

FINAL CHARACTERIZATION REPORT GILL CREEK INVESTIGATION NIAGARA FALLS, NEW YORK

IT PROJECT NO. 408166.010.02

PREPARED FOR: OLIN CORPORATION

**PREPARED BY:** 

IT CORPORATION KNOXVILLE, TENNESSEE

# JULY 1993

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# List of Acronyms \_\_\_\_\_

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%D	percent difference
BHC	hexachlorocyclohexane
cfs	cubic feet per second
EP	extraction procedure
IT	IT Corporation
NYPA	New York Power Authority
NYSDEC	New York State Department of Environmental Conservation
msl	mean sea level
MS/MSD	matrix spike/matrix spike duplicate
Olin	Olin Corporation
PAH	polycyclic aromatic hydrocarbons
PCB	polychlorinated biphenyl
ppb	parts per billion
ppm	parts per million
QC	quality control
RCRA	Resource Conservation and Recovery Act
RECRA	RECRA Environmental Inc.
RI	Remedial Investigation
RPD	relative percent differences
RSD	relative standard deviation
RRF	relative response factors
TCLP	Toxicity Characteristic Leaching Procedure
SVOC	semivolatile organic compound
SWDA	Safe Drinking Water Act
U.S. EPA	U.S. Environmental Protection Agency
VOC	volatile organic compound

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### Executive Summary \_\_\_\_

Olin Corporation (Olin) contracted IT Corporation (IT) to: (1) evaluate existing data on Gill Creek, Niagara Falls, New York; (2) conduct a limited field investigation on a specific stretch of the creek; and (3) produce a report that presents the available information in a unified manner. Specifically, IT's field investigation included the portion of Gill Creek between Packard Road and Buffalo Avenue. This stretch of creek is approximately 200 feet east of the Industrial Welding Site. The field investigation of Gill Creek was conducted concurrently with the remedial investigation (RI) conducted by IT at the Industrial Welding Site.

The objectives of this report are to:

- Present and evaluate the available data regarding the extent and distribution of contaminants in creek sediments and water in the stretch of Gill Creek adjacent to the Industrial Welding Site.
- Evaluate available data to determine if a correlation exists among catch basin, storm sewer outfall, and creek sediment contaminants.
- Present and evaluate data to characterize the creek sediments for final disposition.

The stretch of creek investigated in this study contains a variety of sediment contaminants, most notably polycyclic aromatic hydrocarbons (PAHs), hexachlorocyclohexanes (BHC), and mercury. The contaminants were present in all portions of the creek studied here, and no clear distribution pattern was evident. Only two water samples were collected, and mercury and BHC were detected in at least one of those samples.

No correlation could be established between contaminants in the catch basins and storm sewer outfalls, although it was observed that generally similar contaminants were found in the basins and the outfalls as well as in the creek sediments. It is unclear whether the sediment in the catch basins are simply creek sediments that are trapped in the basins during storm events, when turbid creek water may back into the catch basins, or if the sediments are from elsewhere.

The source of the contaminants in the creek was not conclusively determined. However, several observations can be made:

- The contaminants found in the catch basins, storm sewer outfalls, creek sediments, and creek water (most notably BHC, PAHs, and mercury) are similar to those found in wastes or soils at the nearby Industrial Welding Site.
- The most upstream sample, upstream of the Industrial Welding Site but south of Packard Road, contained generally similar levels of contaminants as the downstream levels. Due to the configuration of the creek bed between Packard Road and Buffalo Avenue and the periodic backflow of Gill Creek water from the Niagara River, it is likely that sediments have a tendency to be deposited in that creek stretch and little variation in contaminant levels would be expected.
- BHC, PAHs, and mercury have been measured in Gill Creek sediment samples from previous studies as far upstream as just below Hyde Park Lake, approximately 1 mile upstream of the study area. The source(s) of the contaminants was not identified in those studies.
- There have been reports, which are still being investigated, that the City of Niagara Falls Wastewater Treatment Plant disposed of contaminated sludge into Gill Creek and specifically into the stretch of Gill Creek adjacent to the Industrial Welding Site.

