; 22'455'	0.980	0.782	53
54	28.68	5:2	099		.5880	22'44'5	0.600	0.479	54
55	28.92	6:4 5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.115	0.092	55
56	29.00	5:2	083	109	.6029	22'33'5 ; 233'46	0.156	0.124	56
57	29.18	6:4 5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.394	0.315	57
58	29.34	5:2	087	111	.6175	22'345' ; 233'55' ; 2344'6	0.375	0.300	58
59	29.47	5:2	085	116	.6224	22'344' ; 23456?	0.138	0.110	59
60	29.60	6:4	136		.6257	22'33'66'	0.087	0.063	60
61	29.70	4:0 5:2	077	110	.6295	33'44' ; 233'4'6	1.925	1.587	61
62	0.00	6:3	154		.6349	22'44'56'	0.000	0.000	62
63	30.05	5:2	082		.6453	22'33'4	0.097	0.077	63
64	30.33	6:3	151		.6499	22'355'6	0.154	0.111	64
65	30.46	6:3 5:1	135	124	.6563	22'33'56' ; 2'344'5	0.219	0.162	65
66	0.00	6:3	144		.6584	22'345'6	0.000	0.000	66
67	30.59	5:1 6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.182	0.141	67
68	30.68	5:1	123		.6658	2'344'5	0.019	0.015	68
69	30.80	6:3 5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.545	1.192	69
70	30.97	6:3	139	140	.6707	22'344'6 ; 22'344'6'	0.015	0.011	70
71	31.20	6:3 5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.101	0.076	71
72	31.40	5:1 6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.021	0.017	72
73	31.68	6:2	146	161	.6955	22'34'55' ; 233'45'6	0.191	0.138	73
74	31.83	6:3 5:1	132	105	.7035	22'33'46' ; 233'44'	0.614	0.460	74
75	31.97	6:2	153		.7036	22'44'55'	0.461	0.333	75
76	32.26	6:2	168		.7068	23'44'5'6	0.002	0.002	76
77	32.53	6:2	141		.7203	22'3455'	0.078	0.056	77
78	32.59	7:4	179		.7205	22'33'566'	0.050	0.033	78
79	32.83	6:2	130		.7284	22'33'45'	0.055	0.040	79
80	32.90	6:2	137		.7329	22'344'5	0.043	0.031	80
81	0.00	7:4	176		.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2	138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.473	0.341	82
83	33.41	6:2	158		.7429	233'44'6	0.061	0.044	83
84	33.62	6:2	129		.7501	22'33'45	0.045	0.032	84
85	33.97	7:3	178		.7537	22'33'55'6	0.045	0.030	85
86	0.00	6:2	166		.7572	2344'56	0.000	0.000	86
87	34.25	7:3	175		.7611	22'33'45'6	0.011	0.007	87
88	34.44	7:3	187	182	.7653	22'34'55'6 ; 22'344'56'	0.117	0.077	88
89	34.58	6:2	128		.7761	22'33'44'	0.065	0.047	89
90	34.75	7:3	183		.7720	22'344'5'6	0.041	0.027	90
91	35.03	6:1	167		.7814	23'44'55'	0.013	0.009	91
92	35.40	7:3	185		.7848	22'3455'6	0.006	0.004	92
93	35.79	7:3	174	181	.7965	22'33'456' ; 22'344'56	0.048	0.032	93
94	36.07	7:3	177		.8031	22'33'4'56	0.062	0.041	94
95	36.38	7:3 6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.118	0.081	95
96	0.00	8:4	202		.8089	22'33'55'66'	0.000	0.000	96
97	36.67	6:1	157		.8184	233'44'5'	0.034	0.025	97
98	36.85	7:3	173		.8152	22'33'456	0.002	0.001	98
99	37.22	8:4	200	204	.8197	22'33'45'66' ; 22'344'566'	0.008	0.005	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912156F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 2:07

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.415	1.952	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.240	0.331	4
5	19.60	2:2	004 010	.2245	22' ; 26	1.962	2.290	5
6	20.63	2:1	007 009	.2566	24 ; 25	0.294	0.343	6
7	20.98	2:1	006	.2709	23'	0.821	0.958	7
8	21.18	2:1	005 008	.2785	23 ; 24'	19.441	22.693	8
9	21.67	2:0	014	.2973	35	0.014	0.017	9
10	21.86	3:3	019	.3045	22'6	3.064	3.099	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.100	0.116	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.025	0.029	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	0.907	0.949	14
15	22.82	3:2	017	.3398	22'4	10.835	10.957	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	2.197	2.222	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	7.759	7.847	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.329	0.320	19
20	23.97	3:1	029	.3820	245	0.001	0.001	20
21	24.07	3:1	026	.3911	23'5	1.190	1.203	21
22	24.14	3:1	025	.3937	23'4	1.898	1.919	22
23	24.32	3:1	031	.4024	24'5	1.490	1.507	23
24	24.37	3:1 4:3	028 050	.4031	244' ; 22'46	10.999	11.124	24
25	24.72	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.686	1.692	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	1.255	1.263	26
27	25.09	4:3	045	.4334	22'36	0.345	0.308	27
28	25.21	3:1	036	.4379	33'5	0.007	0.007	28
29	25.33	4:3	046	.4450	22'36'	0.098	0.088	29
30	25.45	3:1	039	.4488	34'5	0.039	0.040	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	2.178	1.943	31
32	25.73	4:2	049	.4610	22'45	1.942	1.732	32
33	25.83	4:2	047	.4639	22'44'	3.335	2.975	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912156F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 2:07

Total PCBs in Sample= 125.03 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.65	2.28
Di	22.88	26.68
Tri	43.85	44.31
Tetra	18.95	16.93
Penta	8.72	6.98
Hexa	2.97	2.19
Hepta	0.73	0.48
Octa	0.20	0.12
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.53

Meta + Para Cl / biphenyl Residue = 1.56

TOTAL Cl / biphenyl Residue = 3.09

100	37.49	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.031	0.022	100
101	0.00	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	38.00	7:2	180	.8362	22'344'55'	0.212	0.151	102
103	38.26	7:2	193	.8397	233'4'55'6	0.009	0.007	103
104	38.59	7:2	191	.8447	233'44'5'6	0.007	0.005	104
105	38.95	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.17	7:2	170	.8740	22'33'44'5	0.210	0.150	106
107	40.48	7:2	190	.8740	233'44'56	0.043	0.031	107
108	41.37	8:3	198	.8845	22'33'455'6	0.001	0.001	108
109	41.62	8:3	201	.8875	22'33'4'55'6	0.040	0.026	109
110	42.20	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.049	0.032	110
111	43.45	7:1	189	.9142	233'44'55'	0.010	0.007	111
112	45.08	8:3	195	.9321	22'33'44'56	0.021	0.014	112
113	45.66	9:4	208	.9320	22'33'455'66'	0.012	0.007	113
114	46.62	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.13	8:2	194	.9620	22'33'44'55'	0.025	0.017	115
116	49.17	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.55	9:3	206	1.010	22'33'44'55'6	0.012	0.007	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 361.632 PPM

TOTAL MICROMOLES = 1.2837

AVERAGE MOLECULAR WEIGHT = 281.7

NUMBER OF CALIBRATED PEAKS FOUND= 105

Cell 2 Comp 4

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.852	0.822	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035	.4738	33'4	0.023	0.025	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	4.362	4.208	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	2.208	2.283	38
39	26.61	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	3.616	3.489	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096	.5057	22'366'	0.323	0.278	41
42	26.83	4:2	040	.5102	22'33'	0.868	0.837	42
43	27.03	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.230	0.216	43
44	27.17	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.201	0.190	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.265	0.256	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.498	1.445	46
47	27.55	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	4.786	4.617	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	6.667	6.400	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.547	0.475	49
50	28.13	4:1	056 060	.5676	233'4' ; 2344'	2.188	2.111	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	2.272	1.961	51
52	28.41	5:3	089	.5779	22'346'	0.088	0.076	52
53	28.52	5:2	101 090	.5814	22'34'5 ; 22'455'	1.848	1.595	53
54	28.68	5:2	099	.5880	22'44'5	0.828	0.715	54
55	28.92	6:4 5:3	150 112	.5969	22'34'66' ; 233'56 ; 33'44'6	0.104	0.090	55
56	29.00	5:2	083 109	.6029	22'33'5 ; 233'46	0.219	0.189	56
57	29.18	6:4 5:3	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.866	0.747	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	1.168	1.008	58
59	29.47	5:2	085 116	.6224	22'344' ; 23456?	0.395	0.341	59
60	29.62	6:4	136	.6257	22'33'66'	0.153	0.120	60
61	29.70	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	3.671	3.274	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.05	5:2	082	.6453	22'33'4	0.379	0.327	63
64	30.33	6:3	151	.6499	22'355'6	0.240	0.187	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.490	0.394	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.59	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.268	0.224	67
68	30.68	5:1	123	.6658	2'344'5	0.074	0.064	68
69	30.80	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	3.041	2.539	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.027	0.021	70
71	31.21	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.237	0.192	71
72	31.39	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.041	0.034	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.241	0.188	73
74	31.83	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	1.755	1.421	74
75	31.98	6:2	153	.7036	22'44'55'	1.041	0.813	75
76	32.27	6:2	168	.7068	23'44'5'6	0.002	0.002	76
77	32.53	6:2	141	.7203	22'3455'	0.333	0.260	77
78	32.60	7:4	179	.7205	22'33'566'	0.049	0.035	78
79	32.83	6:2	130	.7284	22'33'45'	0.223	0.174	79
80	32.91	6:2	137	.7329	22'344'5	0.132	0.103	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	1.387	1.082	82
83	33.41	6:2	158	.7429	233'44'6	0.271	0.211	83
84	33.63	6:2	129	.7501	22'33'45	0.244	0.190	84
85	33.98	7:3	178	.7537	22'33'55'6	0.056	0.040	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.27	7:3	175	.7611	22'33'45'6	0.009	0.007	87
88	34.44	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.109	0.078	88
89	34.58	6:2	128	.7761	22'33'44'	0.275	0.215	89
90	34.76	7:3	183	.7720	22'344'5'6	0.087	0.062	90
91	35.04	6:1	167	.7814	23'44'55'	0.058	0.045	91
92	35.40	7:3	185	.7848	22'3455'6	0.010	0.007	92
93	35.78	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.103	0.073	93
94	36.08	7:3	177	.8031	22'33'4'56	0.073	0.052	94
95	36.39	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.451	0.333	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.68	6:1	157	.8184	233'44'5'	0.119	0.093	97
98	36.87	7:3	173	.8152	22'33'456	0.004	0.003	98
99	37.23	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.004	0.003	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

AREA FILE NAME: 912155F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 0:45

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	0.722	1.078	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.097	0.144	4
5	19.60	2:2	004 010	.2245	22' ; 26	0.754	0.952	5
6	20.63	2:1	007 009	.2566	24 ; 25	0.101	0.128	6
7	20.98	2:1	006	.2709	23'	0.482	0.608	7
8	21.18	2:1	005 008	.2785	23 ; 24'	7.931	10.015	8
9	21.68	2:0	014	.2973	35	0.014	0.018	9
10	21.86	3:3	019	.3045	22'6	0.911	0.997	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.080	0.101	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.037	0.047	13
14	22.74	3:2 2:0	018 015	.3387	22'5 ; 44'	2.089	2.363	14
15	22.82	3:2	017	.3398	22'4	4.323	4.729	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	0.638	0.698	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	3.412	3.733	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.165	0.174	19
20	23.95	3:1	029	.3820	245	0.005	0.005	20
21	24.07	3:1	026	.3911	23'5	1.396	1.527	21
22	24.15	3:1	025	.3937	23'4	1.047	1.145	22
23	24.33	3:1	031	.4024	24'5	3.625	3.966	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	4.713	5.156	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	2.419	2.626	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	1.830	1.993	26
27	25.10	4:3	045	.4334	22'36	0.731	0.705	27
28	25.25	3:1	036	.4379	33'5	0.003	0.003	28
29	25.34	4:3	046	.4450	22'36'	0.356	0.344	29
30	25.44	3:1	039	.4488	34'5	0.013	0.014	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	4.605	4.443	31
32	25.73	4:2	049	.4610	22'45	2.981	2.876	32
33	25.83	4:2	047	.4639	22'44'	1.753	1.691	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912155F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 29-AUG-1991 0:45

Total PCBs in Sample= 361.63 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	0.82	1.22
Di	9.92	12.46
Tri	27.10	29.60
Tetra	36.80	35.55
Penta	16.33	14.12
Hexa	7.56	6.00
Hepta	1.30	0.93
Octa	0.15	0.10
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.59

Meta + Para Cl / biphenyl Residue = 2.13

TOTAL Cl / biphenyl Residue = 3.71

100	37.48	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.022	0.015	100
101	0.00	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	38.00	7:2	180	.8362	22'344'55'	0.159	0.107	102
103	38.29	7:2	193	.8397	233'4'55'6	0.010	0.007	103
104	38.59	7:2	191	.8447	233'44'5'6	0.004	0.003	104
105	38.97	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.18	7:2	170	.8740	22'33'44'5	0.142	0.095	106
107	40.47	7:2	190	.8740	233'44'56	0.024	0.016	107
108	41.37	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.61	8:3	201	.8875	22'33'4'55'6	0.057	0.035	109
110	42.20	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.062	0.039	110
111	43.45	7:1	189	.9142	233'44'55'	0.007	0.004	111
112	45.09	8:3	195	.9321	22'33'44'56	0.021	0.013	112
113	45.65	9:4	208	.9320	22'33'455'66'	0.009	0.005	113
114	46.63	9:4	207	.9423	22'33'44'566'	0.003	0.002	114
115	48.14	8:2	194	.9620	22'33'44'55'	0.034	0.021	115
116	49.10	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.59	9:3	206	1.010	22'33'44'55'6	0.019	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 107.935 PPM

TOTAL MICROMOLES = 0.4059

AVERAGE MOLECULAR WEIGHT = 265.9

NUMBER OF CALIBRATED PEAKS FOUND= 105

cell 2 comp 3

34	25.89	4:2	048	075	.4651	22'45 ; 244'6	0.513	0.467	34
35	0.00	4:2	065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035		.4738	33'4	0.015	0.015	36
37	26.22	5:4 4:2	104	044	.4832	22'466' ; 22'35'	2.384	2.171	37
38	26.33	3:0 4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.819	1.775	38
39	26.62	4:2	064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.616	2.382	39
40	0.00	4:1	068		.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096		.5057	22'366'	0.409	0.333	41
42	26.83	4:2	040		.5102	22'33'	0.457	0.416	42
43	27.03	5:3 4:1	103	057	.5155	22'45'6 ; 233'5	0.346	0.308	43
44	27.18	5:3 4:1	100	067	.5212	22'44'6 ; 23'4'5	0.228	0.203	44
45	27.31	4:1	058	063	.5267	233'5' ; 234'5	0.306	0.279	45
46	27.45	4:1 5:3	074	094	.5340	244'5 ; 22'356'	1.023	0.931	46
47	27.55	4:1	070	061	.5407	23'4'5 ; 2'345 ; 2345?	2.159	1.966	47
48	27.65	4:1 5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	3.891	3.525	48
49	27.89	5:3 4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.478	0.392	49
50	28.14	4:1	056	060	.5676	233'4' ; 2344'	1.021	0.930	50
51	28.33	6:4 5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.813	1.477	51
52	28.41	5:3	089		.5779	22'346'	0.059	0.048	52
53	28.52	5:2	101	090	.5814	22'34'5 ; 22'455'	1.172	0.955	53
54	28.68	5:2	099		.5880	22'44'5	0.628	0.511	54
55	28.92	6:4 5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.118	0.096	55
56	29.00	5:2	083	109	.6029	22'33'5 ; 233'46	0.185	0.151	56
57	29.18	6:4 5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.518	0.422	57
58	29.34	5:2	087	111	.6175	22'345' ; 233'55' ; 2344'6	0.529	0.431	58
59	29.48	5:2	085	116	.6224	22'344' ; 23456?	0.216	0.176	59
60	29.63	6:4	136		.6257	22'33'66'	0.116	0.085	60
61	29.70	4:0 5:2	077	110	.6295	33'44' ; 233'4'6	2.550	2.147	61
62	0.00	6:3	154		.6349	22'44'56'	0.000	0.000	62
63	30.05	5:2	082		.6453	22'33'4	0.169	0.137	63
64	30.33	6:3	151		.6499	22'355'6	0.193	0.142	64
65	30.47	6:3 5:1	135	124	.6563	22'33'56' ; 2'344'5	0.305	0.231	65
66	0.00	6:3	144		.6584	22'345'6	0.000	0.000	66
67	30.59	5:1 6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.187	0.148	67
68	30.68	5:1	123		.6658	2'344'5	0.026	0.021	68
69	30.80	6:3 5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.882	1.483	69
70	30.98	6:3	139	140	.6707	22'344'6 ; 22'344'6'	0.017	0.012	70
71	31.20	6:3 5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.137	0.105	71
72	31.40	5:1 6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.028	0.022	72
73	31.69	6:2	146	161	.6955	22'34'55' ; 233'45'6	0.212	0.156	73
74	31.83	6:3 5:1	132	105	.7035	22'33'46' ; 233'44'	0.926	0.708	74
75	31.98	6:2	153		.7036	22'44'55'	0.656	0.483	75
76	32.27	6:2	168		.7068	23'44'5'6	0.003	0.002	76
77	32.54	6:2	141		.7203	22'3455'	0.143	0.106	77
78	32.61	7:4	179		.7205	22'33'566'	0.057	0.038	78
79	32.84	6:2	130		.7284	22'33'45'	0.097	0.071	79
80	32.91	6:2	137		.7329	22'344'5	0.077	0.056	80
81	0.00	7:4	176		.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2	138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.761	0.561	82
83	33.41	6:2	158		.7429	233'44'6	0.117	0.086	83
84	33.63	6:2	129		.7501	22'33'45	0.091	0.067	84
85	33.98	7:3	178		.7537	22'33'55'6	0.046	0.031	85
86	0.00	6:2	166		.7572	2344'56	0.000	0.000	86
87	34.25	7:3	175		.7611	22'33'45'6	0.011	0.007	87
88	34.44	7:3	187	182	.7653	22'34'55'6 ; 22'344'56'	0.121	0.081	88
89	34.59	6:2	128		.7761	22'33'44'	0.126	0.093	89
90	34.76	7:3	183		.7720	22'344'5'6	0.058	0.039	90
91	35.04	6:1	167		.7814	23'44'55'	0.025	0.019	91
92	35.41	7:3	185		.7848	22'3455'6	0.008	0.005	92
93	35.79	7:3	174	181	.7965	22'33'456' ; 22'344'56	0.063	0.043	93
94	36.07	7:3	177		.8031	22'33'4'56	0.071	0.048	94
95	36.39	7:3 6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.221	0.154	95
96	0.00	8:4	202		.8089	22'33'55'66'	0.000	0.000	96
97	36.68	6:1	157		.8184	233'44'5'	0.054	0.040	97
98	36.86	7:3	173		.8152	22'33'456	0.002	0.002	98
99	37.23	8:4	200	204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912154F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 23:24

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.538	2.167	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.193	0.272	4
5	19.60	2:2	004 010	.2245	22' ; 26	1.656	1.974	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.207	0.246	6
7	20.98	2:1	006	.2709	23'	0.787	0.938	7
8	21.19	2:1	005 008	.2785	23 ; 24'	17.006	20.270	8
9	21.69	2:0	014	.2973	35	0.016	0.019	9
10	21.86	3:3	019	.3045	22'6	1.892	1.954	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.171	0.203	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.067	0.080	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.467	1.567	14
15	22.83	3:2	017	.3398	22'4	8.375	8.649	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	1.431	1.477	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	5.341	5.516	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.237	0.235	19
20	23.96	3:1	029	.3820	245	0.002	0.002	20
21	24.07	3:1	026	.3911	23'5	2.378	2.456	21
22	24.15	3:1	025	.3937	23'4	2.060	2.127	22
23	24.33	3:1	031	.4024	24'5	3.656	3.775	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	5.353	5.528	24
25	24.67	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.986	2.035	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	1.562	1.606	26
27	25.10	4:3	045	.4334	22'36	0.635	0.578	27
28	25.21	3:1	036	.4379	33'5	0.019	0.019	28
29	25.34	4:3	046	.4450	22'36'	0.249	0.227	29
30	25.45	3:1	039	.4488	34'5	0.027	0.028	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	3.415	3.110	31
32	25.73	4:2	049	.4610	22'45	2.649	2.413	32
33	25.83	4:2	047	.4639	22'44'	2.589	2.358	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912154F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 23:24