The analysis of creek sediment samples for Resource Conservation and Recovery Act (RCRA) characteristics revealed that the sediments do not exhibit hazardous characteristics.

### 1.0 Introduction

#### 1.1 Study Objectives and Report Organization

Olin Corporation (Olin) contracted IT Corporation (IT) to: (1) evaluate existing data on Gill Creek, Niagara Falls, New York; (2) conduct a limited field investigation on a specific stretch of the creek; and (3) produce a report that presents the available information in a unified manner. Specifically, IT's field investigation included the portion of Gill Creek adjacent to the Industrial Welding Site. The field investigation of Gill Creek was conducted concurrent with the remedial investigation (RI) conducted by IT at the Industrial Welding Site. The reader is referred to the RI Report (IT, 1993) for information regarding the Industrial Welding Site and additional discussions on area ecology and hydrology.

The objectives of the Gill Creek investigation and of this report are to:

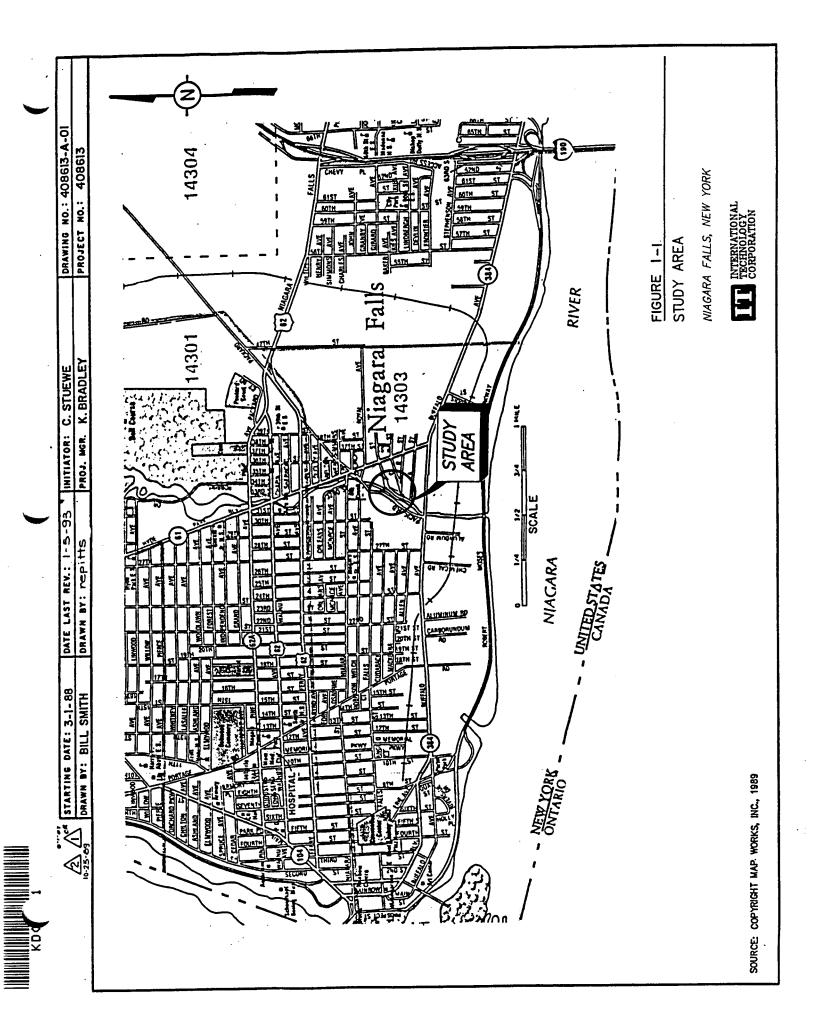
- Present and evaluate the available data regarding the extent and distribution of contaminants in creek sediments and water in the stretch of Gill Creek adjacent to the Industrial Welding Site.
- Evaluate available data to determine if a correlation exists among catch basin, storm sewer outfall, and creek sediment contaminants.
- Present and evaluate data to characterize the creek sediments for final disposition.

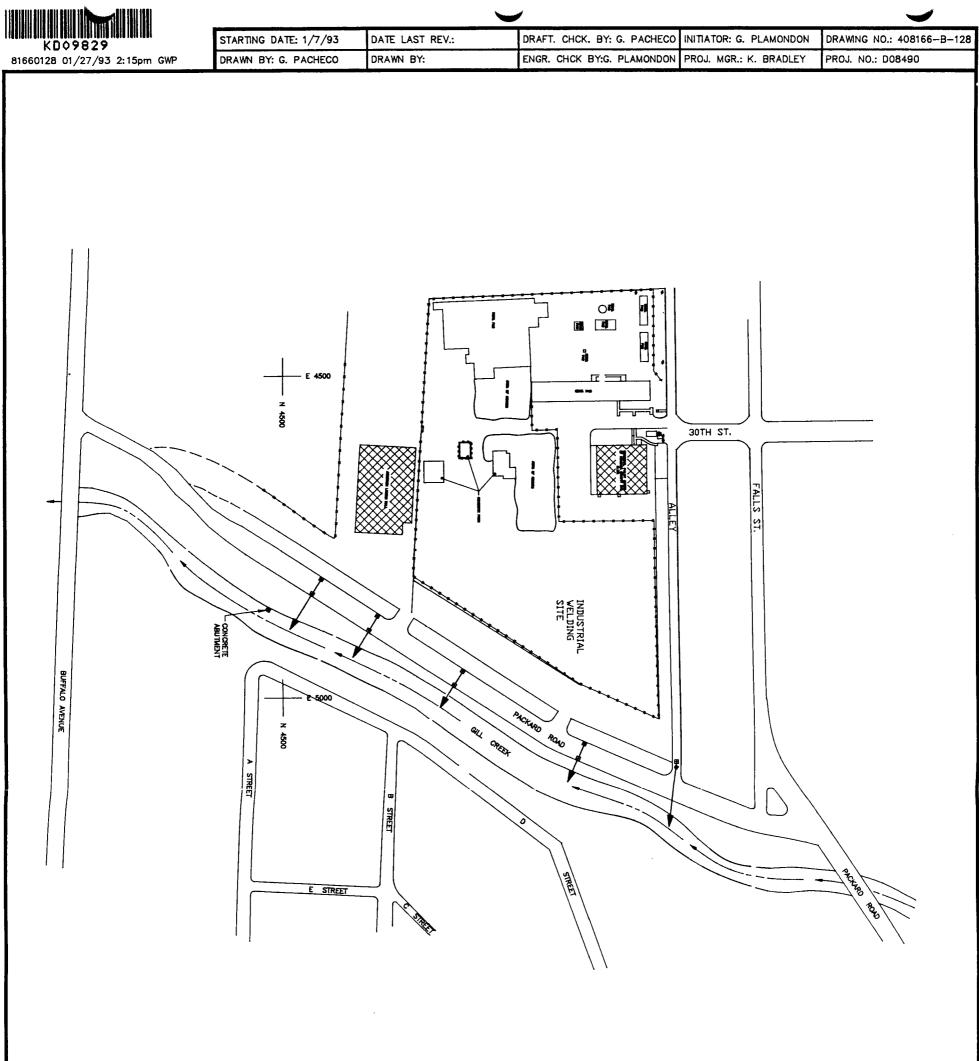
Chapter 2.0 of this report provides a description of the field and analytical methods used and shows sample locations. Chapter 3.0 of this report presents the results of the investigation. Chapter 4.0 provides conclusions and recommendations. Chapter 5.0 presents the references cited. Complete analytical data, including data collected by others, are presented in appendices.