Total PCBs in Sample= 107.94 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.73	2.44
Di	20.27	24.12
Tri	36.24	37.38
Tetra	25.23	23.03
Penta	11.06	9.04
Hexa	4.31	3.23
Hepta	0.94	0.64
Octa	0.19	0.12
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.53

Meta + Para Cl / biphenyl Residue = 1.72

TOTAL Cl / biphenyl Residue = 3.25

Cell 2 comps comp 19:14

[illegible]	7.51	[illegible]	72 192	.8272	[illegible]	.024	.016	[illegible]
[illegible]	37.78	[illegible]	197	.8293	22'33'44'66'	0.000	0.000	[illegible]
102	38.02	7:2	180	.8362	22'344'55'	0.166	0.112	102
103	38.28	7:2	193	.8397	233'4'55'6	0.011	0.007	103
104	38.63	7:2	191	.8447	233'44'5'6	0.005	0.003	104
105	38.99	[illegible]	199	.8494	22'33'4566'	0.003	0.002	105
106	40.22	7:2	170	.8740	22'33'44'5	0.163	0.110	106
107	40.51	7:2	190	.8740	233'44'56	0.033	0.022	107
108	41.35	[illegible]	198	.8845	22'33'455'6	0.002	0.001	108
109	41.64	[illegible]	201	.8875	22'33'4'55'6	0.058	0.036	109
110	42.22	[illegible]	196 203	.8935	22'33'44'5'6 : 2'344'55'6	0.061	0.038	110
111	43.48	7:1	189	.9142	233'44'55'	0.007	0.005	111
112	45.12	9:3	195	.9321	22'33'44'56	0.021	0.013	112
113	45.66	9:4	208	.9320	22'33'455'66'	0.013	0.007	113
114	46.62	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.18	8:2	194	.9620	22'33'44'55'	0.035	0.022	115
116	49.15	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.60	9:3	206	1.010	22'33'44'55'6	0.016	0.009	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 116.806 PPM

TOTAL MICROMOLES = 0.4384

AVERAGE MOLECULAR WEIGHT = 266.4

NUMBER OF CALIBRATED PEAKS FOUND= 106

Cell 2' Comp 2 Dup 19:19

34	25.89	4:2		048	075	.4651	22'45 ; 344'6	0.510	0.466	34
35	0.00	4:2		065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0		035		.4738	33'4	0.048	0.049	36
37	26.23	5:4	4:2	104	044	.4832	22'466' ; 22'35'	2.116	1.931	37
38	26.34	3:0	4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.343	1.803	38
39	26.63	4:2		064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.459	2.243	39
40	0.00	4:1		068		.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4		096		.5057	22'366'	0.489	0.399	41
42	26.85	4:2		040		.5102	22'33'	0.406	0.370	42
43	27.04	5:3	4:1	103	057	.5155	22'45'6 ; 233'5	0.491	0.438	43
44	27.19	5:3	4:1	100	067	.5212	22'44'6 ; 23'4'5	0.227	0.202	44
45	27.32	4:1		058	063	.5267	233'5' ; 234'5	0.341	0.311	45
46	27.46	4:1	5:3	074	094	.5340	344'5 ; 22'356'	0.798	0.728	46
47	27.56	4:1		070	061	.5407	23'4'5 ; 2'345 ; 2345?	1.703	1.554	47
48	27.66	4:1	5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	3.492	3.170	48
49	27.90	5:3	4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.538	0.441	49
50	28.15	4:1		056	060	.5676	233'4' ; 2344'	0.850	0.775	50
51	28.34	6:4	5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	1.968	1.606	51
52	28.42	5:3		089		.5779	22'346'	0.049	0.040	52
53	28.53	5:2		101	090	.5814	22'34'5 ; 22'455'	1.161	0.947	53
54	28.69	5:2		099		.5880	22'44'5	0.607	0.496	54
55	28.93	6:4	5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.139	0.113	55
56	29.01	5:2		083	109	.6029	22'33'5 ; 233'46	0.206	0.168	56
57	29.20	6:4	5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	1.447	0.365	57
58	29.35	5:2		087	111	.6175	22'345' ; 233'55' ; 2344'6	3.549	0.448	58
59	29.49	5:2		085	116	.6224	22'344' ; 23456?	0.199	0.163	59
60	29.60	6:4		136		.6257	22'33'66'	0.122	0.090	60
61	29.72	4:0	5:2	077	110	.6295	33'44' ; 233'4'6	2.628	2.217	61
62	0.00	6:3		154		.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2		082		.6453	22'33'4	0.150	0.123	63
64	30.34	6:3		151		.6499	22'355'6	0.251	0.186	64
65	30.48	6:3	5:1	135	124	.6563	22'33'56' ; 2'344'5	0.397	0.302	65
66	0.00	6:3		144		.6584	22'345'6	0.000	0.000	66
67	30.61	5:1	6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.198	0.156	67
68	30.70	5:1		123		.6658	2'344'5	0.032	0.026	68
69	30.82	6:3	5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.902	1.501	69
70	31.01	6:3		139	140	.6707	22'344'6 ; 22'344'6'	0.014	0.010	70
71	31.21	6:3	5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.154	0.118	71
72	31.41	5:1	6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.036	0.028	72
73	31.71	6:2		146	161	.6955	22'34'55' ; 233'45'6	0.267	0.197	73
74	31.85	6:3	5:1	132	105	.7035	22'33'46' ; 233'44'	0.949	0.727	74
75	31.99	6:2		153		.7036	22'44'55'	0.733	0.541	75
76	32.29	6:2		168		.7068	23'44'5'6	0.003	0.002	76
77	32.55	6:2		141		.7203	22'3455'	0.158	0.117	77
78	32.62	7:4		179		.7205	22'33'566'	0.067	0.045	78
79	32.86	6:2		130		.7284	22'33'45'	0.109	0.081	79
80	32.94	6:2		137		.7329	22'344'5	0.089	0.066	80
81	0.00	7:4		176		.7305	22'33'466'	0.000	0.000	81
82	33.25	6:2		138	163	.7403	22'344'5' ; 233'4'56 ; +2	0.896	0.661	82
83	33.43	6:2		158		.7429	233'44'6	0.139	0.103	83
84	33.65	6:2		129		.7501	22'33'45	0.110	0.082	84
85	33.99	7:3		178		.7537	22'33'55'6	0.062	0.042	85
86	0.00	6:2		166		.7572	2344'56	0.000	0.000	86
87	34.28	7:3		175		.7611	22'33'45'6	0.012	0.008	87
88	34.46	7:3		187	182	.7653	22'34'55'6 ; 22'344'56'	0.144	0.097	88
89	34.61	6:2		128		.7761	22'33'44'	0.142	0.105	89
90	34.78	7:3		183		.7720	22'344'5'6	0.064	0.043	90
91	35.07	6:1		167		.7814	23'44'55'	0.030	0.022	91
92	35.43	7:3		185		.7848	22'3455'6	0.007	0.005	92
93	35.81	7:3		174	181	.7965	22'33'456' ; 22'344'56	0.077	0.052	93
94	36.10	7:3		177		.8031	22'33'4'56	0.096	0.065	94
95	36.42	7:3	6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.251	0.175	95
96	0.00	8:4		202		.8089	22'33'55'66'	0.000	0.000	96
97	36.70	6:1		157		.8184	233'44'5'	0.066	0.049	97
98	36.88	7:3		173		.8152	22'33'456	0.003	0.002	98
99	37.26	8:4		200	204	.8197	22'33'45'66' ; 22'344'566'	0.005	0.003	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

EA FILE NAME: 912118D.mo1

STOMER: BLASLAND & BOUCK ENGINEERS
AMPLE DESCRIPTION: CELL 2 COMP 2 DUPLICATE
OMMENT: 1991 CHEBOYGAN RIVER SEDIMENT SAMPLES
ATE ACQUIRED: 18-AUG-1991 13:19

YPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.136	1.604	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.240	0.339	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.455	1.737	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.229	0.274	6
7	20.99	2:1	006	.2709	23'	0.570	0.680	7
8	21.20	2:1	005 008	.2785	23 ; 24'	17.604	21.023	8
9	21.69	2:0	014	.2973	35	0.010	0.012	9
10	21.88	3:3	019	.3045	22'6	2.068	2.140	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.194	0.231	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.070	0.083	13
14	22.76	3:2 2:0	018 015	.3387	22'5 ; 44'	1.212	1.296	14
15	22.84	3:2	017	.3398	22'4	9.236	9.556	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.534	1.587	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	5.670	5.866	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.265	0.263	19
20	23.97	3:1	029	.3820	245	0.004	0.004	20
21	24.08	3:1	026	.3911	23'5	2.134	2.208	21
22	24.16	3:1	025	.3937	23'4	2.337	2.418	22
23	24.34	3:1	031	.4024	24'5	2.920	3.021	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	6.136	6.349	24
25	24.73	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.653	1.698	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.330	1.369	26
27	25.11	4:3	045	.4334	22'36	0.637	0.581	27
28	25.23	3:1	036	.4379	33'5	0.031	0.032	28
29	25.35	4:3	046	.4450	22'36'	0.181	0.165	29
30	25.46	3:1	039	.4488	34'5	0.035	0.037	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	3.147	2.871	31
32	25.75	4:2	049	.4610	22'45	2.494	2.275	32
33	25.84	4:2	047	.4639	22'44'	2.852	2.603	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912118D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 2 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 19:19

Total PCBs in Sample= 116.81 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.38	1.94
Di	20.43	24.36
Tri	37.14	38.38
Tetra	23.44	21.43
Penta	11.43	9.36
Hexa	4.86	3.65
Hepta	1.10	0.74
Octa	0.19	0.12
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.55

Meta + Para Cl / biphenyl Residue = 1.71

TOTAL Cl / biphenyl Residue = 3.27

cell 2 comp 2 exp 20.11.0

100	395.30	0.04525	0.11447
101	429.80	0.00000	0.00000
102	395.30	0.26883	0.68007
103	395.30	0.01844	0.04665
104	395.30	0.00900	0.02277
105	429.80	0.00595	0.01384
106	395.30	0.25017	0.63286
107	395.30	0.04370	0.11055
108	429.80	0.00413	0.00961
109	429.80	0.10840	0.25221
110	429.80	0.11631	0.27061
111	395.30	0.01131	0.02861
112	429.80	0.04952	0.11522
113	464.20	0.03260	0.07023
114	464.20	0.00523	0.01127
115	429.80	0.06284	0.14621
116	429.80	0.00306	0.00712
117	464.20	0.03249	0.06999
118	498.60	0.00000	0.00000

CONCENTRATION = 209.490 PPM

TOTAL MICROMOLES = 0.8043

AVERAGE MOLECULAR WEIGHT = 260.5

NUMBER OF CALIBRATED PEAKS FOUND= 105

Cell 2 comp 2 imp 20:40

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.497	0.443	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.012	0.012	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.490	1.329	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.425	1.363	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	1.977	1.763	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.455	0.363	41
42	26.84	4:2	040	.5102	22'33'	0.288	0.257	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.507	0.442	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.202	0.176	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.393	0.350	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.663	0.591	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.233	1.100	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	2.746	2.437	48
49	27.89	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.481	0.386	49
50	28.14	4:1	056 060	.5676	233'4' ; 2344'	0.611	0.545	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.665	1.329	51
52	28.41	5:3	089	.5779	22'346'	0.038	0.030	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	0.975	0.778	53
54	28.69	5:2	099	.5880	22'44'5	0.532	0.424	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.130	0.103	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.179	0.143	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.349	0.278	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.436	0.348	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.142	0.113	59
60	29.60	6:4	136	.6257	22'33'66'	0.093	0.067	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.146	1.770	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2	082	.6453	22'33'4	0.103	0.082	63
64	30.34	6:3	151	.6499	22'355'6	0.204	0.147	64
65	30.47	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.316	0.235	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.60	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.166	0.129	67
68	30.69	5:1	123	.6658	2'344'5	0.015	0.012	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.520	1.173	69
70	30.99	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.011	0.008	70
71	31.20	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.115	0.086	71
72	31.41	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.029	0.023	72
73	31.69	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.242	0.175	73
74	31.84	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.718	0.537	74
75	31.99	6:2	153	.7036	22'44'55'	0.605	0.437	75
76	32.27	6:2	168	.7068	23'44'5'6	0.002	0.002	76
77	32.55	6:2	141	.7203	22'3455'	0.119	0.086	77
78	32.62	7:4	179	.7205	22'33'566'	0.054	0.035	78
79	32.84	6:2	130	.7284	22'33'45'	0.082	0.059	79
80	32.92	6:2	137	.7329	22'344'5	0.066	0.047	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.23	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.692	0.500	82
83	33.42	6:2	158	.7429	233'44'6	0.103	0.074	83
84	33.64	6:2	129	.7501	22'33'45	0.079	0.057	84
85	33.99	7:3	178	.7537	22'33'55'6	0.053	0.035	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.26	7:3	175	.7611	22'33'45'6	0.009	0.006	87
88	34.45	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.127	0.084	88
89	34.59	6:2	128	.7761	22'33'44'	0.104	0.075	89
90	34.77	7:3	183	.7720	22'344'5'6	0.048	0.032	90
91	35.05	6:1	167	.7814	23'44'55'	0.021	0.015	91
92	35.41	7:3	185	.7848	22'3455'6	0.006	0.004	92
93	35.80	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.051	0.034	93
94	36.09	7:3	177	.8031	22'33'4'56	0.075	0.049	94
95	36.40	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.180	0.123	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.69	6:1	157	.8184	233'44'5'	0.045	0.033	97
98	36.87	7:3	173	.8152	22'33'456	0.003	0.002	98
99	37.23	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.007	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912119D.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 2 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 20:40

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.994	2.752	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.301	0.416	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.880	2.195	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.328	0.383	6
7	20.98	2:1	006	.2709	23'	0.678	0.791	7
8	21.19	2:1	005 008	.2785	23 ; 24'	20.993	24.509	8
9	21.68	2:0	014	.2973	35	0.008	0.010	9
10	21.87	3:3	019	.3045	22'6	2.345	2.372	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.141	0.165	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.050	0.058	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	0.928	0.970	14
15	22.83	3:2	017	.3398	22'4	10.397	10.517	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.748	1.768	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	6.244	6.315	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.311	0.303	19
20	23.95	3:1	029	.3820	245	0.001	0.001	20
21	24.08	3:1	026	.3911	23'5	1.747	1.767	21
22	24.15	3:1	025	.3937	23'4	2.471	2.500	22
23	24.34	3:1	031	.4024	24'5	2.451	2.479	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	8.084	8.178	24
25	24.72	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.396	1.401	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.154	1.162	26
27	25.10	4:3	045	.4334	22'36	0.568	0.506	27
28	25.23	3:1	036	.4379	33'5	0.013	0.013	28
29	25.34	4:3	046	.4450	22'36'	0.135	0.120	29
30	25.45	3:1	039	.4488	34'5	0.028	0.029	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	2.467	2.200	31
32	25.74	4:2	049	.4610	22'45	2.160	1.927	32

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912119D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 2 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 20:40

Total PCBs in Sample= 209.49 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	2.29	3.17
Di	24.31	28.35
Tri	39.70	40.11
Tetra	19.35	17.30
Penta	9.47	7.59
Hexa	3.82	2.80
Hepta	0.85	0.56
Octa	0.17	0.11
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.52

Meta + Para Cl / biphenyl Residue = 1.57

TOTAL Cl / biphenyl Residue = 3.09

cell 2 comp 2

100	37.51	7:2	172	192	.8278	22'33'455' ; 233'455'6	0.025	0.017	100
101	0.00	8:4	197		.8293	22'33'44'66'	0.000	0.000	101
102	38.02	7:2	180		.8362	22'344'55'	0.173	0.117	102
103	38.30	7:2	193		.8397	233'4'55'6	0.010	0.007	103
104	38.61	7:2	191		.8447	233'44'5'6	0.005	0.004	104
105	39.00	8:4	199		.8494	22'33'4566'	0.002	0.001	105
106	40.22	7:2	170		.8740	22'33'44'5	0.166	0.112	106
107	40.51	7:2	190		.8740	233'44'56	0.031	0.021	107
108	41.39	8:3	198		.8845	22'33'455'6	0.002	0.001	108
109	41.66	8:3	201		.8875	22'33'4'55'6	0.054	0.034	109
110	42.24	8:3	196	203	.8935	22'33'44'5'6 ; 22'344'55'6	0.061	0.038	110
111	43.47	7:1	189		.9142	233'44'55'	0.008	0.006	111
112	45.14	8:3	195		.9321	22'33'44'56	0.019	0.012	112
113	45.68	9:4	208		.9320	22'33'455'66'	0.013	0.008	113
114	46.65	9:4	207		.9423	22'33'44'566'	0.003	0.002	114
115	48.18	8:2	194		.9620	22'33'44'55'	0.032	0.020	115
116	49.16	8:2	205		.9678	233'44'55'6	0.002	0.001	116
117	54.63	9:3	206		1.010	22'33'44'55'6	0.020	0.011	117
118	0.00	10:4	209		1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 112.151 PPM

TOTAL MICROMOLES = 0.4200

AVERAGE MOLECULAR WEIGHT = 267.0

NUMBER OF CALIBRATED PEAKS FOUND= 105

Cell 2 Comp 2

34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.536	0.490	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.014	0.015	36
37	26.23	5:4 4:2	104 044	.4832	22'466' ; 22'35'	2.264	2.070	37
38	26.34	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.855	1.818	38
39	26.63	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.483	2.271	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.448	0.366	41
42	26.85	4:2	040	.5102	22'33'	0.434	0.397	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.464	0.414	43
44	27.19	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.216	0.193	44
45	27.32	4:1	058 063	.5267	233'5' ; 234'5	0.336	0.307	45
46	27.46	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.844	0.771	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.891	1.729	47
48	27.66	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.706	3.371	48
49	27.90	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.532	0.438	49
50	28.15	4:1	056 060	.5676	233'4' ; 2344'	0.936	0.856	50
51	28.34	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.992	1.630	51
52	28.42	5:3	089	.5779	22'346'	0.052	0.042	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	1.218	0.996	53
54	28.70	5:2	099	.5880	22'44'5	0.623	0.509	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.135	0.110	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.208	0.170	56
57	29.20	7:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.488	0.399	57
58	29.35	5:3	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.609	0.498	58
59	29.49	5:3	085 116	.6224	22'344' ; 23456?	0.227	0.185	59
60	29.60	6:4	136	.6257	22'33'66'	0.123	0.091	60
61	29.72	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.760	2.334	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2	082	.6453	22'33'4	0.173	0.142	63
64	30.35	6:3	151	.6499	22'355'6	0.245	0.182	64
65	30.48	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.401	0.305	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.61	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.203	0.161	67
68	30.70	5:1	123	.6658	2'344'5	0.030	0.024	68
69	30.82	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.017	1.596	69
70	30.99	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.012	0.009	70
71	31.22	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.159	0.122	71
72	31.41	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.035	0.028	72
73	31.70	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.266	0.197	73
74	31.85	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	1.050	0.806	74
75	32.00	6:2	153	.7036	22'44'55'	0.764	0.565	75
76	32.28	6:2	168	.7068	23'44'5'6	0.002	0.002	76
77	32.55	6:2	141	.7203	22'3455'	0.184	0.136	77
78	32.63	7:4	179	.7205	22'33'566'	0.066	0.045	78
79	32.85	6:2	130	.7284	22'33'45'	0.126	0.093	79
80	32.93	6:2	137	.7329	22'344'5	0.093	0.069	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.24	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.956	0.707	82
83	33.43	6:2	158	.7429	233'44'6	0.156	0.116	83
84	33.65	6:2	129	.7501	22'33'45	0.124	0.092	84
85	34.00	7:3	178	.7537	22'33'55'6	0.061	0.041	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.30	7:3	175	.7611	22'33'45'6	0.013	0.009	87
88	34.47	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.142	0.096	88
89	34.61	6:2	128	.7761	22'33'44'	0.159	0.118	89
90	34.79	7:3	183	.7720	22'344'5'6	0.066	0.045	90
91	35.06	6:1	167	.7814	23'44'55'	0.032	0.024	91
92	35.44	7:3	185	.7848	22'3455'6	0.007	0.005	92
93	35.82	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.082	0.055	93
94	36.10	7:3	177	.8031	22'33'4'56	0.094	0.064	94
95	36.42	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.277	0.193	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.71	6:1	157	.8184	233'44'5'	0.070	0.052	97
98	36.88	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.25	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.007	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912117F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 17:57

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	1.505	2.129	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.83	1:0	003	.1975	4	0.245	0.346	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.533	1.835	5
6	20.65	2:1	007 009	.2566	24 ; 25	0.228	0.273	6
7	20.99	2:1	006	.2709	23'	0.594	0.711	7
8	21.20	2:1	005 008	.2785	23 ; 24'	17.051	20.406	8
9	21.70	2:0	014	.2973	35	0.014	0.017	9
10	21.87	3:3	019	.3045	22'6	1.983	2.056	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.183	0.220	12
13	22.60	2:0	012 013	.3297	34 ; 34'	0.060	0.072	13
14	22.76	3:2 2:0	018 015	.3387	22'5 ; 44'	1.207	1.294	14
15	22.84	3:2	017	.3398	22'4	8.734	9.057	15
16	23.13	3:2	024 027	.3508	236 ; 23'6	1.474	1.529	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	5.397	5.596	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.254	0.253	19
20	23.97	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	2.082	2.159	21
22	24.16	3:1	025	.3937	23'4	2.252	2.335	22
23	24.34	3:1	031	.4024	24'5	2.722	2.823	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	6.077	6.301	24
25	24.73	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.651	1.699	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.309	1.351	26
27	25.11	4:3	045	.4334	22'36	0.610	0.558	27
28	25.23	3:1	036	.4379	33'5	0.006	0.006	28
29	25.35	4:3	046	.4450	22'36'	0.187	0.171	29
30	25.45	3:1	039	.4488	34'5	0.032	0.033	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	3.276	2.996	31
32	25.74	4:2	049	.4610	22'45	2.557	2.338	32
33	25.84	4:2	047	.4639	22'44'	2.679	2.450	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912117F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 17:57

Total PCBs in Sample= 112.15 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.75	2.48
Di	19.96	23.85
Tri	35.74	37.01
Tetra	24.15	22.13
Penta	11.89	9.76
Hexa	5.17	3.88
Hepta	1.12	0.76
Octa	0.18	0.11
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.55

Meta + Para Cl / biphenyl Residue = 1.73

TOTAL Cl / biphenyl Residue = 3.28

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.030	0.022	100
101	37.80	8:4	197	.8293	22'33'44'66'	0.003	0.002	101
102	38.01	7:2	180	.8362	22'344'55'	0.213	0.151	102
103	38.28	7:2	193	.8397	233'4'55'6	0.009	0.006	103
104	38.60	7:2	191	.8447	233'44'5'6	0.006	0.004	104
105	39.07	8:4	199	.8494	22'33'4566'	0.010	0.007	105
106	40.21	7:2	170	.8740	22'33'44'5	0.204	0.144	106
107	40.49	7:2	190	.8740	233'44'56	0.041	0.029	107
108	0.00	8:3	198	.8845	22'33'455'6	0.000	0.000	108
109	41.64	8:3	201	.8875	22'33'4'55'6	0.047	0.031	109
110	42.21	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.058	0.038	110
111	43.46	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.11	8:3	195	.9321	22'33'44'56	0.024	0.016	112
113	45.66	9:4	208	.9320	22'33'455'66'	0.012	0.007	113
114	0.00	9:4	207	.9423	22'33'44'566'	0.000	0.000	114
115	48.17	8:2	194	.9620	22'33'44'55'	0.029	0.019	115
116	49.15	8:2	205	.9678	233'44'55'6	0.002	0.002	116
117	54.59	9:3	206	1.010	22'33'44'55'6	0.011	0.007	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 186.864 PPM

TOTAL MICROMOLES = 0.6682

AVERAGE MOLECULAR WEIGHT = 279.6

NUMBER OF CALIBRATED PEAKS FOUND= 103

Cell 2 comp 1

33	25.84	4:2	047	.4639	22'44'	2.041	1.955	33
34	25.89	4:2	048 075	.4651	22'45 ; 244'6	0.822	0.787	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0	035	.4738	33'4	0.011	0.012	36
37	26.22	5:4 4:2	104 044	.4832	22'466' ; 22'35'	3.797	3.636	37
38	26.33	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	2.144	2.201	38
39	26.62	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	3.443	3.297	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4	096	.5057	22'366'	0.359	0.307	41
42	26.84	4:2	040	.5102	22'33'	0.775	0.743	42
43	27.04	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.307	0.287	43
44	27.18	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.253	0.237	44
45	27.31	4:1	058 063	.5267	233'5' ; 234'5	0.317	0.303	45
46	27.45	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.396	1.337	46
47	27.56	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	4.254	4.074	47
48	27.65	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	6.080	5.793	48
49	27.90	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.566	0.488	49
50	28.15	4:1	056 060	.5676	233'4' ; 2344'	2.004	1.919	50
51	28.33	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	2.220	1.902	51
52	28.41	5:3	089	.5779	22'346'	0.072	0.062	52
53	28.53	5:2	101 090	.5814	22'34'5 ; 22'455'	1.746	1.496	53
54	28.69	5:2	099	.5880	22'44'5	0.792	0.679	54
55	28.93	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.122	0.105	55
56	29.01	5:2	083 109	.6029	22'33'5 ; 233'46	0.221	0.189	56
57	29.19	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.831	0.712	57
58	29.34	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.998	0.855	58
59	29.48	5:2	085 116	.6224	22'344' ; 23456?	0.405	0.347	59
60	29.64	6:4	136	.6257	22'33'66'	0.152	0.118	60
61	29.71	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	3.413	3.022	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.07	5:2	082	.6453	22'33'4	0.349	0.299	63
64	30.34	6:3	151	.6499	22'355'6	0.247	0.192	64
65	30.48	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.454	0.362	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.60	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.255	0.212	67
68	30.70	5:1	123	.6658	2'344'5	0.069	0.059	68
69	30.81	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.824	2.340	69
70	30.98	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.020	0.016	70
71	31.23	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.225	0.181	71
72	31.40	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.041	0.034	72
73	31.70	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.258	0.200	73
74	31.84	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	1.625	1.306	74
75	31.99	6:2	153	.7036	22'44'55'	0.959	0.743	75
76	32.27	6:2	168	.7068	23'44'5'6	0.006	0.005	76
77	32.54	6:2	141	.7203	22'3455'	0.286	0.221	77
78	32.62	7:4	179	.7205	22'33'566'	0.066	0.046	78
79	32.84	6:2	130	.7284	22'33'45'	0.218	0.169	79
80	32.92	6:2	137	.7329	22'344'5	0.154	0.119	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.23	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	1.253	0.971	82
83	33.42	6:2	158	.7429	233'44'6	0.241	0.187	83
84	33.65	6:2	129	.7501	22'33'45	0.204	0.158	84
85	34.00	7:3	178	.7537	22'33'55'6	0.047	0.034	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.29	7:3	175	.7611	22'33'45'6	0.005	0.004	87
88	34.45	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.115	0.081	88
89	34.60	6:2	128	.7761	22'33'44'	0.243	0.188	89
90	34.77	7:3	183	.7720	22'344'5'6	0.084	0.059	90
91	35.06	6:1	167	.7814	23'44'55'	0.048	0.037	91
92	35.41	7:3	185	.7848	22'3455'6	0.008	0.006	92
93	35.81	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.096	0.068	93
94	36.09	7:3	177	.8031	22'33'4'56	0.089	0.063	94
95	36.40	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.403	0.295	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.70	6:1	157	.8184	233'44'5'	0.099	0.077	97
98	36.89	7:3	173	.8152	22'33'456	0.004	0.003	98
99	37.22	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.056	0.036	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

AREA FILE NAME: 912116F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 16:35

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	0.389	0.576	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.141	0.208	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.088	1.364	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.164	0.206	6
7	20.99	2:1	006	.2709	23'	0.439	0.550	7
8	21.19	2:1	005 008	.2785	23 ; 24'	8.952	11.221	8
9	21.76	2:0	014	.2973	35	0.009	0.011	9
10	21.87	3:3	019	.3045	22'6	1.086	1.179	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.081	0.102	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.050	0.062	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.776	1.995	14
15	22.83	3:2	017	.3398	22'4	5.373	5.835	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	0.840	0.912	16
17	23.40	3:2	016 032	.3625	22'3 ; 24'6	3.823	4.151	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.207	0.216	19
20	23.97	3:1	029	.3820	245	0.004	0.004	20
21	24.08	3:1	026	.3911	23'5	1.444	1.568	21
22	24.15	3:1	025	.3937	23'4	1.422	1.544	22
23	24.34	3:1	031	.4024	24'5	3.195	3.470	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	6.008	6.525	24
25	24.70	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	2.253	2.428	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.715	1.853	26
27	25.10	4:3	045	.4334	22'36	0.807	0.773	27
28	0.00	3:1	036	.4379	33'5	0.000	0.000	28
29	25.34	4:3	046	.4450	22'36'	0.315	0.301	29
30	25.44	3:1	039	.4488	34'5	0.013	0.014	30
31	25.60	4:2	052 073	.4554	22'55' ; 23'5'6	4.212	4.034	31
32	25.74	4:2	049	.4610	22'45	2.898	2.776	32
33	25.84	4:2	047	.4639	22'44'	2.041	1.955	33

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912116F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 2 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 16:35

Total PCBs in Sample= 186.86 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	0.53	0.78
Di	11.22	14.01
Tri	29.70	32.20
Tetra	34.53	33.12
Penta	15.49	13.30
Hexa	7.00	5.51
Hepta	1.27	0.91
Octa	0.23	0.15
Nona	0.02	0.01
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.59

Meta + Para Cl / biphenyl Residue = 2.06

TOTAL Cl / biphenyl Residue = 3.65

100	37.50	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.029	0.020	100
101	0.00	8:4	197	.8293	22'33'44'66'	0.000	0.000	101
102	38.00	7:2	180	.8362	22'344'55'	0.209	0.147	102
103	38.28	7:2	193	.8397	233'4'55'6	0.010	0.007	103
104	38.61	7:2	191	.8447	233'44'5'6	0.006	0.005	104
105	38.97	8:4	199	.8494	22'33'4566'	0.004	0.002	105
106	40.19	7:2	170	.8740	22'33'44'5	0.203	0.143	106
107	40.49	7:2	190	.8740	233'44'56	0.042	0.029	107
108	41.40	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.63	8:3	201	.8875	22'33'4'55'6	0.050	0.032	109
110	42.21	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.059	0.038	110
111	43.46	7:1	189	.9142	233'44'55'	0.009	0.006	111
112	45.12	8:3	195	.9321	22'33'44'56	0.019	0.012	112
113	45.68	9:4	208	.9320	22'33'455'66'	0.011	0.007	113
114	46.59	9:4	207	.9423	22'33'44'566'	0.005	0.003	114
115	48.15	8:2	194	.9620	22'33'44'55'	0.031	0.020	115
116	49.08	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.57	9:3	206	1.010	22'33'44'55'6	0.018	0.011	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 261.117 PPM

TOTAL MICROMOLES = 0.9407

AVERAGE MOLECULAR WEIGHT = 277.6

NUMBER OF CALIBRATED PEAKS FOUND= 105

34	25.89	1:2		048 075	.4651	22'45 ; 244'6	0.770	0.732	34
35	0.00	4:2		065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.08	3:0		035	.4738	33'4	0.017	0.018	36
37	26.22	5:4	4:2	104 044	.4832	22'466' ; 22'35'	3.434	3.264	37
38	26.33	3:0	4:2	037 042	.4870	344' ; 22'34' ; 233'6	2.079	2.118	38
39	26.62	4:2		064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	3.372	3.206	39
40	0.00	4:1		068	.5040	23'45' ?	0.000	0.000	40
41	26.76	5:4		096	.5057	22'366'	0.385	0.328	41
42	26.84	4:2		040	.5102	22'33'	0.687	0.653	42
43	27.04	5:3	4:1	103 057	.5155	22'45'6 ; 233'5	0.321	0.298	43
44	27.18	5:3	4:1	100 067	.5212	22'44'6 ; 23'4'5	0.219	0.203	44
45	27.31	4:1		058 063	.5267	233'5' ; 234'5	0.303	0.288	45
46	27.45	4:1	5:3	074 094	.5340	234'5 ; 22'356'	1.338	1.272	46
47	27.56	4:1		070 061	.5407	23'4'5 ; 2'345 ; 2345?	3.725	3.541	47
48	27.65	4:1	5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	5.629	5.323	48
49	27.89	5:3	4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.555	0.474	49
50	28.14	4:1		056 060	.5676	233'4' ; 2344'	1.787	1.699	50
51	28.33	6:4	5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	2.176	1.850	51
52	28.41	5:3		089	.5779	22'346'	0.077	0.066	52
53	28.53	5:2		101 090	.5814	22'34'5 ; 22'455'	1.642	1.396	53
54	28.69	5:2		099	.5880	22'44'5	0.778	0.661	54
55	28.92	6:4	5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.117	0.099	55
56	29.01	5:2		083 109	.6029	22'33'5 ; 233'46	0.213	0.181	56
57	29.19	6:4	5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.750	0.638	57
58	29.34	5:2		087 111	.6175	22'345' ; 233'55' ; 2344'6	0.956	0.813	58
59	29.48	5:2		085 116	.6224	22'344' ; 23456?	0.385	0.327	59
60	29.60	6:4		136	.6257	22'33'66'	0.159	0.122	60
61	29.71	4:0	5:2	077 110	.6295	33'44' ; 233'4'6	3.350	2.945	61
62	0.00	6:3		154	.6349	22'44'56'	0.000	0.000	62
63	30.06	5:2		082	.6453	22'33'4	0.323	0.275	63
64	30.34	6:3		151	.6499	22'355'6	0.247	0.190	64
65	30.47	6:3	5:1	135 124	.6563	22'33'56' ; 2'344'5	0.474	0.375	65
66	0.00	6:3		144	.6584	22'345'6	0.000	0.000	66
67	30.60	5:1	6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.251	0.207	67
68	30.69	5:1		123	.6658	2'344'5	0.066	0.056	68
69	30.81	6:3	5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	2.756	2.267	69
70	30.99	6:3		139 140	.6707	22'344'6 ; 22'344'6'	0.022	0.017	70
71	31.22	6:3	5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.218	0.174	71
72	31.40	5:1	6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.041	0.034	72
73	31.69	6:2		146 161	.6955	22'34'55' ; 233'45'6	0.253	0.194	73
74	31.84	6:3	5:1	132 105	.7035	22'33'46' ; 233'44'	1.566	1.250	74
75	31.99	6:2		153	.7036	22'44'55'	0.957	0.736	75
76	32.27	6:2		168	.7068	23'44'5'6	0.002	0.002	76
77	32.54	6:2		141	.7203	22'3455'	0.282	0.217	77
78	32.61	7:4		179	.7205	22'33'566'	0.059	0.042	78
79	32.83	6:2		130	.7284	22'33'45'	0.191	0.147	79
80	32.92	6:2		137	.7329	22'344'5	0.118	0.091	80
81	0.00	7:4		176	.7305	22'33'466'	0.000	0.000	81
82	33.22	6:2		138 163	.7403	22'344'5' ; 233'4'56 ; +2	1.257	0.967	82
83	33.42	6:2		158	.7429	233'44'6	0.230	0.177	83
84	33.64	6:2		129	.7501	22'33'45	0.205	0.158	84
85	33.98	7:3		178	.7537	22'33'55'6	0.062	0.043	85
86	0.00	6:2		166	.7572	2344'56	0.000	0.000	86
87	34.28	7:3		175	.7611	22'33'45'6	0.017	0.012	87
88	34.45	7:3		187 182	.7653	22'34'55'6 ; 22'344'56'	0.126	0.088	88
89	34.60	6:2		128	.7761	22'33'44'	0.237	0.182	89
90	34.77	7:3		183	.7720	22'344'5'6	0.082	0.058	90
91	35.06	6:1		167	.7814	23'44'55'	0.050	0.039	91
92	35.42	7:3		185	.7848	22'3455'6	0.009	0.007	92
93	35.80	7:3		174 181	.7965	22'33'456' ; 22'344'56	0.103	0.072	93
94	36.09	7:3		177	.8031	22'33'4'56	0.086	0.060	94
95	36.40	7:3	6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.399	0.290	95
96	0.00	8:4		202	.8089	22'33'55'66'	0.000	0.000	96
97	36.70	6:1		157	.8184	233'44'5'	0.105	0.080	97
98	36.86	7:3		173	.8152	22'33'456	0.004	0.003	98
99	37.24	8:4		200 204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912115F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 15:13

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.24	1:1	001	.1544	2	0.798	1.174	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.84	1:0	003	.1975	4	0.123	0.180	4
5	19.61	2:2	004 010	.2245	22' ; 26	1.057	1.315	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.160	0.199	6
7	20.98	2:1	006	.2709	23'	0.571	0.711	7
8	21.19	2:1	005 008	.2785	23 ; 24'	9.742	12.120	8
9	21.68	2:0	014	.2973	35	0.009	0.011	9
10	21.87	3:3	019	.3045	22'6	1.499	1.615	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.42	2:0	011	.3238	33'	0.092	0.114	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.042	0.052	13
14	22.75	3:2 2:0	018 015	.3387	22'5 ; 44'	1.693	1.887	14
15	22.83	3:2	017	.3398	22'4	6.253	6.741	15
16	23.12	3:2	024 027	.3508	236 ; 23'6	1.000	1.078	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	4.340	4.679	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.80	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.208	0.215	19
20	23.96	3:1	029	.3820	245	0.002	0.002	20
21	24.08	3:1	026	.3911	23'5	1.648	1.777	21
22	24.15	3:1	025	.3937	23'4	1.586	1.709	22
23	24.33	3:1	031	.4024	24'5	3.163	3.410	23
24	24.38	3:1 4:3	028 050	.4031	244' ; 22'46	5.573	6.008	24
25	24.68	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	2.073	2.218	25
26	24.90	3:1 4:3	022 051	.4267	234' ; 22'46'	1.728	1.854	26
27	25.10	4:3	045	.4334	22'36	0.715	0.680	27
28	25.24	3:1	036	.4379	33'5	0.005	0.005	28
29	25.34	4:3	046	.4450	22'36'	0.295	0.280	29
30	25.45	3:1	039	.4488	34'5	0.016	0.017	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	3.985	3.788	31
32	25.74	4:2	049	.4610	22'45	2.718	2.584	32
33	25.83	4:2	047	.4629	22'44'			

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912115F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 5
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 15:13

Total PCBs in Sample= 261.12 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	0.92	1.35
Di	12.09	14.99
Tri	31.33	33.72
Tetra	32.26	30.72
Penta	15.01	12.79
Hexa	6.87	5.37
Hepta	1.30	0.92
Octa	0.17	0.11
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.59