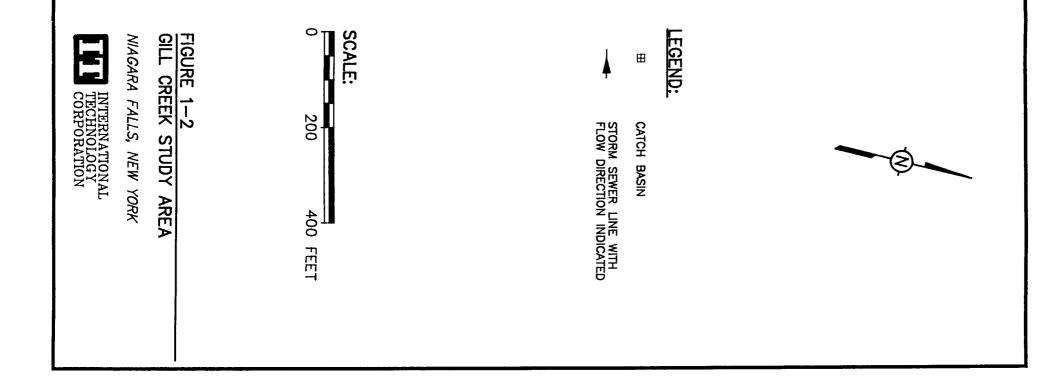
#### 1.2 Creek Location and Description of Study Area

Gill Creek flows from north to south, rising from a swamp in the town of Lewiston and entering the Niagara River approximately 7.5 miles downstream of its origin and 0.3 miles south of the Industrial Welding Site. Approximately 1 mile north of the Industrial Welding Site is Hyde Park Lake, which is dam-controlled. A regional map is shown on Figure 1-1.

The flow in the creek below the dam is controlled to a large extent by dam releases. Gill Creek is classified as a Class C surface water (New York State Codes, Rules, and







Regulations, Title 6, Chapter X, Part 701.19). The classification lists the best usage of waters to be suitable for fishing and specifies, "The water quality shall be suitable for primary and secondary contact recreation even though other factors may limit the use for that purpose."

The portion of the creek subject to this study is the area adjacent to the Industrial Welding Site, which is located approximately 200 feet west of Gill Creek between Packard Road and Buffalo Avenue (Figure 1-2). All sampling conducted during this investigation was conducted in this stretch of the creek.

#### 1.3 Creek Hydrology

The Gill Creek watershed is approximately 12 square miles and includes Hyde Park Lake, which covers approximately 32 acres. Along the reach of the creek adjacent to the site, water depths average 1.5 to 2 feet. The slope of the creek bottom is nearly flat with a gradient of 0.0003 foot drop for every 1 foot of distance. Buffalo Avenue marks the southern end of the gently sloping bottom where it rises to a high point elevation of 562.5 feet mean sea level (msl). After Buffalo Avenue, the creek bottom drops again and then rises back up just north of the Adams Street Bridge, thus forming a small basin. Downstream of the Adams Street Bridge, the creek bottom steeply drops off to a low point elevation of 555.5 feet msl at the mouth of the creek.

Flow rates and direction in Gill Creek vary with the seasons and time of day. The Niagara River stage can fluctuate approximately 1.5 feet over a 24-hour period (Woodward-Clyde Consultants [WCC], 1990) and will influence flow in Gill Creek. The changes in the Niagara River are the results of the New York Power Authority (NYPA) diverting river flow for hydroelectric production. Diversion gates downstream of Gill Creek are closed each night and during the winter months, thus diverting water and causing water levels to rise upstream. The highest stage in the Niagara River occurs around the hours of 7:00, 8:00, and 9:00 a.m., as indicated by hourly water level data collected by the NYPA.

From several model runs using the HEC-6 Generalized Computer Program for Scour and Deposition in Rivers and Reservoirs (WCC, 1990), it has been determined that the potential for downstream sediment transport in Gill Creek exists. However, creek bottom scour and transport of bottom sediments will not occur at flows below flood stage of 500 cubic feet per second (cfs). Normal downstream flow in Gill Creek between storm events is approximately

2 cfs. Consequently, sediments transported during normal flow conditions are those in the suspended load.

WCC has reported in their Gill Creek Sediment Project (WCC, 1990) that upstream flows occur near the creek mouth on a daily basis for approximately 1 hour and possibly more frequently or for longer durations during the winter months when the Niagara River stage remains high. Upstream creek velocities have been measured as far north as the Niagara Street bridge (north of Packard Road bridge). During those periods of upstream flow, flow velocities in Gill Creek are first slowed from moving downstream and then reversed to move upstream. The reverse occurs when the Niagara River stage is restored to normal levels. During these periods, many downstream flowing suspended sediments will settle out when flow velocities are low. Therefore, along the nearly flat reach of Gill Creek just east of the Industrial Welding Site, where the gradient is very low, there is a high potential for sediments to be deposited when the flow velocities are low.

The hydrogeological data collected during the Industrial Welding Site RI (IT, 1993) indicate that neither shallow nor deep groundwater discharge into the creek in the study area. There is a potential for discharge of water into the creek from a perched swale area that has been filled with waste material at the Industrial Welding Site. However, there is no direct evidence of such a discharge.

#### 1.4 Previous Investigations

From 1978 to 1980, the New York State Department of Environmental Conservation (NYSDEC) collected 13 sediment samples along the bottom of Gill Creek from Buffalo Avenue to Hyde Park Lake. Samples from this sampling event were analyzed for lindane (gamma BHC) and PCBs. PCBs were detected in all locations and lindane was detected at 9 of the 13 locations, with detections as far north as between the high and low dams of Hyde Park Lake. In 1984, the City of Niagara Falls conducted additional sediment sampling under an Environmental Credit project identified as the Gill Creek Restoration Project. The analyses performed for the Gill Creek Restoration Project sampling conducted by the City on November 1, 1984 were as follows:

- Analysis of leachate after Extraction Procedure (EP) preparation for:
  - Safe Drinking Water Act (SDWA) Pesticides and Herbicides
  - SDWA Primary Metals
  - Priority Pollutant Pesticides and PCBs.

- Direct analysis of the sediment for:
  - VOCs and SVOCS
  - Priority Pollutant Pesticides/PCBs.

BHC, mercury, and polycyclic aromatic hydrocarbons (PAHs), among other contaminants, were found at each sampling location (from Buffalo Avenue north to just below the Hyde Park Lake dam). None of the samples exceeded EP Toxicity criteria.

In 1983 the Canadian Ministry of the Environment carried out biomonitoring programs along the Niagara River. The programs were conducted by the Ministry's Great Lakes and Aquatic Biology Sections. Testing for contaminants consisted of exposing caged clams to Gill Creek for five consecutive 3-week periods to determine contaminant availability and temporal variation in contaminant inputs. Clams were also exposed for the full 15-week period. Also collected for analysis were young-of-the-year spottail shiners. Water samples were collected at 3-week intervals. No conclusions were drawn on the data in the data report.

The last known round of Gill Creek sediment sampling prior to the NYSDEC/IT split sampling in 1990 (Section 2.2) was conducted by the City of Niagara Falls, Utilities Department on March 18,1988. The City collected two split sediment samples with one sample being sent out for analysis to Ecology and Environment, Inc., and the other to the Niagara Falls Wastewater Treatment Plant. Both samples had BHC, PAHs, and mercury and one of the samples failed EP Toxicity criteria for lindane. The data report did not indicate the location of these samples.

Data from these previous Gill Creek sampling episodes are presented in Appendix A.