Meta + Para Cl / biphenyl Residue = 2.00

TOTAL Cl / biphenyl Residue = 3.59

Cell 1 Comp 4

34	25.88	4:2	048	075	.4651	22'45 ; 244'6	0.524	0.504	34
35	0.00	4:2	065	062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035		.4738	33'4	0.014	0.015	36
37	26.21	5:4 4:2	104	044	.4832	22'466' ; 22'35'	2.431	2.341	37
38	26.32	3:0 4:2	037	042	.4870	344' ; 22'34' ; 233'6	1.473	1.520	38
39	26.61	4:2	064	071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.525	2.431	39
40	0.00	4:1	068		.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096		.5057	22'366'	0.348	0.299	41
42	26.83	4:2	040		.5102	22'33'	0.415	0.400	42
43	27.03	5:3 4:1	103	057	.5155	22'45'6 ; 233'5	0.338	0.318	43
44	27.18	5:3 4:1	100	067	.5212	22'44'6 ; 23'4'5	0.201	0.189	44
45	27.31	4:1	058	063	.5267	233'5' ; 234'5	0.285	0.274	45
46	27.44	4:1 5:3	074	094	.5340	244'5 ; 22'356'	1.025	0.988	46
47	27.55	4:1	070	061	.5407	23'4'5 ; 2'345 ; 2345?	2.839	2.734	47
48	27.65	4:1 5:3	066	095	.5447	23'44' ; 22'356 ; 22'35'6	5.041	4.830	48
49	27.88	5:3 4:1	091	098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.565	0.489	49
50	28.13	4:1	056	060	.5676	233'4' ; 2344'	1.113	1.072	50
51	28.33	6:4 5:3	155	084	.5666	22'44'66' ; 22'33'6; 22'355'	2.608	2.247	51
52	28.41	5:3	089		.5779	22'346'	0.062	0.054	52
53	28.52	5:2	101	090	.5814	22'34'5 ; 22'455'	2.242	1.931	53
54	28.68	5:2	099		.5880	22'44'5	0.925	0.797	54
55	28.92	6:4 5:2	150	112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.129	0.111	55
56	29.00	5:2	083	109	.6029	22'33'5 ; 233'46	0.242	0.209	56
57	29.18	6:4 5:2	152	097	.6062	22'3566' ; 22'345 ; 22'3'45	0.889	0.766	57
58	29.33	5:2	087	111	.6175	22'345' ; 233'55' ; 2344'6	1.396	1.202	58
59	29.47	5:2	085	116	.6224	22'344' ; 23456?	0.387	0.333	59
60	29.58	6:4	136		.6257	22'33'66'	0.172	0.134	60
61	29.70	4:0 5:2	077	110	.6295	33'44' ; 233'4'6	4.451	3.963	61
62	0.00	6:3	154		.6349	22'44'56'	0.000	0.000	62
63	30.05	5:2	082		.6453	22'33'4	0.353	0.304	63
64	30.33	6:3	151		.6499	22'355'6	0.367	0.286	64
65	30.46	6:3 5:1	135	124	.6563	22'33'56' ; 2'344'5	0.745	0.598	65
66	0.00	6:3	144		.6584	22'345'6	0.000	0.000	66
67	30.59	5:1 6:3	107	108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.319	0.266	67
68	30.68	5:1	123		.6658	2'344'5	0.073	0.063	68
69	30.80	6:3 5:1	149	118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	3.954	3.295	69
70	30.97	6:3	139	140	.6707	22'344'6 ; 22'344'6'	0.016	0.013	70
71	31.20	6:3 5:1	134	143	.6796	22'33'56' ; 22'3456'; 2344'5	0.298	0.241	71
72	31.39	5:1 6:3	122	131	.6871	2'33'45; 22'33'46;22'33'55'+	0.066	0.055	72
73	31.68	6:2	146	161	.6955	22'34'55' ; 233'45'6	0.382	0.297	73
74	31.83	6:3 5:1	132	105	.7035	22'33'46' ; 233'44'	2.160	1.747	74
75	31.98	6:2	153		.7036	22'44'55'	1.601	1.247	75
76	32.27	6:2	168		.7068	23'44'5'6	0.002	0.001	76
77	32.53	6:2	141		.7203	22'3455'	0.523	0.408	77
78	32.61	7:4	179		.7205	22'33'566'	0.073	0.052	78
79	32.83	6:2	130		.7284	22'33'45'	0.363	0.283	79
80	32.91	6:2	137		.7329	22'344'5	0.209	0.163	80
81	0.00	7:4	176		.7305	22'33'466'	0.000	0.000	81
82	33.21	6:2	138	163	.7403	22'344'5' ; 233'4'56 ; +2	2.248	1.751	82
83	33.40	6:2	158		.7429	233'44'6	0.438	0.341	83
84	33.62	6:2	129		.7501	22'33'45	0.380	0.296	84
85	34.01	7:3	178		.7537	22'33'55'6	0.096	0.068	85
86	0.00	6:2	166		.7572	2344'56	0.000	0.000	86
87	34.28	7:3	175		.7611	22'33'45'6	0.016	0.011	87
88	34.43	7:3	187	182	.7653	22'34'55'6 ; 22'344'56'	0.164	0.116	88
89	34.58	6:2	128		.7761	22'33'44'	0.435	0.339	89
90	34.76	7:3	183		.7720	22'344'5'6	0.142	0.101	90
91	35.04	6:1	167		.7814	23'44'55'	0.097	0.075	91
92	35.40	7:3	185		.7848	22'3455'6	0.017	0.012	92
93	35.79	7:3	174	181	.7965	22'33'456' ; 22'344'56	0.173	0.123	93
94	36.07	7:3	177		.8031	22'33'4'56	0.120	0.086	94
95	36.38	7:3 6:1	171	156	.8105	22'33'44'6 ; 233'44'5	0.765	0.563	95
96	36.68	8:4	202		.8089	22'33'55'66'	0.028	0.019	96
97	36.84	6:1	157		.8184	233'44'5'	0.027	0.021	97
98	0.00	7:3	173		.8152	22'33'456	0.000	0.000	98
99	37.22	8:4	200	204	.8197	22'33'45'66' ; 22'344'566'	0.005	0.003	99

Cell 1 Comp 4

100	37.48	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.049	0.035	100
101	37.76	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.98	7:2	180	.8362	22'344'55'	0.335	0.239	102
103	38.26	7:2	193	.8397	233'4'55'6	0.020	0.014	103
104	38.58	7:2	191	.8447	233'44'5'6	0.010	0.007	104
105	38.95	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.17	7:2	170	.8740	22'33'44'5	0.344	0.245	106
107	40.47	7:2	190	.8740	233'44'56	0.072	0.051	107
108	41.35	8:3	198	.8845	22'33'455'6	0.002	0.002	108
109	41.62	8:3	201	.8875	22'33'4'55'6	0.044	0.029	109
110	42.19	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.057	0.037	110
111	43.43	7:1	189	.9142	233'44'55'	0.013	0.009	111
112	45.06	8:3	195	.9321	22'33'44'56	0.021	0.013	112
113	45.66	9:4	208	.9320	22'33'455'66'	0.006	0.004	113
114	46.64	9:4	207	.9423	22'33'44'566'	0.003	0.002	114
115	48.13	8:2	194	.9620	22'33'44'55'	0.030	0.019	115
116	49.07	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.55	9:3	206	1.010	22'33'44'55'6	0.015	0.009	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 392.908 PPM

TOTAL MICROMOLES = 1.3973

AVERAGE MOLECULAR WEIGHT = 281.2

NUMBER OF CALIBRATED PEAKS FOUND= 106

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912114F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 12:30

Total PCBs in Sample= 392.91 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.23	1.83
Di	13.49	16.97
Tri	27.15	29.60
Tetra	25.73	24.80
Penta	19.09	16.46
Hexa	10.98	8.67
Hepta	2.12	1.52
Octa	0.19	0.13
Nona	0.02	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.62

Meta + Para Cl / biphenyl Residue = 2.08

TOTAL Cl / biphenyl Residue = 3.70

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NFA FILE NAME: 912114F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 4
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 12:30

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.092	1.627	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.82	1:0	003	.1975	4	0.139	0.207	4
5	19.60	2:2	004 010	.2245	22' ; 26	1.140	1.437	5
6	20.64	2:1	007 009	.2566	24 ; 25	0.169	0.213	6
7	20.98	2:1	006	.2709	23'	0.555	0.700	7
8	21.18	2:1	005 008	.2785	23 ; 24'	11.237	14.163	8
9	21.69	2:0	014	.2973	35	0.012	0.015	9
10	21.86	3:3	019	.3045	22'6	1.369	1.494	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.41	2:0	011	.3238	33'	0.111	0.140	12
13	22.59	2:0	012 013	.3297	34 ; 34'	0.038	0.048	13
14	22.74	3:2 2:0	018 015	.3387	22'5 ; 44'	0.916	1.034	14
15	22.82	3:2	017	.3398	22'4	6.098	6.659	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	0.969	1.058	16
17	23.39	3:2	016 032	.3625	22'3 ; 24'6	3.733	4.077	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.194	0.203	19
20	23.96	3:1	029	.3820	245	0.002	0.002	20
21	24.07	3:1	026	.3911	23'5	1.637	1.787	21
22	24.14	3:1	025	.3937	23'4	1.697	1.853	22
23	24.33	3:1	031	.4024	24'5	2.597	2.836	23
24	24.37	3:1 4:3	028 050	.4031	244' ; 22'46	4.901	5.352	24
25	24.72	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.363	1.477	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	1.197	1.301	26
27	25.09	4:3	045	.4334	22'36	0.557	0.537	27
28	25.21	3:1	036	.4379	33'5	0.004	0.005	28
29	25.33	4:3	046	.4450	22'36'	0.194	0.187	29
30	25.44	3:1	039	.4488	34'5	0.018	0.020	30
31	25.59	4:2	052 073	.4554	22'55' ; 23'5'6	3.536	3.405	31
32	25.73	4:2	049	.4610	22'45	2.295	2.210	32
33	25.83	4:2	047	.4639	22'44'	1.907	1.836	33

34	25.87	4:2	048 075	.4651	22'45 ; 244'6	0.514	0.459	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.06	3:0	035	.4738	33'4	0.012	0.012	36
37	26.20	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.479	1.319	37
38	26.31	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.395	1.334	38
39	26.60	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.300	2.052	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.74	5:4	096	.5057	22'366'	0.405	0.323	41
42	26.82	4:2	040	.5102	22'33'	0.287	0.256	42
43	27.02	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.377	0.328	43
44	27.16	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.206	0.179	44
45	27.30	4:1	058 063	.5267	233'5' ; 234'5	0.372	0.332	45
46	27.43	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.902	0.805	46
47	27.54	1:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.641	1.463	47
48	27.63	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.303	2.931	48
49	27.87	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.455	0.365	49
50	28.12	4:1	056 060	.5676	233'4' ; 2344'	0.745	0.664	50
51	28.31	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.592	1.270	51
52	28.40	5:3	089	.5779	22'346'	0.052	0.041	52
53	28.51	5:2	101 090	.5814	22'34'5 ; 22'455'	1.075	0.858	53
54	28.67	5:2	099	.5880	22'44'5	0.615	0.490	54
55	28.90	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.113	0.090	55
56	28.99	5:2	083 109	.6029	22'33'5 ; 233'46	0.170	0.136	56
57	29.17	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.452	0.361	57
58	29.32	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.431	0.344	58
59	29.46	5:2	085 116	.6224	22'344' ; 23456?	0.168	0.134	59
60	29.58	6:4	136	.6257	22'33'66'	0.105	0.076	60
61	29.69	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.327	1.919	61
62	0.00	6:3	151	.6349	22'44'56'	0.000	0.000	62
63	30.04	5:2	082	.6453	22'33'4	0.129	0.103	63
64	30.31	6:3	151	.6499	22'355'6	0.171	0.124	64
65	30.45	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.263	0.196	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.58	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.185	0.143	67
68	30.66	5:1	123	.6658	2'344'5	0.025	0.020	68
69	30.79	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.746	1.348	69
70	30.96	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.014	0.010	70
71	31.19	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.115	0.086	71
72	31.38	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.024	0.019	72
73	31.67	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.203	0.147	73
74	31.81	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.759	0.568	74
75	31.96	6:2	153	.7036	22'44'55'	0.562	0.406	75
76	32.24	6:2	168	.7068	23'44'5'6	0.003	0.002	76
77	32.51	6:2	111	.7203	22'3455'	0.107	0.078	77
78	32.59	7:4	179	.7205	22'33'566'	0.057	0.037	78
79	32.81	6:2	130	.7284	22'33'45'	0.075	0.054	79
80	32.89	6:2	137	.7329	22'344'5	0.059	0.042	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.20	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.615	0.444	82
83	33.39	6:2	158	.7429	233'44'6	0.089	0.064	83
84	33.60	6:2	129	.7501	22'33'45	0.071	0.051	84
85	33.95	7:3	178	.7537	22'33'55'6	0.045	0.030	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.23	7:3	175	.7611	22'33'45'6	0.010	0.007	87
88	34.41	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.116	0.077	88
89	34.56	6:2	128	.7761	22'33'44'	0.098	0.071	89
90	34.74	7:3	183	.7720	22'344'5'6	0.045	0.029	90
91	35.02	6:1	167	.7814	23'44'55'	0.020	0.014	91
92	35.37	7:3	185	.7848	22'3455'6	0.006	0.004	92
93	35.76	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.057	0.038	93
94	36.04	7:3	177	.8031	22'33'4'56	0.067	0.044	94
95	36.36	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.174	0.119	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.65	6:1	157	.8184	233'44'5'	0.043	0.031	97
98	36.83	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.20	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.007	0.004	99

Cen 1 comps Cup 8:25

100	37.46	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.017	0.011	100
101	37.74	8:4	197	.8293	22'33'44'66'	0.002	0.001	101
102	37.96	7:2	180	.8362	22'344'55'	0.141	0.093	102
103	38.23	7:2	193	.8397	233'4'55'6	0.013	0.009	103
104	38.56	7:2	191	.8447	233'44'5'6	0.003	0.002	104
105	38.93	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.15	7:2	170	.8740	22'33'44'5	0.117	0.077	106
107	40.42	7:2	190	.8740	233'44'56	0.020	0.013	107
108	41.28	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.59	8:3	201	.8875	22'33'4'55'6	0.054	0.033	109
110	42.15	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.057	0.034	110
111	43.43	7:1	189	.9142	233'44'55'	0.005	0.003	111
112	45.05	8:3	195	.9321	22'33'44'56	0.026	0.016	112
113	45.56	9:4	208	.9320	22'33'455'66'	0.011	0.006	113
114	46.64	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.07	8:2	194	.9620	22'33'44'55'	0.036	0.022	115
116	49.11	8:2	205	.9678	233'44'55'6	0.003	0.002	116
117	54.48	9:3	206	1.010	22'33'44'55'6	0.018	0.010	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 248.078 PPM

TOTAL MICROMOLES = 0.9524

AVERAGE MOLECULAR WEIGHT = 260.5

NUMBER OF CALIBRATED PEAKS FOUND= 106

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912111D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 3 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 8:25

Total PCBs in Sample= 248.08 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.63	2.25
Di	27.25	31.79
Tri	35.72	36.09
Tetra	20.71	18.50
Penta	9.99	8.01
Hexa	3.65	2.68
Hepta	0.83	0.55
Octa	0.19	0.12
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.51

Meta + Para Cl / biphenyl Residue = 1.59

TOTAL Cl / biphenyl Residue = 3.09

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912111D.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 3 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 8:25

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.22	1:1	001	.1544	2	1.429	1.972	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.81	1:0	003	.1975	4	0.201	0.277	4
5	19.59	2:2	004 010	.2245	22' ; 26	1.734	2.025	5
6	20.62	2:1	007 009	.2566	24 ; 25	0.195	0.228	6
7	20.97	2:1	006	.2709	23'	0.683	0.797	7
8	21.17	2:1	005 008	.2785	23 ; 24'	24.246	28.308	8
9	21.66	2:0	014	.2973	35	0.012	0.014	9
10	21.85	3:3	019	.3045	22'6	2.201	2.227	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.40	2:0	011	.3238	33'	0.133	0.156	12
13	22.58	2:0	012 013	.3297	34 ; 34'	0.041	0.048	13
14	22.73	3:2 2:0	018 015	.3387	22'5 ; 44'	0.831	0.870	14
15	22.81	3:2	017	.3398	22'4	9.886	10.001	15
16	23.10	3:2	024 027	.3508	236 ; 23'6	1.551	1.569	16
17	23.38	3:2	016 032	.3625	22'3 ; 24'6	6.108	6.179	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.78	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.277	0.269	19
20	23.94	3:1	029	.3820	245	0.000	0.000	20
21	24.06	3:1	026	.3911	23'5	1.582	1.600	21
22	24.13	3:1	025	.3937	23'4	1.763	1.784	22
23	24.32	3:1	031	.4024	24'5	2.130	2.155	23
24	24.36	3:1 4:3	028 050	.4031	244' ; 22'46	6.233	6.305	24
25	24.66	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.482	1.487	25
26	24.88	3:1 4:3	022 051	.4267	234' ; 22'46'	1.247	1.255	26
27	25.08	4:3	045	.4334	22'36	0.524	0.468	27
28	25.20	3:1	036	.4379	33'5	0.005	0.005	28
29	25.32	4:3	046	.4450	22'36'	0.154	0.138	29
30	25.43	3:1	039	.4488	34'5	0.032	0.032	30
31	25.58	4:2	052 073	.4554	22'55' ; 23'5'6	2.414	2.153	31
32	25.72	4:2	049	.4610	22'45	2.126	1.897	32
33	25.82	4:2	047	.4639	22'44'	2.796	2.494	33

wcu 1 comp 3 dup 9:47

100	37.47	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.020	0.013	100
101	37.77	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.98	7:2	180	.8362	22'344'55'	0.146	0.097	102
103	38.26	7:2	193	.8397	233'4'55'6	0.008	0.006	103
104	38.58	7:2	191	.8447	233'44'5'6	0.004	0.003	104
105	38.95	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.16	7:2	170	.8740	22'33'44'5	0.130	0.086	106
107	40.46	7:2	190	.8740	233'44'56	0.023	0.015	107
108	41.36	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.60	8:3	201	.8875	22'33'4'55'6	0.060	0.037	109
110	42.19	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.057	0.035	110
111	43.41	7:1	189	.9142	233'44'55'	0.005	0.003	111
112	45.05	8:3	195	.9321	22'33'44'56	0.026	0.016	112
113	45.60	9:4	208	.9320	22'33'455'66'	0.011	0.006	113
114	46.58	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.11	8:2	194	.9620	22'33'44'55'	0.034	0.020	115
116	49.07	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.51	9:3	206	1.010	22'33'44'55'6	0.019	0.011	117
118	0.00	10:1	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 252.429 PPM

TOTAL MICROMOLES = 0.9637

AVERAGE MOLECULAR WEIGHT = 261.9

NUMBER OF CALIBRATED PEAKS FOUND= 106

34	25.88	4:2	048 075	.4651	22'45 ; 244'6	0.537	0.482	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.07	3:0	035	.4738	33'4	0.013	0.014	36
37	26.21	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.567	1.406	37
38	26.32	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.462	1.406	38
39	26.61	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.393	2.147	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.75	5:4	096	.5057	22'366'	0.422	0.339	41
42	26.83	4:2	040	.5102	22'33'	0.298	0.268	42
43	27.03	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.403	0.353	43
44	27.17	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.217	0.190	44
45	27.30	4:1	058 063	.5267	233'5' ; 234'5	0.371	0.333	45
46	27.44	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.929	0.833	46
47	27.55	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.720	1.543	47
48	27.64	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.417	3.050	48
49	27.88	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.464	0.374	49
50	28.13	4:1	056 060	.5676	233'4' ; 2344'	0.760	0.682	50
51	28.32	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.686	1.353	51
52	28.41	5:3	089	.5779	22'346'	0.052	0.042	52
53	28.52	5:2	101 090	.5814	22'34'5 ; 22'455'	1.124	0.902	53
54	28.68	5:2	099	.5880	22'44'5	0.638	0.512	54
55	28.91	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.123	0.098	55
56	28.99	5:2	083 109	.6029	22'33'5 ; 233'46	0.177	0.142	56
57	29.18	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.470	0.377	57
58	29.33	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.448	0.360	58
59	29.47	5:2	085 116	.6224	22'344' ; 23456?	0.175	0.141	59
60	29.62	6:4	136	.6257	22'33'66'	0.104	0.075	60
61	29.70	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.459	2.040	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.05	5:2	082	.6453	22'33'4	0.131	0.105	63
64	30.32	6:3	151	.6499	22'355'6	0.187	0.136	64
65	30.45	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.288	0.216	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.59	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.191	0.149	67
68	30.67	5:1	123	.6658	2'344'5	0.026	0.021	68
69	30.79	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.842	1.430	69
70	30.96	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.012	0.009	70
71	31.19	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.120	0.091	71
72	31.39	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.026	0.020	72
73	31.68	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.214	0.156	73
74	31.83	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.803	0.604	74
75	31.97	6:2	153	.7036	22'44'55'	0.611	0.444	75
76	32.26	6:2	168	.7068	23'44'5'6	0.003	0.002	76
77	32.53	6:2	141	.7203	22'3455'	0.123	0.089	77
78	32.59	7:4	179	.7205	22'33'566'	0.057	0.038	78
79	32.82	6:2	130	.7284	22'33'45'	0.085	0.061	79
80	32.90	6:2	137	.7329	22'344'5	0.068	0.049	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.21	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.675	0.490	82
83	33.41	6:2	158	.7429	233'44'6	0.100	0.072	83
84	33.62	6:2	129	.7501	22'33'45	0.075	0.055	84
85	33.96	7:3	178	.7537	22'33'55'6	0.049	0.033	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.24	7:3	175	.7611	22'33'45'6	0.009	0.006	87
88	34.43	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.120	0.079	88
89	34.57	6:2	128	.7761	22'33'44'	0.108	0.079	89
90	34.75	7:3	183	.7720	22'344'5'6	0.048	0.032	90
91	35.03	6:1	167	.7814	23'44'55'	0.022	0.016	91
92	35.40	7:3	185	.7848	22'3455'6	0.006	0.004	92
93	35.78	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.064	0.042	93
94	36.07	7:3	177	.8031	22'33'4'56	0.071	0.047	94
95	36.37	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.194	0.133	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.67	6:1	157	.8184	233'44'5'	0.050	0.036	97
98	36.85	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.21	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912112D.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 2 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 9:47

Total PCBs in Sample= 252.43 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.49	2.07
Di	25.91	30.39
Tri	35.63	36.19
Tetra	21.43	19.26
Penta	10.49	8.45
Hexa	3.94	2.91
Hepta	0.88	0.59
Octa	0.19	0.12
Nona	0.03	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.52

Meta + Para Cl / biphenyl Residue = 1.62

TOTAL Cl / biphenyl Residue = 3.13

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912112D.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 3 DUPLICATE
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 9:47

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.23	1:1	001	.1544	2	1.356	1.883	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.81	1:0	003	.1975	4	0.137	0.190	4
5	19.60	2:2	004 010	.2245	22' ; 26	1.657	1.945	5
6	20.63	2:1	007 009	.2566	24 ; 25	0.190	0.223	6
7	20.97	2:1	006	.2709	23'	0.701	0.823	7
8	21.18	2:1	005 008	.2785	23 ; 24'	22.936	26.928	8
9	21.67	2:0	014	.2973	35	0.010	0.011	9
10	21.86	3:3	019	.3045	22'6	2.159	2.196	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.40	2:0	011	.3238	33'	0.167	0.196	12
13	22.58	2:0	012 013	.3297	34 ; 34'	0.045	0.053	13
14	22.74	3:2 2:0	018 015	.3387	22'5 ; 44'	0.806	0.848	14
15	22.82	3:2	017	.3398	22'4	9.702	9.869	15
16	23.11	3:2	024 027	.3508	236 ; 23'6	1.526	1.553	16
17	23.38	3:2	016 032	.3625	22'3 ; 24'6	5.971	6.073	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.79	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.273	0.267	19
20	23.95	3:1	029	.3820	245	0.002	0.002	20
21	24.07	3:1	026	.3911	23'5	1.697	1.726	21
22	24.14	3:1	025	.3937	23'4	1.848	1.879	22
23	24.33	3:1	031	.4024	24'5	2.284	2.323	23
24	24.37	3:1 4:3	028 050	.4031	244' ; 22'46	6.105	6.210	24
25	24.66	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.488	1.502	25
26	24.89	3:1 4:3	022 051	.4267	234' ; 22'46'	1.296	1.312	26
27	25.09	4:3	045	.4334	22'36	0.554	0.497	27
28	25.21	3:1	036	.4379	33'5	0.007	0.007	28
29	25.33	4:3	046	.4450	22'36'	0.169	0.151	29
30	25.44	3:1	039	.4488	34'5	0.030	0.031	30
31	25.58	4:2	052 073	.4554	22'55' ; 23'5'6	2.571	2.306	31
32	25.73	4:2	049	.4610	22'45	2.189	1.964	32
33	25.83	4:2	047	.4639	22'44'	2.754	2.470	33

Cell 1 Comp 3

34	25.86	4:2	048 075	.4651	22'45 ; 244'6	0.494	0.443	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.06	3:0	035	.4738	33'4	0.016	0.016	36
37	26.20	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.505	1.350	37
38	26.31	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.431	1.375	38
39	26.60	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.396	2.149	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.74	5:4	096	.5057	22'366'	0.415	0.333	41
42	26.82	4:2	040	.5102	22'33'	0.292	0.262	42
43	27.01	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.383	0.336	43
44	27.16	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.205	0.180	44
45	27.29	4:1	058 063	.5267	233'5' ; 234'5	0.368	0.330	45
46	27.43	4:1 5:3	074 094	.5340	244'5 ; 22'356'	0.925	0.830	46
47	27.53	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.718	1.541	47
48	27.63	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.420	3.052	48
49	27.87	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.466	0.376	49
50	28.12	4:1	056 060	.5676	233'4' ; 2344'	0.756	0.678	50
51	28.31	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.670	1.340	51
52	28.39	5:3	089	.5779	22'346'	0.053	0.042	52
53	28.50	5:2	101 090	.5814	22'34'5 ; 22'455'	1.142	0.916	53
54	28.67	5:2	099	.5880	22'44'5	0.642	0.515	54
55	28.90	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.115	0.093	55
56	28.98	5:2	083 109	.6029	22'33'5 ; 233'46	0.176	0.141	56
57	29.16	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.478	0.384	57
58	29.32	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.487	0.391	58
59	29.45	5:2	085 116	.6224	22'344' ; 23456?	0.186	0.149	59
60	29.56	6:4	136	.6257	22'33'66'	0.107	0.077	60
61	29.68	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.488	2.064	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.03	5:2	082	.6453	22'33'4	0.145	0.116	63
64	30.30	6:3	151	.6499	22'355'6	0.190	0.138	64
65	30.44	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.303	0.226	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.57	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.195	0.152	67
68	30.66	5:1	123	.6658	2'344'5	0.028	0.022	68
69	30.78	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.909	1.482	69
70	30.94	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.014	0.010	70
71	31.17	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.127	0.096	71
72	31.37	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.028	0.022	72
73	31.66	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.219	0.159	73
74	31.81	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.857	0.645	74
75	31.95	6:2	153	.7036	22'44'55'	0.640	0.465	75
76	32.25	6:2	168	.7068	23'44'5'6	0.003	0.002	76
77	32.51	6:2	141	.7203	22'3455'	0.140	0.102	77
78	32.57	7:4	179	.7205	22'33'566'	0.057	0.038	78
79	32.80	6:2	130	.7284	22'33'45'	0.100	0.072	79
80	32.88	6:2	137	.7329	22'344'5	0.071	0.051	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.19	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.738	0.535	82
83	33.38	6:2	158	.7429	233'44'6	0.117	0.085	83
84	33.59	6:2	129	.7501	22'33'45	0.098	0.071	84
85	33.94	7:3	178	.7537	22'33'55'6	0.054	0.036	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.21	7:3	175	.7611	22'33'45'6	0.014	0.009	87
88	34.40	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.127	0.084	88
89	34.55	6:2	128	.7761	22'33'44'	0.124	0.090	89
90	34.72	7:3	183	.7720	22'344'5'6	0.052	0.034	90
91	35.00	6:1	167	.7814	23'44'55'	0.025	0.018	91
92	35.36	7:3	185	.7848	22'3455'6	0.006	0.004	92
93	35.75	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.064	0.043	93
94	36.04	7:3	177	.8031	22'33'4'56	0.075	0.050	94
95	36.35	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.214	0.147	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.64	6:1	157	.8184	233'44'5'	0.055	0.040	97
98	36.83	7:3	173	.8152	22'33'456	0.001	0.001	98
99	37.19	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.005	0.003	99

Cell 1 comp 3

100	37.44	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.024	0.016	100
101	37.75	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.95	7:2	180	.8362	22'344'55'	0.155	0.103	102
103	38.21	7:2	193	.8397	233'4'55'6	0.010	0.007	103
104	38.53	7:2	191	.8447	233'44'5'6	0.004	0.003	104
105	38.93	8:4	199	.8494	22'33'4566'	0.003	0.002	105
106	40.12	7:2	170	.8740	22'33'44'5	0.137	0.091	106
107	40.41	7:2	190	.8740	233'44'56	0.024	0.016	107
108	41.31	8:3	198	.8845	22'33'455'6	0.002	0.001	108
109	41.56	8:3	201	.8875	22'33'4'55'6	0.050	0.031	109
110	42.13	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.061	0.037	110
111	43.38	7:1	189	.9142	233'44'55'	0.006	0.004	111
112	45.00	8:3	195	.9321	22'33'44'56	0.023	0.014	112
113	45.57	9:4	208	.9320	22'33'455'66'	0.016	0.009	113
114	46.57	9:4	207	.9423	22'33'44'566'	0.002	0.001	114
115	48.05	8:2	194	.9620	22'33'44'55'	0.034	0.021	115
116	49.01	8:2	205	.9678	233'44'55'6	0.001	0.001	116
117	54.44	9:3	206	1.010	22'33'44'55'6	0.017	0.010	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 239.942 PPM

TOTAL MICROMOLES = 0.9161

AVERAGE MOLECULAR WEIGHT = 261.9

NUMBER OF CALIBRATED PEAKS FOUND= 106

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912110F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 7:03

Total PCBs in Sample= 239.94 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.70	2.36
Di	26.05	30.55
Tri	35.13	35.69
Tetra	21.09	18.95
Penta	10.66	8.58
Hexa	4.22	3.12
Hepta	0.94	0.63
Octa	0.18	0.11
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.51

Meta + Para Cl / biphenyl Residue = 1.62

TOTAL Cl / biphenyl Residue = 3.13

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912110F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 3
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 7:03

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.22	1:1	001	.1544	2	1.442	2.001	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.80	1:0	003	.1975	4	0.256	0.355	4
5	19.58	2:2	004 010	.2245	22' ; 26	1.698	1.993	5
6	20.62	2:1	007 009	.2566	24 ; 25	0.202	0.237	6
7	20.96	2:1	006	.2709	23'	0.685	0.805	7
8	21.17	2:1	005 008	.2785	23 ; 24'	23.053	27.065	8
9	21.66	2:0	014	.2973	35	0.010	0.012	9
10	21.85	3:3	019	.3045	22'6	2.161	2.198	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.39	2:0	011	.3238	33'	0.157	0.184	12
13	22.57	2:0	012 013	.3297	34 ; 34'	0.046	0.054	13
14	22.73	3:2 2:0	018 015	.3387	22'5 ; 44'	0.781	0.821	14
15	22.81	3:2	017	.3398	22'4	9.718	9.885	15
16	23.10	3:2	024 027	.3508	236 ; 23'6	1.505	1.530	16
17	23.37	3:2	016 032	.3625	22'3 ; 24'6	5.948	6.050	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.77	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.277	0.270	19
20	23.94	3:1	029	.3820	245	0.002	0.002	20
21	24.06	3:1	026	.3911	23'5	1.612	1.640	21
22	24.13	3:1	025	.3937	23'4	1.811	1.842	22
23	24.31	3:1	031	.4024	24'5	2.397	2.438	23
24	24.36	3:1 4:3	028 050	.4031	244' ; 22'46	5.757	5.855	24
25	24.65	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.429	1.442	25
26	24.87	3:1 4:3	022 051	.4267	234' ; 22'46'	1.263	1.279	26
27	25.08	4:3	045	.4334	22'36	0.546	0.490	27
28	25.20	3:1	036	.4379	33'5	0.006	0.006	28
29	25.32	4:3	046	.4450	22'36'	0.158	0.142	29
30	25.43	3:1	039	.4488	34'5	0.034	0.035	30
31	25.57	4:2	052 073	.4554	22'55' ; 23'5'6	2.448	2.195	31
32	25.72	4:2	049	.4610	22'45	2.116	1.898	32
33	25.81	4:2	047	.4639	22'44'	2.785	2.498	33

cell 1 comp 2

34	25.87	4:2	048 075	.4651	22'45 ; 244'6	0.552	0.500	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.05	3:0	035	.4738	33'4	0.025	0.026	36
37	26.20	5:4 4:2	104 044	.4832	22'466' ; 22'35'	1.870	1.696	37
38	26.31	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.726	1.678	38
39	26.60	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	3.097	2.808	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.73	5:4	096	.5057	22'366'	0.451	0.366	41
42	26.82	4:2	040	.5102	22'33'	0.345	0.313	42
43	27.01	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.426	0.377	43
44	27.16	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.256	0.227	44
45	27.29	4:1	058 063	.5267	233'5' ; 234'5	0.390	0.354	45
46	27.43	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.064	0.965	46
47	27.53	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	1.635	1.482	47
48	27.63	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.531	3.186	48
49	27.87	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.523	0.427	49
50	28.12	4:1	056 060	.5676	233'4' ; 2344'	0.791	0.718	50
51	28.31	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.826	1.481	51
52	28.39	5:3	089	.5779	22'346'	0.063	0.051	52
53	28.50	5:2	101 090	.5814	22'34'5 ; 22'455'	1.073	0.870	53
54	28.67	5:2	099	.5880	22'44'5	0.588	0.477	54
55	28.90	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.117	0.095	55
56	28.98	5:2	083 109	.6029	22'33'5 ; 233'46	0.194	0.158	56
57	29.16	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.469	0.381	57
58	29.32	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.457	0.371	58
59	29.45	5:2	085 116	.6224	22'344' ; 23456?	0.175	0.142	59
60	29.58	6:4	136	.6257	22'33'66'	0.110	0.081	60
61	29.68	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.593	2.174	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.03	5:2	082	.6453	22'33'4	0.136	0.111	63
64	30.31	6:3	151	.6499	22'355'6	0.158	0.116	64
65	30.44	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.242	0.183	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.57	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.174	0.137	67
68	30.66	5:1	123	.6658	2'344'5	0.022	0.018	68
69	30.78	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.670	1.311	69
70	30.95	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.016	0.011	70
71	31.18	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.112	0.085	71
72	31.37	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.021	0.016	72
73	31.66	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.181	0.133	73
74	31.81	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.767	0.584	74
75	31.95	6:2	153	.7036	22'44'55'	0.502	0.368	75
76	32.24	6:2	168	.7068	23'44'5'6	0.003	0.002	76
77	32.51	6:2	141	.7203	22'3455'	0.098	0.072	77
78	32.57	7:4	179	.7205	22'33'566'	0.047	0.031	78
79	32.80	6:2	130	.7284	22'33'45'	0.070	0.052	79
80	32.88	6:2	137	.7329	22'344'5	0.057	0.042	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.19	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.570	0.418	82
83	33.38	6:2	158	.7429	233'44'6	0.082	0.060	83
84	33.60	6:2	129	.7501	22'33'45	0.066	0.048	84
85	33.95	7:3	178	.7537	22'33'55'6	0.040	0.027	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.22	7:3	175	.7611	22'33'45'6	0.009	0.006	87
88	34.40	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.109	0.073	88
89	34.55	6:2	128	.7761	22'33'44'	0.092	0.067	89
90	34.73	7:3	183	.7720	22'344'5'6	0.042	0.028	90
91	35.02	6:1	167	.7814	23'44'55'	0.016	0.011	91
92	35.37	7:3	185	.7848	22'3455'6	0.006	0.004	92
93	35.75	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.052	0.035	93
94	36.04	7:3	177	.8031	22'33'4'56	0.060	0.040	94
95	36.35	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.159	0.110	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.64	6:1	157	.8184	233'44'5'	0.037	0.027	97
98	36.83	7:3	173	.8152	22'33'456	0.002	0.001	98
99	37.19	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99

cell 1 Grp 2

99	37.19	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.006	0.004	99
100	37.44	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.016	0.011	100
101	37.76	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.95	7:2	180	.8362	22'344'55'	0.134	0.090	102
103	38.22	7:2	193	.8397	233'4'55'6	0.010	0.006	103
104	38.53	7:2	191	.8447	233'44'5'6	0.003	0.002	104
105	38.91	8:4	199	.8494	22'33'4566'	0.002	0.001	105
106	40.12	7:2	170	.8740	22'33'44'5	0.110	0.074	106
107	40.42	7:2	190	.8740	233'44'56	0.016	0.011	107
108	0.00	8:3	198	.8845	22'33'455'6	0.000	0.000	108
109	41.55	8:3	201	.8875	22'33'4'55'6	0.054	0.033	109
110	42.14	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.063	0.039	110
111	43.38	7:1	189	.9142	233'44'55'	0.005	0.004	111
112	45.01	8:3	195	.9321	22'33'44'56	0.025	0.015	112
113	45.56	9:4	208	.9320	22'33'455'66'	0.013	0.007	113
114	46.57	9:4	207	.9423	22'33'44'566'	0.003	0.002	114
115	48.05	8:2	194	.9620	22'33'44'55'	0.034	0.021	115
116	49.04	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.46	9:3	206	1.010	22'33'44'55'6	0.023	0.013	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 215.521 PPM

TOTAL MICROMOLES = 0.8139

AVERAGE MOLECULAR WEIGHT = 264.8

NUMBER OF CALIBRATED PEAKS FOUND= 104

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912109F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 5:41

Total PCBs in Sample= 215.52 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	2.15	3.02
Di	18.59	22.03
Tri	39.91	40.99
Tetra	24.30	22.08
Penta	10.64	8.67
Hexa	3.43	2.56
Hepta	0.76	0.51
Octa	0.19	0.11
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.53

Meta + Para Cl / biphenyl Residue = 1.69

TOTAL Cl / biphenyl Residue = 3.22

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912109F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 2
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 5:41

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.22	1:1	001	.1544	2	1.832	2.571	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.81	1:0	003	.1975	4	0.317	0.445	4
5	19.59	2:2	004 010	.2245	22' ; 26	1.680	1.994	5
6	20.62	2:1	007 009	.2566	24 ; 25	0.292	0.347	6
7	20.96	2:1	006	.2709	23'	0.985	1.170	7
8	21.17	2:1	005 008	.2785	23 ; 24'	15.128	17.956	8
9	0.00	2:0	014	.2973	35	0.000	0.000	9
10	21.85	3:3	019	.3045	22'6	1.953	2.009	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.40	2:0	011	.3238	33'	0.178	0.211	12
13	22.57	2:0	012 013	.3297	34 ; 34'	0.057	0.068	13
14	22.73	3:2 2:0	018 015	.3387	22'5 ; 44'	1.088	1.157	14
15	22.81	3:2	017	.3398	22'4	9.266	9.528	15
16	23.10	3:2	024 027	.3508	236 ; 23'6	1.406	1.446	16
17	23.37	3:2	016 032	.3625	22'3 ; 24'6	5.372	5.524	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.78	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.290	0.287	19
20	23.94	3:1	029	.3820	245	0.002	0.002	20
21	24.05	3:1	026	.3911	23'5	2.541	2.613	21
22	24.13	3:1	025	.3937	23'4	3.490	3.589	22
23	24.31	3:1	031	.4024	24'5	3.285	3.378	23
24	24.36	3:1 4:3	028 050	.4031	244' ; 22'46	7.470	7.682	24
25	24.65	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.782	1.819	25
26	24.88	3:1 4:3	022 051	.4267	234' ; 22'46'	1.425	1.458	26
27	25.08	4:3	045	.4334	22'36	0.725	0.658	27
28	25.20	3:1	036	.4379	33'5	0.007	0.007	28
29	25.32	4:3	046	.4450	22'36'	0.214	0.194	29
30	25.43	3:1	039	.4488	34'5	0.033	0.034	30
31	25.57	4:2	052 073	.4554	22'55' ; 23'5'6	3.164	2.869	31
32	25.72	4:2	049	.4610	22'45	2.773	2.515	32
33	25.82	4:2	047	.4639	22'44'	2.761	2.504	33