## 2.0 Field Investigations and Sample Analyses

#### 2.1 Gill Creek Sediment and Water Sampling

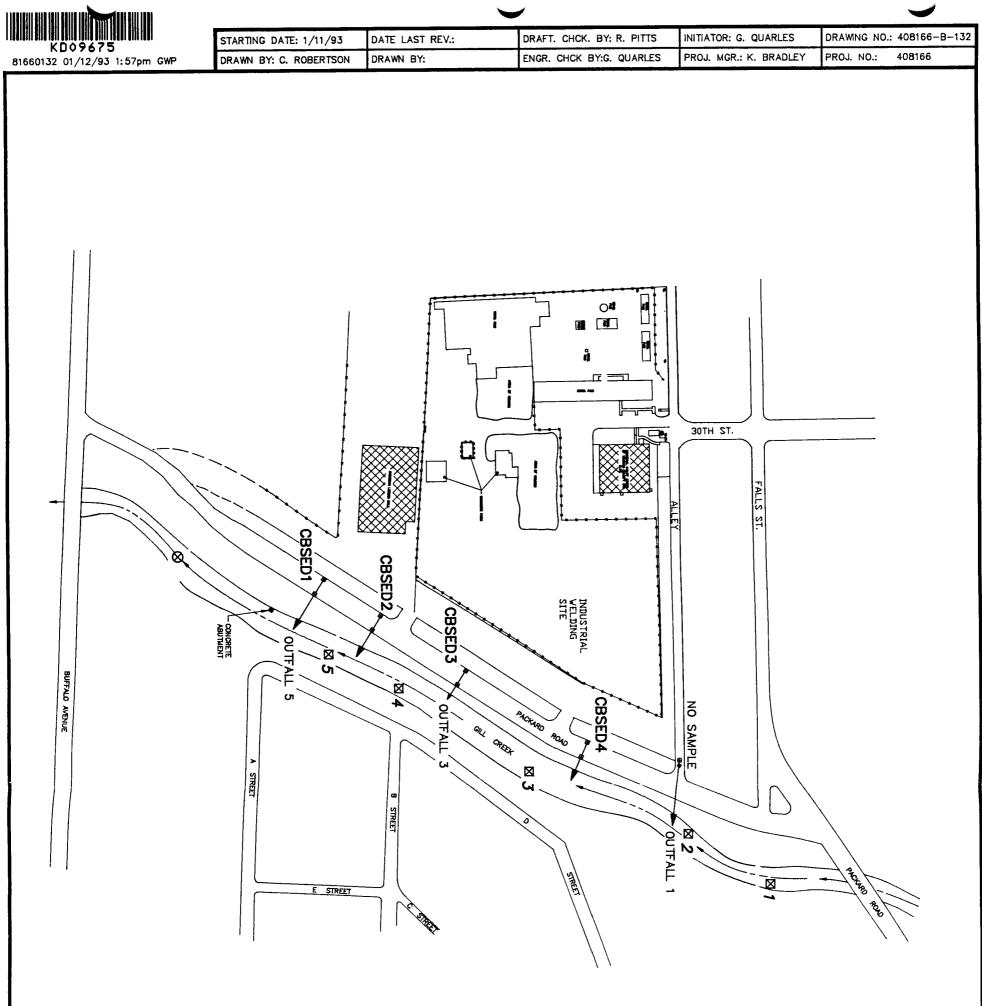
On November 15, 1990, IT accepted split samples of water and sediments collected from Gill Creek by the NYSDEC. Samples were collected at five different stations in the creek center and at the west creek bank (Figure 2-1) as summarized in Table 2-1. Sediment samples were taken from all five locations while surface water was only sampled upstream (Station 1) and downstream of the Industrial Welding Site (Station 5). Sediment samples were collected with a Ponar sediment sampler (surface samples) and a manual core sampler (deep samples) from the center of the creek and from the west creek bank. Sediment and water samples were analyzed by both IT and NYSDEC for mercury, pesticides, and polychlorinated biphenyls (PCBs), volatile organic compounds (VOCs), and semivolatile organic compounds (SVOCs). NYSDEC also analyzed for other metals. Analytical methods are discussed in Section 2.3.