34	25.87	4:2	048 075	.4651	22'45 ; 244'6	0.527	0.480	34
35	0.00	4:2	065 062	.4865	2346 ; 2356	0.000	0.000	35
36	26.06	3:0	035	.4738	33'4	0.018	0.018	36
37	26.20	5:4 4:2	104 044	.4832	22'466' ; 22'35'	2.234	2.034	37
38	26.31	3:0 4:2	037 042	.4870	344' ; 22'34' ; 233'6	1.745	1.703	38
39	26.60	4:2	064 071	.4990	23'34 ; 234'6 ; 23'4'6 +	2.717	2.474	39
40	0.00	4:1	068	.5040	23'45' ?	0.000	0.000	40
41	26.74	5:4	096	.5057	22'366'	0.421	0.343	41
42	26.82	4:2	040	.5102	22'33'	0.428	0.390	42
43	27.02	5:3 4:1	103 057	.5155	22'45'6 ; 233'5	0.346	0.308	43
44	27.16	5:3 4:1	100 067	.5212	22'44'6 ; 23'4'5	0.227	0.202	44
45	27.29	4:1	058 063	.5267	233'5' ; 234'5	0.303	0.276	45
46	27.43	4:1 5:3	074 094	.5340	244'5 ; 22'356'	1.014	0.923	46
47	27.54	4:1	070 061	.5407	23'4'5 ; 2'345 ; 2345?	2.096	1.908	47
48	27.63	4:1 5:3	066 095	.5447	23'44' ; 22'356 ; 22'35'6	3.852	3.489	48
49	27.87	5:3 4:1	091 098	.5549	22'34'6 ; 22'3'46 ; 233'4	0.497	0.407	49
50	28.12	4:1	056 060	.5676	233'4' ; 2344'	1.005	0.915	50
51	28.31	6:4 5:3	155 084	.5666	22'44'66' ; 22'33'6; 22'355'	1.794	1.461	51
52	28.39	5:3	089	.5779	22'346'	0.062	0.050	52
53	28.51	5:2	101 090	.5814	22'34'5 ; 22'455'	1.154	0.940	53
54	28.67	5:2	099	.5880	22'44'5	0.606	0.494	54
55	28.90	6:4 5:2	150 112	.5969	22'34'66' ; 233'56 ; 23'44'6	0.117	0.096	55
56	28.98	5:2	083 109	.6029	22'33'5 ; 233'46	0.184	0.150	56
57	29.17	6:4 5:2	152 097	.6062	22'3566' ; 22'345 ; 22'3'45	0.518	0.422	57
58	29.32	5:2	087 111	.6175	22'345' ; 233'55' ; 2344'6	0.569	0.464	58
59	29.46	5:2	085 116	.6224	22'344' ; 23456?	0.231	0.188	59
60	29.58	6:4	136	.6257	22'33'66'	0.114	0.084	60
61	29.68	4:0 5:2	077 110	.6295	33'44' ; 233'4'6	2.633	2.217	61
62	0.00	6:3	154	.6349	22'44'56'	0.000	0.000	62
63	30.04	5:2	082	.6453	22'33'4	0.173	0.141	63
64	30.31	6:3	151	.6499	22'355'6	0.185	0.136	64
65	30.45	6:3 5:1	135 124	.6563	22'33'56' ; 2'344'5	0.301	0.229	65
66	0.00	6:3	144	.6584	22'345'6	0.000	0.000	66
67	30.57	5:1 6:3	107 108	.6628	233'4'5 ; 233'45' ; 22'34'56	0.179	0.141	67
68	30.66	5:1	123	.6658	2'344'5	0.034	0.027	68
69	30.78	6:3 5:1	149 118	.6672	22'34'5'6 ; 23'44'5 ; 233'45	1.869	1.472	69
70	30.96	6:3	139 140	.6707	22'344'6 ; 22'344'6'	0.016	0.012	70
71	31.18	6:3 5:1	134 143	.6796	22'33'56' ; 22'3456'; 2344'5	0.142	0.108	71
72	31.37	5:1 6:3	122 131	.6871	2'33'45; 22'33'46;22'33'55'+	0.026	0.020	72
73	31.67	6:2	146 161	.6955	22'34'55' ; 233'45'6	0.204	0.151	73
74	31.81	6:3 5:1	132 105	.7035	22'33'46' ; 233'44'	0.984	0.753	74
75	31.95	6:2	153	.7036	22'44'55'	0.618	0.456	75
76	32.24	6:2	168	.7068	23'44'5'6	0.002	0.001	76
77	32.51	6:2	141	.7203	22'3455'	0.143	0.105	77
78	32.58	7:4	179	.7205	22'33'566'	0.051	0.034	78
79	32.80	6:2	130	.7284	22'33'45'	0.101	0.074	79
80	32.88	6:2	137	.7329	22'344'5	0.078	0.057	80
81	0.00	7:4	176	.7305	22'33'466'	0.000	0.000	81
82	33.20	6:2	138 163	.7403	22'344'5' ; 233'4'56 ; +2	0.759	0.559	82
83	33.38	6:2	158	.7429	233'44'6	0.120	0.088	83
84	33.60	6:2	129	.7501	22'33'45	0.094	0.069	84
85	33.94	7:3	178	.7537	22'33'55'6	0.042	0.028	85
86	0.00	6:2	166	.7572	2344'56	0.000	0.000	86
87	34.24	7:3	175	.7611	22'33'45'6	0.009	0.006	87
88	34.41	7:3	187 182	.7653	22'34'55'6 ; 22'344'56'	0.117	0.079	88
89	34.56	6:2	128	.7761	22'33'44'	0.130	0.096	89
90	34.74	7:3	183	.7720	22'344'5'6	0.054	0.036	90
91	35.01	6:1	167	.7814	23'44'55'	0.023	0.017	91
92	35.38	7:3	185	.7848	22'3455'6	0.007	0.005	92
93	35.76	7:3	174 181	.7965	22'33'456' ; 22'344'56	0.061	0.041	93
94	36.05	7:3	177	.8031	22'33'4'56	0.071	0.048	94
95	36.35	7:3 6:1	171 156	.8105	22'33'44'6 ; 233'44'5	0.217	0.151	95
96	0.00	8:4	202	.8089	22'33'55'66'	0.000	0.000	96
97	36.65	6:1	157	.8184	233'44'5'	0.053	0.039	97
98	36.82	7:3	173	.8152	22'33'456	0.002	0.002	98
99	37.15	8:4	200 204	.8197	22'33'45'66' ; 22'344'566'	0.011	0.007	99

100	37.45	7:2	172 192	.8278	22'33'455' ; 233'455'6	0.021	0.014	100
101	37.75	8:4	197	.8293	22'33'44'66'	0.001	0.001	101
102	37.95	7:2	180	.8362	22'344'55'	0.154	0.104	102
103	38.23	7:2	193	.8397	233'4'55'6	0.011	0.007	103
104	38.55	7:2	191	.8447	233'44'5'6	0.005	0.003	104
105	38.95	8:4	199	.8494	22'33'4566'	0.006	0.004	105
106	40.13	7:2	170	.8740	22'33'44'5	0.141	0.095	106
107	40.42	7:2	190	.8740	233'44'56	0.026	0.017	107
108	0.00	8:3	198	.8845	22'33'455'6	0.000	0.000	108
109	41.57	8:3	201	.8875	22'33'4'55'6	0.053	0.033	109
110	42.14	8:3	196 203	.8935	22'33'44'5'6 ; 22'344'55'6	0.058	0.036	110
111	43.39	7:1	189	.9142	233'44'55'	0.005	0.003	111
112	45.07	8:3	195	.9321	22'33'44'56	0.025	0.015	112
113	45.56	9:4	208	.9320	22'33'455'66'	0.008	0.004	113
114	46.57	9:4	207	.9423	22'33'44'566'	0.011	0.006	114
115	48.06	8:2	194	.9620	22'33'44'55'	0.037	0.023	115
116	49.02	8:2	205	.9678	233'44'55'6	0.002	0.001	116
117	54.49	9:3	206	1.010	22'33'44'55'6	0.017	0.010	117
118	0.00	10:4	209	1.050	22'33'44'55'66'	0.000	0.000	118

CONCENTRATION = 159.155 PPM

TOTAL MICROMOLES = 0.5986

AVERAGE MOLECULAR WEIGHT = 265.9

NUMBER OF CALIBRATED PEAKS FOUND= 103

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

PCB SUMMARY REPORT

NEA FILE NAME: 912108F.hom

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 4:19

Total PCBs in Sample= 159.15 PPM

PCB Homolog Distribution

PCB Homologs	Weight Percent	Mole Percent
Mono	1.66	2.34
Di	20.21	24.05
Tri	36.79	37.94
Tetra	24.72	22.56
Penta	11.19	9.15
Hexa	4.29	3.21
Hepta	0.91	0.62
Octa	0.19	0.12
Nona	0.04	0.02
Deca	0.00	0.00

Ortho Cl / biphenyl Residue = 1.54

Meta + Para Cl / biphenyl Residue = 1.71

TOTAL Cl / biphenyl Residue = 3.25

NORTHEAST ANALYTICAL, INC.

301 NOTT STREET
SCHENECTADY, NY 12305
(518) 346-4592

CONGENER WEIGHT and MOLE REPORT

NEA FILE NAME: 912108F.mol

CUSTOMER: BLASLAND & BOUCK ENGINEERS
SAMPLE DESCRIPTION: CELL 1 COMP 1
COMMENT: 1991 SHEBOYGAN RIVER SEDIMENT SAMPLES
DATE ACQUIRED: 28-AUG-1991 4:19

TYPE FOR MIXED PEAK DECONVOLUTION= S

PEAK#	RET. TIME	T-CL:O-CL	IUPAC#	RRT	CONGENERS	WEIGHT %	MOLE %	PEAK#
1	0.00	0:0	000	.0997	BIPHENYL	0.000	0.000	1
2	17.22	1:1	001	.1544	2	1.373	1.935	2
3	0.00	1:0	002	.1937	3	0.000	0.000	3
4	18.81	1:0	003	.1975	4	0.287	0.405	4
5	19.59	2:2	004 010	.2245	22' ; 26	1.618	1.928	5
6	20.62	2:1	007 009	.2566	24 ; 25	0.205	0.244	6
7	20.97	2:1	006	.2709	23'	0.707	0.843	7
8	21.17	2:1	005 008	.2785	23 ; 24'	17.063	20.336	8
9	0.00	2:0	014	.2973	35	0.000	0.000	9
10	21.85	3:3	019	.3045	22'6	1.982	2.047	10
11	0.00	3:2	030	.3165	246	0.000	0.000	11
12	22.39	2:0	011	.3238	33'	0.211	0.252	12
13	22.57	2:0	012 013	.3297	34 ; 34'	0.066	0.079	13
14	22.73	3:2 2:0	018 015	.3387	22'5 ; 44'	1.380	1.474	14
15	22.81	3:2	017	.3398	22'4	8.897	9.187	15
16	23.10	3:2	024 027	.3508	236 ; 23'6	1.402	1.448	16
17	23.38	3:2	016 032	.3625	22'3 ; 24'6	5.505	5.685	17
18	0.00	3:1	023	.3770	235	0.000	0.000	18
19	23.78	3:1 4:4	034 054	.3800	2'35 ; 22'66'	0.232	0.230	19
20	23.95	3:1	029	.3820	245	0.002	0.002	20
21	24.06	3:1	026	.3911	23'5	2.338	2.414	21
22	24.13	3:1	025	.3937	23'4	2.179	2.250	22
23	24.32	3:1	031	.4024	24'5	3.274	3.381	23
24	24.36	3:1 4:3	028 050	.4031	244' ; 22'46	5.694	5.880	24
25	24.65	3:1 4:3	021 033	.4170	233' ; 234 ; 22'56'	1.885	1.932	25
26	24.88	3:1 4:3	022 051	.4267	234' ; 22'46'	1.548	1.591	26
27	25.08	4:3	045	.4334	22'36	0.629	0.572	27
28	0.00	3:1	036	.4379	33'5	0.000	0.000	28
29	25.32	4:3	046	.4450	22'36'	0.222	0.202	29
30	25.43	3:1	039	.4488	34'5	0.025	0.025	30
31	25.58	4:2	052 073	.4554	22'55' ; 23'5'6	3.249	2.958	31
32	25.72	4:2	049	.4610	22'45	2.517	2.292	32
33	25.82	4:2	047	.4639	22'44'	2.643	2.407	33

NORTHEAST ANALYTICAL

ENVIRONMENTAL LAB SERVICES

301 Nott Street, Schenectady, NY 12305 (518) 346-4592

SHEBOYGAN RIVER SURVEY

BLASLAND & BOUCK ENGINEERS
6723 TOWPATH ROAD
SYRACUSE, NEW YORK 12314

CONTACT: MR. STUART MESSUR

DATE: 09\03\91
LABORATORY ELAP # 11078

N E A ID	B & B ID	SAMPLE LOCATION	DATE RECEIVED	DATE EXTRACTED	TOTAL PCBs (ppm)
91002108	CELL 1-COMP.1	SHEBOYGAN	07\24\91	07\27\91	159.15
91002109	CELL 1-COMP.2	SHEBOYGAN	07\24\91	07\27\91	215.52
91002110	CELL 1-COMP.3	SHEBOYGAN	07\24\91	07\27\91	239.94
91002111D	CELL 1-COMP.3-DUP	SHEBOYGAN	07\24\91	07\27\91	248.08
91002112D	CELL 1-COMP.3-DUP	SHEBOYGAN	07\24\91	07\27\91	252.43
91002113S	CELL 1-COMP.3-MS	SHEBOYGAN	07\24\91	07\27\91	301.73
91002114	CELL 1-COMP.4	SHEBOYGAN	07\24\91	07\27\91	392.91
91002115	CELL 1-COMP.5	SHEBOYGAN	07\24\91	07\27\91	261.12
91002116	CELL 2-COMP.1	SHEBOYGAN	07\24\91	07\27\91	186.86
91002117	CELL 2-COMP.2	SHEBOYGAN	07\24\91	07\27\91	112.15
91002118D	CELL 2-COMP.2-DUP	SHEBOYGAN	07\24\91	07\27\91	116.81
91002119D	CELL 2-COMP.2-DUP	SHEBOYGAN	07\24\91	07\27\91	209.49
91002120S	CELL 2-COMP.2-MS	SHEBOYGAN	07\24\91	07\27\91	161.96
91002154	CELL 2-COMP.3	SHEBOYGAN	07\25\91	08\01\91	107.94
91002155	CELL 2-COMP.4	SHEBOYGAN	07\25\91	08\01\91	361.63
91002156	CELL 2-COMP.5	SHEBOYGAN	07\25\91	08\01\91	125.03
91002157	CELL 3-COMP.1	SHEBOYGAN	07\25\91	08\01\91	125.86
91002158D	CELL 3-COMP.1-DUP	SHEBOYGAN	07\25\91	08\01\91	70.17
91002159D	CELL 3-COMP.1-DUP	SHEBOYGAN	07\25\91	08\01\91	110.33
91002160	CELL 3-COMP.2	SHEBOYGAN	07\25\91	08\01\91	98.00
91002321	CELL 3-COMP.3	SHEBOYGAN	07\25\91	08\01\91	96.28
91002322	CELL 3-COMP.4	SHEBOYGAN	07\25\91	08\01\91	76.33
91002323	CELL 3-COMP.5	SHEBOYGAN	07\25\91	08\01\91	132.87
91002324	CELL 4-COMP.1	SHEBOYGAN	07\26\91	08\01\91	65.54
91002325	CELL 4-COMP.2	SHEBOYGAN	07\26\91	08\01\91	123.36
91002326	CELL 4-COMP.3	SHEBOYGAN	07\26\91	08\01\91	106.25
91002327	CELL 4-COMP.4	SHEBOYGAN	07\26\91	08\01\91	131.89
91002328D	CELL 4-COMP.4-DUP	SHEBOYGAN	07\26\91	08\01\91	163.34
91002329D	CELL 4-COMP.4-DUP	SHEBOYGAN	07\26\91	08\01\91	142.34
91002330	CELL 4-COMP.5	SHEBOYGAN	07\26\91	08\01\91	185.71
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Northeast Analytical, Inc.
Robert E. Wagner
Laboratory Director

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NORTHEAST ANALYTICAL

ENVIRONMENTAL LAB SERVICES

301 Nott Street, Schenectady, NY 12305 (518) 346-4592

SHEBOYGAN RIVER SURVEY

BLASLAND & BOUCK ENGINEERS
6723 TOWPATH ROAD
SYRACUSE, NEW YORK 12314

CONTACT: MR. STUART MESSUR

DATE: 09\03\91
LABORATORY ELAP: #11078

QA/QC DATA

PEAK NUMBER	CONGENER NUMBER	PC0828A %DIFFERENCE	PC0828B %DIFFERENCE	PC0828C %DIFFERENCE	PC0828D %DIFFERENCE	PC0828E %DIFFERENCE
7	6	0.50%	1.12%	3.37%	3.24%	1.12%
37	44	0.63%	2.48%	1.71%	2.27%	3.11%
47	61	2.39%	0.45%	0.30%	1.00%	0.40%
93	181	6.57%	5.38%	4.05%	4.62%	6.10%
102	180	3.88%	3.97%	2.77%	3.34%	2.07%
116	205	3.95%	6.58%	6.58%	0.00%	2.63%

SPIKE:

91002101 = 239.94 ppm
91002101/S = 301.73 ppm

PERCENT RECOVERY = 127.9%

SPIKE:

91002120 = 161.96 ppm
91002120/S = 112.15 ppm

PERCENT RECOVERY = 103.2%

BLANK:

910801BK1E : .01 ppm

Northeast Analytical, Inc.

Robert E. Wagner
Laboratory Director

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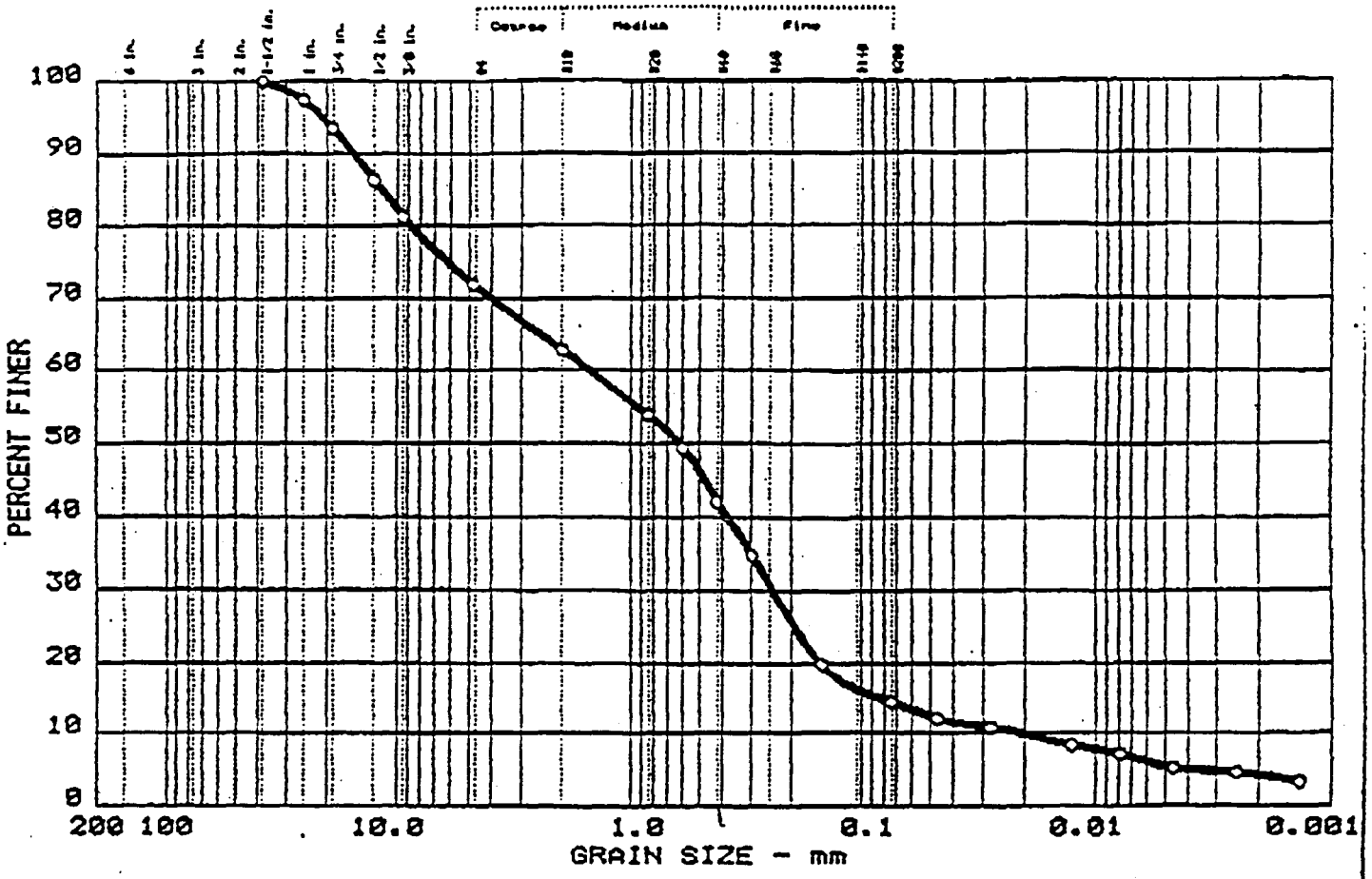
GRAIN SIZE DISTRIBUTION TEST REPORT



Symbol	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
O	0.0	28.1	57.4	9.1	5.4

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
O	----	----	11.75	1.51	0.61	0.243	0.0822	0.0209	1.86	72.4

MATERIAL DESCRIPTION	USCS
O Gray Fine-Coarse SAND, Some Gravel, Little Silt & Clay	SM

Project No.: 30147.16
Project: Hazleton Laboratories
O Sample: 10705284-Composite Soil
Cell 3-2

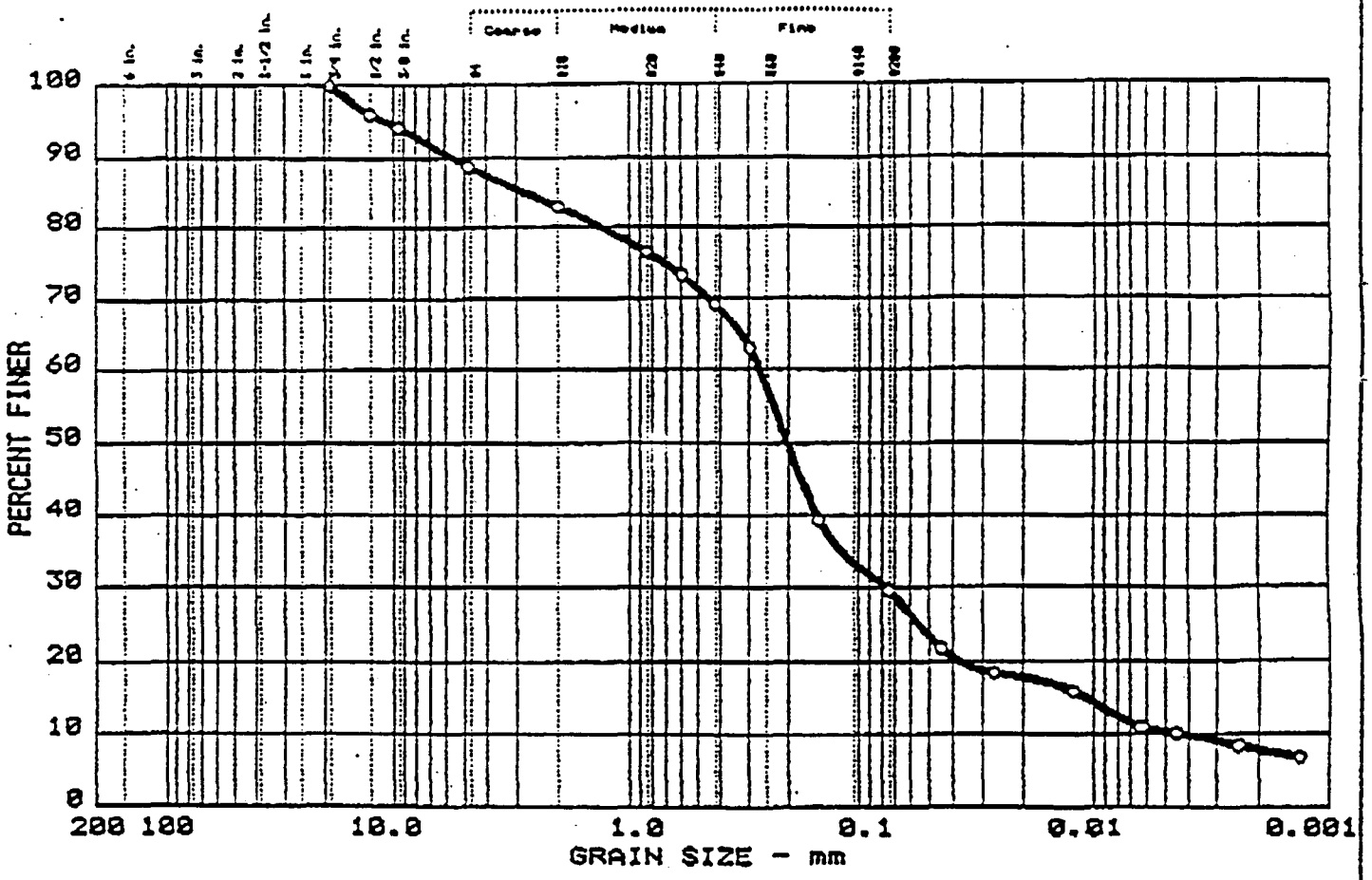
Date: 08/22/91

Remarks:
TESTED BY DWA/RWP
CHECKED BY DWA
APPROVED BY [illegible]

GRAIN SIZE DISTRIBUTION TEST REPORT
WARZYN, INC.

Sheet No.

GRAIN SIZE DISTRIBUTION TEST REPORT



Symbol	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
o	0.0	11.3	59.1	19.3	10.3

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
o	----	----	2.79	0.27	0.20	0.076	0.0107	0.0040	5.37	67.6

MATERIAL DESCRIPTION	USCS
o Gray Fine-Coarse SAND, Some Silt, Little Gravel & Clay	SM

Project No.: 30147.16
Project: Hazleton Laboratories
o Sample: 10705285-Composite Soil
Cell 4-2

Date: 08/22/91

Remarks:
TESTED BY DWA/RWP
CHECKED BY DWA
APPROVED BY VJR

GRAIN SIZE DISTRIBUTION TEST REPORT
WARZYN, INC.

Sheet No.

NEA ID	CUSTOMER ID	OIL & GREASE/SAMPLE (DRY MASS) (mg/g)
91002119	CELL 2-COMPOSITE-2 DUP	0.330
91002154	CELL 2-COMPOSITE-3	0.477
91002155	CELL 2-COMPOSITE-4	0.198
91002156	CELL 2-COMPOSITE-5	0.265
91002157	CELL 3-COMPOSITE-1	0.188
91002158	CELL 3-COMPOSITE-1 DUP	0.211
91002159	CELL 3-COMPOSITE-1 DUP	0.192
91002160	CELL 3-COMPOSITE-2	0.211
91002321	CELL 3-COMPOSITE-3	0.133
91002322	CELL 3-COMPOSITE 4	0.182
91002323	CELL 3-COMPOSITE-5	0.192
91002324	CELL 4-COMPOSITE-1	0.197
91002325	CELL 4-COMPOSITE-2	0.244
91002326	CELL 4-COMPOSITE-3	0.179
91002327	CELL 4-COMPOSITE-4	0.243
91002328	CELL 4-COMPOSITE-4 DUP	0.225
91002329	CELL 4-COMPOSITE-4 DUP	0.229
91002330	CELL 4-COMPOSITE-5	0.260
91002330/D	CELL 4-COMPOSITE-5	0.304
910930BK1E		0.000

Northeast Analytical, Inc.

Bob Wagner

By:Robert E. Wagner
Laboratory Director

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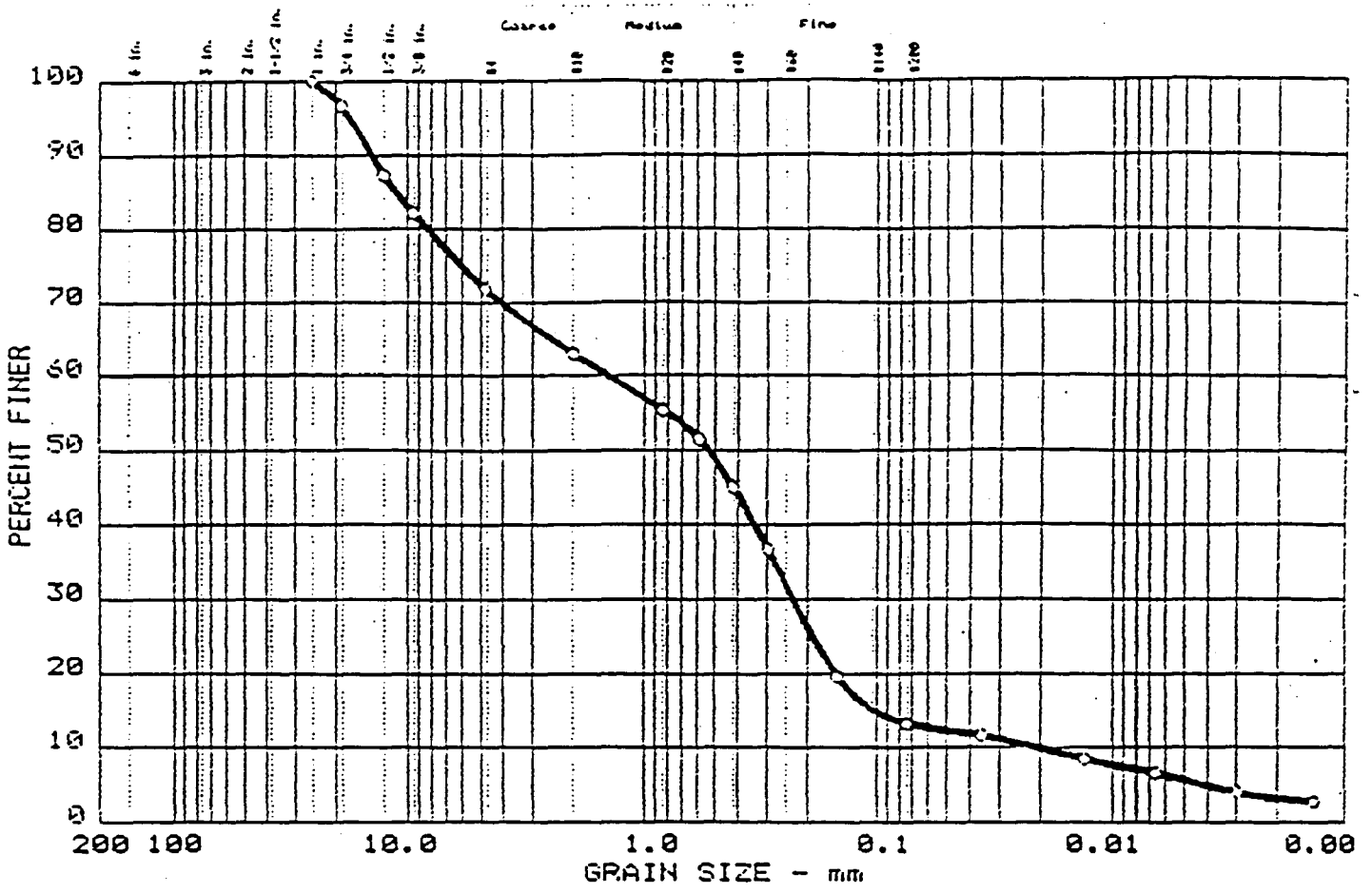
GRAIN SIZE DISTRIBUTION TEST REPORT



Symbol	% +3"	% GRAVEL	% SAND	% SILT	% CLAY
○	0.0	28.1	58.6	7.6	5.7

	LL	PI	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	----	----	11.22	1.41	0.54	0.231	0.1034	0.0199	1.90	70.9

MATERIAL DESCRIPTION	USCS
○ Dark Brown Fine-Coarse SAND, Some Gravel, Little Silt & Clay	SM

Project No.: 30147.00
Project: HAZLETON LABORATORIES OF AMERICA, INC.
○ Sample: 10704472 - COMPOSITE SOIL
Cell 2 Composite 1
Date: 7/29/91

Remarks:
TESTED BY DWA/RWP
CHECKED BY DWA
APPROVED BY VJK

GRAIN SIZE DISTRIBUTION TEST REPORT
WARZYN, INC.

Sheet No.

NORTHEAST ANALYTICAL

ENVIRONMENTAL LAB SERVICES

301 Nott Street, Schenectady, NY 12305 (518) 346-4592

BLASLAND & BOUCK ENGINEERS, P.C.
6723 TOWPATH ROAD
SYRACUSE, NEW YORK 13214

CONTACT: STUART MESSUR
REPORT DATE: 10\26\91

PARAMETER: TOC LAB ELAP #: 11140

METHOD: SW846-9060 MATRIX: SOIL/SEDIMENT

NEA ID	BLASLAND & BOUCK ID	RESULTS	STD DEV.	UNITS	TEST DATE
91002111	CELL 1-COMPOSITE 3 DUP	5,695	681	ug/gm	10\18\91
91002112	CELL 1-COMPOSITE 3 DUP	7,392	6.9	ug/gm	10\18\91
91002113	CELL 1-COMPOSITE 3 MS	14.035	3.319	ug/gm	10\18\91
91002118	CELL 2-COMPOSITE 2 DUP	11,264	360	ug/gm	10\18\91
91002119	CELL 2-COMPOSITE 2 DUP	4,113	750	ug/gm	10\18\91
91002120	CELL 2-COMPOSITE 2 MS	7,901	628	ug/gm	10\18\91

Northeast Analytical, Inc.

Robert E. Wagner
Laboratory Director

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NORTHEAST ANALYTICAL
ENVIRONMENTAL LAB SERVICES
301 Nott Street, Schenectady, NY 12305 (518) 346-4592

CERTIFICATE OF ANALYSIS
October 9, 1991

CUSTOMER INFORMATION: Blasland & Bouck Engineers, P.C.
6723 Towpath Road
Syracuse, New York 13214
Attention: Stuart Messur

DATE SUBMITTED:	07/24-26/91	**DATE TESTED:**	09/30/91
SAMPLE MATRIX:	Sediment	**DATE SAMPLED:**	07/22-25/91
LAB ELAP #:	#11078	**METHOD:**	Oil & Grease

DATA AND RESULTS: METHOD: SW846: METHOD 9071

NEA ID	CUSTOMER ID	OIL & GREASE/SAMPLE (DRY MASS) (mg/g)
91002108	CELL 1-COMPOSITE-1	0.246
91002109	CELL 1-COMPOSITE-2	0.170
91002110	CELL 1-COMPOSITE-3	0.415
91002111	CELL 1-COMPOSITE-3 DUP	0.288
91002112	CELL 1-COMPOSITE-3 DUP	0.234
91002114	CELL 1-COMPOSITE-4	0.372
91002115	CELL 1-COMPOSITE-5	0.352
91002116	CELL 2-COMPOSITE-1	0.325
91002117	CELL 2-COMPOSITE-2	0.252
91002118	CELL 2-COMPOSITE-2 DUP	0.181

NORTHEAST ANALYTICAL

ENVIRONMENTAL LAB SERVICES

301 Nott Street, Schenectady, NY 12305 (518) 346-4592

BLASLAND & BOUCK ENGINEERS, P.C.
6723 TOWPATH ROAD
SYRACUSE, NEW YORK 13214

CONTACT: STUART MESSUR
REPORT DATE: 08\22\91

PARAMETER: TOC LAB ELAP #: 11140

METHOD: SW846-9060 MATRIX: SOIL/SEDIMENT

NEA ID	BLASLAND & BOUCK ID	RESULTS	STD DEV.	UNITS	TEST DATE
91002108	CELL 1-COMPOSITE 1	9,385	1,853	ug/gm	07\29\91
91002109	CELL 1-COMPOSITE 2	2,860	13	ug/gm	07\29\91
91002110	CELL 1-COMPOSITE 3	5,523	710	ug/gm	07\29\91
91002114	CELL 1-COMPOSITE 4	12,955	7,366	ug/gm	07\29\91
91002115	CELL 1-COMPOSITE 5	4,871	2,360	ug/gm	07\29\91
91002116	CELL 2-COMPOSITE 1	6,222	3,404	ug/gm	07\29\91
91002117	CELL 2-COMPOSITE 2	4,506	672	ug/gm	07\29\91
91002154	CELL 2-COMPOSITE 3	12,845	12	ug/gm	08\17\91
91002155	CELL 2-COMPOSITE 4	9,318	464	ug/gm	08\17\91
91002156	CELL 2-COMPOSITE 5	7,766	1,970	ug/gm	08\17\91
91002157	CELL 3-COMPOSITE 1	5,847	1,637	ug/gm	08\17\91
91002158	CELL 3-COMPOSITE 1-DUP	4,271	530	ug/gm	08\17\91
91002159	CELL 3-COMPOSITE 1-DUP	4,612	846	ug/gm	08\17\91
91002160	CELL 3-COMPOSITE 2	2,522	519	ug/gm	08\17\91
91002321	CELL 3-COMPOSITE 3	2,867	114	ug/gm	08\17\91
91002322	CELL 3-COMPOSITE 4	5,989	525	ug/gm	08\17\91
91002323	CELL 3-COMPOSITE 5	4,558	191	ug/gm	08\17\91
91002324	CELL 4-COMPOSITE 1	6,179	849	ug/gm	08\17\91
91002325	CELL 4-COMPOSITE 2	4,790	1,961	ug/gm	08\17\91
91002326	CELL 4-COMPOSITE 3	7,583	1,577	ug/gm	08\17\91
91002327	CELL 4-COMPOSITE 4	4,066	650	ug/gm	08\17\91
91002328	CELL 4-COMPOSITE 4-DUP	6,055	1,833	ug/gm	08\17\91
91002329	CELL 4-COMPOSITE 4-DUP	3,752	804	ug/gm	08\17\91
91002330	CELL 4-COMPOSITE 5	6,734	701	ug/gm	08\17\91

Northeast Analytical, Inc.

Robert E. Wagner
Laboratory Director

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TABLE 1
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INESTIGATION

CTF SEDIMENT DESCRIPTIONS

Cell Number	Composite Number	Recovered Depths[1] (ft)	Date	Sample Description
1	1	0.7, 2.2, 1.1, 0.7, 1.0, 1.0, 1.2	7/22/91	Fine sand to coarse sand and gravel, brown clay with some silt, moderate organic odor
1	2	1.9, 0.6, 1.3, 1.1, 1.5, 0.6, 0.7	7/22/91	Brown clay and gravel, some coarse sand and silt, strong organic odor
1	3	1.0, 1.1, 1.0, 1.5, 1.2, 1.8, 2.1	7/23/91	Coarse sand and gravel, clay, some silt, moderate organic odor
1	4	1.7, 0.9, 1.8, 2.5, 1.4, 0.8, 1.6	7/23/91	Clay and silt, some sand and gravel, moderate organic odor
1	5	2.1, 1.3, 1.0, 1.9, 2.0, 1.6, 0.8	7/23/91	Coarse sand and gravel, clay, some silt, moderate organic odor
2	1	1.8, 1.2, 0.9, 1.0, 1.2, 1.3, 0.7	7/23/91	Coarse sand and gravel, trace of silt, slight organic odor
2	2	1.5, 1.9, 1.7, 1.3, 1.3, 1.8, 1.3	7/23/91	Clay, silt, and gravel, some sand, moderate organic odor
2	3	1.6, 2.1, 1.1, 1.4, 2.2, 1.9, 1.6	7/24/91	Dark brown silt and clay, some gravel and coarse sand, strong organic odor, visible oil sheen
2	4	1.1, 1.8, 1.2, 0.7, 1.4, 0.8, 1.0	7/24/91	Fine to coarse sand with gravel, some clay, trace of silt, moderate organic odor

TABLE 1
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

CTF SEDIMENT DESCRIPTIONS
(Continued)

Cell Number	Composite Number	Recovered Depths[1] (ft)	Date	Sample Description
4	4	2.0, 1.3, 2.0, 1.6, 0.9, 1.6, 1.6	7/25/91	Medium to coarse sand, clay, some silt and gravel, moderate organic odor
4	5	1.8, 1.1, 2.1, 1.0, 1.8, 1.8, 0.7	7/25/91	Dark brown silt and clay with fine to medium sand, slight organic odor

Notes:

[1] Depth of sediment recovered for each of the seven cores comprising one composite sample.

Sediment core locations were randomly distributed.

TABLE 1
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

CTF SEDIMENT DESCRIPTIONS
(Continued)

Cell Number	Composite Number	Recovered Depths[1] (ft)	Date	Sample Description
2	5	1.6, 2.0, 1.1, 2.5, 1.6, 1.0, 1.2	7/24/91	Brown clay with coarse sand and gravel, trace of silt, moderate organic odor
3	1	2.3, 0.8 2.0, 2.0, 0.8, 1.2, 1.0	7/24/91	Clay, coarse sand and gravel, trace of silt, slight organic odor
3	2	0.8, 1.6, 1.0, 1.1, 1.9, 2.2, 1.1	7/24/91	Coarse sand and gravel, some clay and silt, moderate organic odor
3	3	1.3, 1.7, 1.0, 1.0, 1.4, 0.7, 1.4	7/24/91	Clay with coarse sand, some gravel, silt, moderate organic odor
3	4	1.9, 1.3, 1.1, 1.0, 0.6, 0.9, 1.9	7/24/91	Clay with gravel, some sand and silt, slight organic odor
3	5	1.1, 1.3, 0.8, 1.7, 1.8, 1.2, 1.3	7/24/91	Fine sand and clay with silt, some gravel, moderate organic odor
4	1	1.8, 1.0, 1.7, 0.9, 1.4, 1.3, 1.4	7/25/91	Clay with some silt, coarse sand, slight organic odor
4	2	1.5, 2.0, 1.1, 1.1, 1.5, 1.6, 1.4	7/25/91	Medium to coarse sand and gravel, clay, trace of silt, slight organic odor
4	3	1.0, 1.6, 1.2, 1.8, 0.8, 1.2, 1.6	7/25/91	Fine to coarse sand and clay, some silt, moderate organic odor

TABLE 2
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

CTF MACRO-NUTRIENT PORE WATER FIELD SAMPLING RESULTS[1]

Sample Location	Date	Time	Temperature (°C)	pH	Conductivity (mS/cm)	Sample Depth[3] (ft)
Cell 1 - W1	11/14/91	15:50	6	6.54	1.190	3.0-3.5
Cell 1 - W2	11/14/91	15:10	7	6.76	0.676	3.0-3.5
Cell 1 - W3	11/14/91	15:30	7	6.40	1.290	3.0-3.5
Cell 1 - Surface Water[2]	11/14/91	16:00	3	8.20	0.362	----
Cell 2 - W1	11/15/91	9:30	7	6.29	1.910	2.0-2.5
Cell 2 - W2	11/15/91	9:00	7	6.31	1.990	2.0-2.5
Cell 2 - W3	11/15/91	8:30	5	6.91	0.608	2.0-2.5
Cell 2 - Surface Water[2]	11/15/91	9:40	3	7.51	0.446	----
Cell 3 - W1	11/14/91	10:45	6	6.25	1.800	1.0-1.5
Cell 3 - W2	11/14/91	11:30	6	6.29	1.570	1.0-1.5
Cell 3 - W3	11/14/91	12:15	6	6.41	1.520	1.5-2.0
Cell 3 - Surface Water[2]	11/14/91	12:30	3	8.13	0.488	----
Cell 4 - W1	11/13/91	13:45	6	6.60	4.200	2.0-2.5
Cell 4 - W2	11/13/91	14:45	7	6.50	2.440	2.0-2.5
Cell 4 - W3	11/13/91	15:45	6	6.63	0.536	2.0-2.5
Cell 4 - Surface Water[2]	11/13/91	16:00	3	6.87	0.465	----

Notes:

1 Water samples were analyzed for the following: sulfide, chloride, sulfate, nitrate, nitrite, phosphate, calcium, potassium, sodium, magnesium, iron, ammonia, total phosphorus, and alkalinity.
2 Surface water samples were not analyzed.
3 Sample depths were measured from top of sediment.
-- Readings taken at the water surface.

TABLE 3
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

CTF MACRO-NUTRIENT SEDIMENT FIELD SAMPLING RESULTS[1]

Sample Location	Date	Time	Sample Depth[2] (ft)	Sample Description
Cell 1 - W1	11/14/91	15:50	3.0 - 3.5	Dark brown silt, fine sand, coarse gravel.
Cell 1 - W2	11/14/91	15:10	3.0 - 3.5	Brown clay and gravel, some fine sand.
Cell 1 - W3	11/14/91	15:30	3.0 - 3.5	Brown fine sand, some silt, and coarse gravel.
Cell 2 - W1	11/15/91	9:30	2.0 - 2.5	Dark brown silt and fine sand.
Cell 2 - W2	11/15/91	9:00	2.0 - 2.5	Brown silt, with medium to coarse sand.
Cell 2 - W3	11/15/91	8:30	2.0 - 2.5	Brown coarse sand, some silt.
Cell 3 - W1	11/14/91	10:45	1.0 - 1.5	Brown medium to coarse sand and gravel.
Cell 3 - W2	11/14/91	11:30	1.0 - 1.5	Brown fine, medium, and coarse sand and gravel.
Cell 3 - W3	11/14/91	12:15	1.5 - 2.0	Brown medium to coarse sand and gravel.
Cell 4 - W1	11/13/91	13:45	2.0 - 2.5	Brown silt, trace of clay and roots.
Cell 4 - W2	11/13/91	14:45	2.0 - 2.5	Brown and dark brown fine sandy silt.
Cell 4 - W3	11/13/91	15:45	2.0 - 2.5	Brown fine to coarse sand and gravel.

Notes:

1 Samples were analyzed for cation exchange capacity, total phosphate, and total Kjeldahl nitrogen.
2 Sample depths were measured from top of sediment.

TABLE 4
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALTYICAL RESULTS OF CTF SEDIMENT SAMPLING

CELL 1

Index	Composites 1	2	3*	4	5
Total PCBs, ppm	160	215	245	390	260
Ortho-chlorine ratio	1.54	1.53	1.51	1.62	1.59
Non-ortho-chlorine ratio	1.71	1.69	1.61	2.08	2.00
Homologs, mole %					
mono-	2.3	3.0	2.2	1.8	1.4
di-	24	22	31	17	15
tri-	38	41	36	30	34
tetra-	23	22	19	25	31
penta-	9.2	8.7	8.4	16	13
hexa-	3.2	2.6	2.9	8.7	5.4
hepta-	0.62	0.51	0.59	1.5	0.92
Sum of mono-ortho-coplanar PCBs, mole %	2.4	2.0	2.2	5.6	3.8
Sum of 18 predominantly bioaccumulative congeners, mole %	11	13	11	17	14
Sum of all 30 bioaccumulative congeners, mole %	29	27	25	40	39
Products, mole %					
2	1.9	2.6	2.0	1.6	1.2
22' & 26	1.9	2.0	2.0	1.4	1.3
24'	20	18	27	14	12
22'6	2.1	2.0	2.2	1.5	1.6
22'4	9.2	9.5	9.9	6.7	6.7
22'3 & 24'6	5.7	5.5	6.1	4.1	4.7
Oil & Grease, mg/g	0.25	0.17	0.31	0.37	0.35
TOC, %	0.94	0.29	0.62	1.3	0.49

Notes:
* Average of triplicates.
Results are expressed to two significant figures except as noted below.
Total PCBs are expressed to the nearest multiple of 5.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
Index values for unaltered Aroclor 1248 mixture are presented in Table 8.

TABLE 5
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALTYICAL RESULTS OF CTF SEDIMENT SAMPLING

CELL 2

Index	Composites 1	2*	3	4	5
Total PCBs, ppm	185	145	105	360	125
Ortho-chlorine ratio	1.59	1.54	1.53	1.59	1.53
Non-ortho-chlorine ratio	2.06	1.67	1.72	2.13	1.56
Homologs, mole %					
mono-	0.78	2.5	2.4	1.2	2.3
di-	14	26	24	12	27
tri-	32	39	37	30	44
tetra-	33	20	23	36	17
penta-	13	8.9	9.0	14	7.0
hexa-	5.5	3.4	3.2	6.0	2.2
hepta-	0.91	0.69	0.64	0.93	0.48
Sum of mono-ortho-coplanar PCBs, mole %	3.9	2.3	2.4	4.3	1.7
Sum of 18 predominantly bioaccumulative congeners, mole %	15	12	11	14	15
Sum of all 30 bioaccumulative congeners, mole %	42	28	27	44	28
Products, mole %					
2	0.58	2.2	2.2	1.1	2.0
22' & 26	1.4	1.9	2.0	0.95	2.3
24'	11	22	20	10	23
22'6	1.2	2.2	2.0	1.0	3.1
22'4	5.8	9.7	8.7	4.7	11
22'3 & 24'6	4.2	5.9	5.5	3.7	7.9
Oil & Grease, mg/g	0.33	0.25	0.48	0.20	0.27
TOC, %	0.62	0.66	1.3	0.93	0.78

Notes:
* Average of triplicates.
Results are expressed to two significant figures except as noted below.
Total PCBs are expressed to the nearest multiple of 5.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
Index values for unaltered Aroclor 1248 mixture are presented in Table 8.

TABLE 6
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALTYICAL RESULTS OF CTF SEDIMENT SAMPLING

CELL 3

Index	Composites 1*	2	3	4	5
Total PCBs, ppm	100	100	95	75	130
Ortho-chlorine ratio	1.54	1.55	1.58	1.55	1.59
Non-ortho-chlorine ratio	1.62	1.64	1.84	1.69	1.78
Homologs, mole %					
mono-	2.6	2.2	2.0	2.9	2.0
di-	25	25	19	24	18
tri-	41	42	37	38	42
tetra-	19	20	24	22	24
penta-	8.1	8.1	12	9.2	10
hexa-	2.7	2.7	4.5	3.1	3.4
hepta-	0.56	0.60	0.81	0.65	0.66
Sum of mono-ortho-coplanar PCBs, mole %	2.0	2.1	3.2	2.5	2.9
Sum of 18 predominantly bioaccumulative congeners, mole %	13	14	14	12	16
Sum of all 30 bioaccumulative congeners, mole %	27	28	33	28	33
Products, mole %					
2	2.3	1.9	1.7	2.4	1.8
22' & 26	2.3	2.1	1.9	2.2	2.1
24'	21	20	16	20	14
22'6	2.7	2.6	2.2	2.5	2.9
22'4	10	11	8	10	10
22'3 & 24'6	6.8	7.2	5.4	6.5	7.2
Oil & Grease, mg/g	0.16	0.21	0.13	0.18	0.19
TOC, %	0.49	0.25	0.29	0.60	0.46

Notes:
* Average of triplicates.
Results are expressed to two significant figures except as noted below.
Total PCBs are expressed to the nearest multiple of 5.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
Index values for unaltered Aroclor 1248 mixture are presented in Table 8.

TABLE 7
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALTYICAL RESULTS OF CTF SEDIMENT SAMPLING

CELL 4

Index	Composites 1	2	3	4*	5
Total PCBs, ppm	65	125	105	145	185
Ortho-chlorine ratio	1.56	1.56	1.55	1.50	1.64
Non-ortho-chlorine ratio	1.82	1.78	1.79	1.51	2.00
Homologs, mole %					
mono-	2.2	2.6	2.6	2.8	2.0
di-	24	23	21	34	19
tri-	33	35	36	37	31
tetra-	24	23	26	16	22
penta-	11	11	10	7	16
hexa-	4.9	4.7	3.8	2.6	8.9
hepta-	0.91	0.85	0.74	0.53	1.6
Sum of mono-ortho-coplanar PCBs, mole %	3.4	3.2	2.7	1.8	5.5
Sum of 18 predominantly bioaccumulative congeners, mole %	12	12	11	10	17
Sum of all 30 bioaccumulative congeners, mole %	31	31	32	22	37
Products, mole %					
2	1.9	2.1	2.3	2.4	1.7
22' & 26	1.7	1.9	1.8	2.2	1.7
24'	21	20	17	31	16
22'6	1.9	2.1	1.8	2.4	2.0
22'4	8.1	8.7	7.6	10	7.7
22'3 & 24'6	5.4	5.7	5.1	6.6	4.9
Oil & Grease, mg/g	0.20	0.24	0.18	0.23	0.28
TOC, %	0.62	0.48	0.76	0.47	0.67

Notes:
* Average of triplicates.
Results are expressed to two significant figures except as noted below.
Total PCBs are expressed to the nearest multiple of 5.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
Index values for unaltered Aroclor 1248 mixture are presented in Table 8.

TABLE 8
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

SUMMARY OF CTF SEDIMENT SAMPLING RESULTS

Index	Cell Mean -/+ Standard Deviation 1*	2*	3*	4*	Aroclor 1248
Total PCBs, ppm	225±86	185±100	100±20	125±45	--
Ortho-chlorine ratio	1.56±0.05	1.56±0.03	1.56±0.02	1.56±0.05	1.52
Non-ortho-chlorine ratio	1.82±0.21	1.83±0.25	1.71±0.09	1.78±0.18	2.41
Homologs, mole %					
mono-	2.2±0.62	1.9±0.80	2.3±0.39	2.5±0.33	0
di-	22±6.3	21±6.8	22±3.3	24±5.9	1.6
tri-	36±4.3	36±5.7	40±2.1	34±2.5	27
tetra-	24±4.4	26±8.1	22±2.1	22±3.7	55
penta-	11±3.5	10±3.1	10±1.7	11±3.3	13
hexa-	4.5±2.6	4.1±1.6	3.3±0.74	5.0±2.4	3.6
hepta-	0.83±0.42	0.73±0.19	0.66±0.10	0.92±0.4	0.80
Sum of mono-ortho-coplanar PCBs, mole %	3.2±1.5	2.9±1.1	2.6±0.51	3.3±1.4	3.9
Sum of 18 predominantly bioaccumulative congeners, mole %	13±2.3	14±1.9	14±1.3	12±2.8	16
Sum of all 30 bioaccumulative congeners, mole %	32±6.9	34±8.6	30±2.8	31±5.3	55
Products, mole %					
2	1.9±0.51	1.6±0.72	2.0±0.32	2.1±03.0	0
22' & 26	1.7±0.33	1.7±0.54	2.1±0.15	1.9±0.19	0.01
24'	18±6.0	17±6.1	18±3.1	21±5.8	0.9
22'6	1.9±0.3	1.9±0.85	2.6±0.09	2.0±0.21	0.12
22'4	8.4±1.6	8.0±2.6	9.8±0.85	8.5±1.0	1.3
22'3 & 24'6	5.2±0.82	5.4±1.6	6.6±0.75	5.5±0.61	2.7
Oil & Grease, mg/g	0.29±0.08	0.30±0.11	0.18±0.03	0.23±0.04	--
TOC, %	0.73±0.40	0.86±0.27	0.42±0.14	0.60±0.12	--

Notes:
* Mean of five sample results.
Results are expressed to two significant figures except as noted below.
Total PCBs are expressed to the nearest multiple of 5.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
-- Not applicable

TABLE 9
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

CTF SEDIMENT PARTICLE SIZE DISTRIBUTION BY PERCENT WEIGHT

	Cell 1 Composite 5	Cell 2 Composite 1	Cell 3 Composite 2	Cell 4 Composite 2
Percent gravel-sized particles (75 - 4.75mm)	26.6	28.1	28.1	11.3
Percent sand-sized particles (4.75 - 0.075mm)	56.0	58.6	57.4	59.1
Percent silt-sized particles (0.075 - 0.005mm)	10.2	7.6	9.1	19.3
Percent clay-sized particles (<0.005mm)	7.2	5.7	5.4	10.3

TABLE 10
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

MACRO-NUTRIENTS IN CTF PORE WATER
(all values are expressed in mg/L)

	Cell 1			Cell 2			Cell 3			Cell 4		
Analyte	W1	W2	W3	W1	W2	W3	W1	W2	W3	W1	W2	W3
Alkalinity (as $CaCO_3$)	518	265	510	948	234	982	846	715	840	212	275	207
Calcium	159	144	188	198	235	128	227	380	183	566	297	168
Iron	23.1	19.9	34.6	28.8	39.7	26.3	52.3	81.1	37.7	74	53.5	67.8
Magnesium	71.6	68.4	82.5	90.1	106	67.3	110	177	86.3	197	122	91.2
Potassium	7.88	9.17	11.1	9.15	11.2	10.7	10.2	15.9	7.75	8.77	8.92	17.7
Sodium	22.8	21.4	34.0	66.5	46.7	21.1	26.3	25.7	23.7	117	28.1	24.8
Chloride	39.3	36.3	46.5	47.8	61	55.0	59.5	34.7	65.5	201	34.8	37
Nitrite	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.5	<0.5	<0.50
Phosphate (ortho)	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25	<1.25
Nitrate	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75	<0.75
Sulfate	<1.25	1.80	<1.25	<1.25	<1.25	7.64	<1.25	<1.25	<1.25	<1.25	6.15	11.0
Sulfide	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10
Ammonia Nitrogen	1.79	2.30	16.8	12.8	3.42	1.13	28.5	24.5	0.81	5.44	4.21	7.61
Total Phosphorus	0.05	0.03	0.13	0.04	0.03	0.05	5.45	5.6	0.60	0.05	0.03	0.09

TABLE 11
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

MACRO-NUTRIENTS IN CTF SEDIMENT

	Cell 1			Cell 2			Cell 3			Cell 4		
Analyte	S1	S2	S3	S1	S2	S3	S1	S2	S3	S1	S2	S3
Nitrogen (TKN), %	0.03	<0.02	0.06	0.12	0.13	0.09	<0.02	<0.02	<0.02	0.21	0.14	<0.02
Cation Exchange Capacity, meq/100g	14	21	19	26	20	20	8	10	8	26	24	11
Total Phosphorus, mg/kg	251.7	454	240.5	447.2	424.4	300.3	148.5	263.6	150.6	477.7	538.3	248.5

TABLE 12
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

OBSERVED AND PREDICTED CHANGES IN DECHLORINATION INDICES

INDEX	Cell 1		Cell 2		Cell 3		Cell 4	
	Obser.[1]	Predic.[2]	Obser.[1]	Predic.[2]	Obser.[1]	Predic.[2]	Obser.[1]	Predic.[2]
Non-ortho-chlorine ratio	-25	19	-24	23	-29	9.3	-26	17
HOMOLOGS, mole %								
di-	1300	49	1200	56	1300	25	1400	41
tri-	32	21	35	27	49	9	27	12
tetra-	-57	31	-53	54	-60	17	-60	28
penta-	-15	54	-19	50	-26	31	-16	50
hexa-	26	96	13	67	-9.4	39	38	81
hepta-	4.0	85	-9	44	-18	25	16	74
Sum of mono-ortho-coplanar PCBs, mole %	-18	81	-25	66	-35	34	-15	69
Sum of predominantly[3] bio-accumulative congeners, mole %	-15	30	-13	23	-11	16	-20	38
Sum of all[4] bioaccumulative congeners, mole %	-42	36	-39	43	-46	16	-44	30
PRODUCTS, mole %								
22' and 26	29,000	32	28,000	53	35,000	12	31,000	17
24'	1,900	55	1,800	60	1,900	29	2,200	47
22'6	1,400	28	1,500	76	2,000	16	1,600	18
22'4	540	32	500	56	640	15	540	21
22'3 and 24'6	96	27	100	51	150	19	110	21

Notes:
[1] Observed percentage change in cell means relative to Aroclor 1248.
[2] Absolute value of predicted minimum discernable change (see text).
[3] Sum of 18 predominantly bioaccumulative PCB congeners.
[4] Sum of 30 bioaccumulative PCB congeners.
All values reported to two significant figures.

TABLE 13
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALYTICAL RESULTS OF ARMORED SEDIMENT SAMPLING

August 22, 1990

Index	Armored Area 7*	8	10	11	Aroclor 1248
Total PCBs, ppm	36	270	150	25	--
Ortho-chlorine ratio	1.76	1.54	1.60	1.80	1.52
Non-ortho-chlorine ratio	1.79	1.34	1.52	2.03	2.41
Homologs, mole %					
mono-	1.6	3.8	4.7	1.5	0
di-	14	39	30	10	1.6
tri-	37	37	33	29	27
tetra-	28	28	18	31	55
penta-	15	15	11	20	13
hexa-	3.9	1.8	2.7	6.8	3.6
hepta-	0.60	0.40	0.58	1.1	0.8
Sum of mono-ortho-coplanar PCBs, mole %	3.9	1.0	2.0	4.0	3.9
Sum of 18 predominantly bioaccumulative congeners, mole %	9.9	7.6	9.7	14	16
Sum of all 30 bioaccumulative congeners, mole %	31	16	24	42	55
Products, mole %					
2	1.3	1.8	1.1	0.94	0
22' & 26	1.5	2.2	1.6	0.88	0.01
24'	10	35	27	7.5	0.9
22'6	1.8	2.5	2.3	0.92	0.12
22'4	8.4	11	10	4.6	1.3
22'3 & 24'6	4.7	7.6	7.3	3.3	2.7

Notes:
* Average of duplicates
Results are expressed to two significant figures except as noted below.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
-- Not applicable

TABLE 14
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALYTICAL RESULTS OF ARMORED SEDIMENT SAMPLING

April 19, 1991

Index	Armored Area 7	8	10*	11	Aroclor 1248
Total PCBs, ppm	15	190	74	12	--
Ortho-chlorine ratio	1.68	1.55	1.50	1.82	1.52
Non-ortho-chlorine ratio	1.66	1.26	1.20	2.15	2.41
Homologs, mole %					
mono-	3.7	4.2	6.4	1.6	0
di-	19	38	46	9.0	1.6
tri-	36	39	33	26	27
tetra-	25	12	9.0	31	55
penta-	12	4.8	4.0	22	13
hexa-	2.9	1.3	1.2	9.2	3.6
hepta-	0.52	0.41	0.35	1.5	0.8
Sum of mono-ortho-coplanar PCBs, mole %	1.0	0.28	0.31	2.2	3.9
Sum of 18 predominantly bioaccumulative congeners, mole %	8.5	6.5	2.3	17	16
Sum of all 30 bioaccumulative congeners, mole %	28	13	8.3	43	55
Products, mole %					
2	3.2	3.6	4.5	1.4	0
22' & 26	2.2	2.8	2.9	0.84	0.01
24'	14	34	41	6.5	0.9
22'6	1.9	2.9	3.0	0.7	0.12
22'4	7.8	13	13	3.7	1.3
22'3 & 24'6	4.8	8.1	8.2	2.6	2.7
TOC, %	1.12	0.31	0.41	0.30	--

Notes:
* Average of duplicates.
Results are expressed to two significant figures except as noted below.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
-- Not Applicable.

TABLE 15
SHEBOYGAN RIVER AND HARBOR
ALTERNATIVE SPECIFIC REMEDIAL INVESTIGATION

ANALYTICAL RESULTS OF ARMORED SEDIMENT SAMPLING

November 11, 1991

Index	Armored Area 7	8	10	11*	Aroclor 1248
Total PCBs, ppm	5.6	27	100	37	--
Ortho-chlorine ratio	1.54	1.55	1.49	1.62	1.52
Non-ortho-chlorine ratio	1.36	1.38	1.14	2.10	2.41
Homologs, mole %					
mono-	5.8	2.9	5.1	1.3	0
di-	32	35	48	11	1.6
tri-	40	40	34	32	27
tetra-	15	14	8.6	34	55
penta-	5.4	5.7	3.4	15	13
hexa-	1.8	2.0	1.1	5.6	3.6
hepta-	0.41	0.45	0.40	0.96	0.80
Sum of mono-ortho-coplanar PCBs, mole %	1.0	1.1	0.66	3.6	3.9
Sum of 18 predominantly bioaccumulative congeners, mole %	4.7	6.3	3.5	14	16
Sum of all 30 bioaccumulative congeners, mole %	16	17	8.6	44	55
Products, mole %					
2	5.0	2.4	3.9	0.96	0
22' & 26	8.5	6.7	7.4	2.4	0.01
24'	21	26	39	6.8	0.9
22'6	2.5	2.4	2.8	0.79	0.12
22'4	11	12	13	4.4	1.3
22'3 & 24'6	6.1	6.9	8.5	3.3	2.7

Notes:

* Average of duplicates
Results are expressed to two significant figures except as noted below.
Ortho- and non-ortho-chlorine ratios are expressed to two decimal places.
-- Not applicable