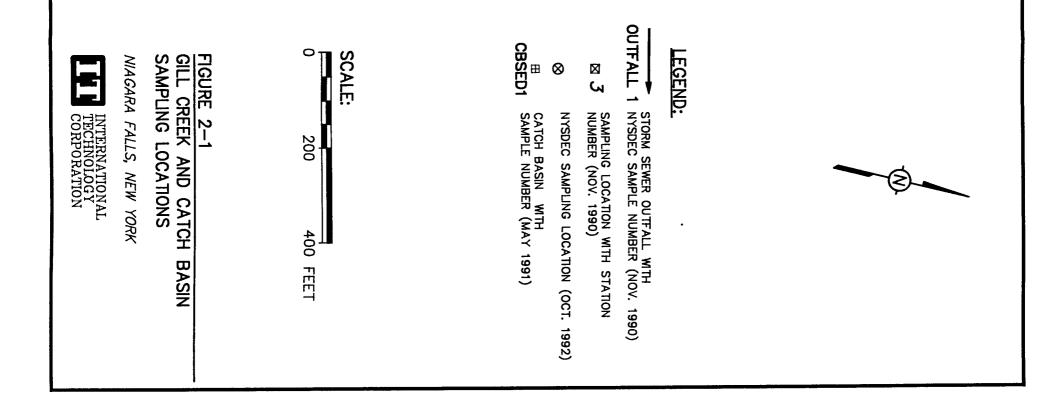
On November 16, 1990, the NYSDEC also collected sediment samples at the storm sewer outfalls along the west bank of Gill Creek with a stainless steel hand trowel (Figure 2-1). These outfalls drain into the creek and receive drainage from catch basins located on both sides of Packard Road. IT did not receive split samples from the outfall samples. The outfall sediment samples were analyzed by NYSDEC for VOCs and SVOCs, pesticides, PCBs, and metals.

The catch basins on the west side of Packard Road were sampled by IT and the NYSDEC on May 24, 1991. The catch basin sediments were analyzed by IT for VOCs, PCBs, pesticides, and mercury, and by NYSDEC for VOCs, SVOCs, pesticides, PCBs, and metals.

On October 6, 1992, NYSDEC collected three sediment samples from 0 to 1 foot deep at the east bank, west bank, and center of Gill Creek. The samples were collected on a transect between the Industrial Welding Site and Buffalo Avenue (Figure 2-1). IT did not observe the sampling and did not receive sample splits. NYSDEC analyzed the samples for VOCs, SVOCs, pesticides, PCBs, and metals.

Results from these sampling events and summary data tables are discussed in Chapter 3.0. Complete analytical data are presented in Appendices B through F.





### Table 2-1

#### Summary Table of Gill Creek Sediment and Water Sampling Niagara Falls, New York

	West Cre Sedir Sam	ment	Center		Total Number of Samples			
Station	Surface	Creek Sed		Water Samples	Soil	Water		
1	No	No	Yes	Yes	1	1		
2	Yes	Yes	Yes	No	3	0		
3	No	No	Yes	No	1	0		
4	Yes	Yes	Yes	No	3	0		
5	Yes	Yes	Yes	Yes	3	1		

#### 2.2 Gill Creek Sediment Sampling for RCRA Characteristics Analysis

In September 1992, IT collected composite sediment samples from four transects on Gill Creek for Resource Conservation and Recovery Act (RCRA) characteristics analysis. The objective of the sampling was to characterize the sediments for final disposition.

The locations of the four transects are shown on Figure 2-2 and are described below:

<u>Transect A</u> is located midway between the northern boundary of the Industrial Welding Site and the Packard Road bridge. This transect provides an indication of sediment characteristics upstream of the Industrial Welding Site.

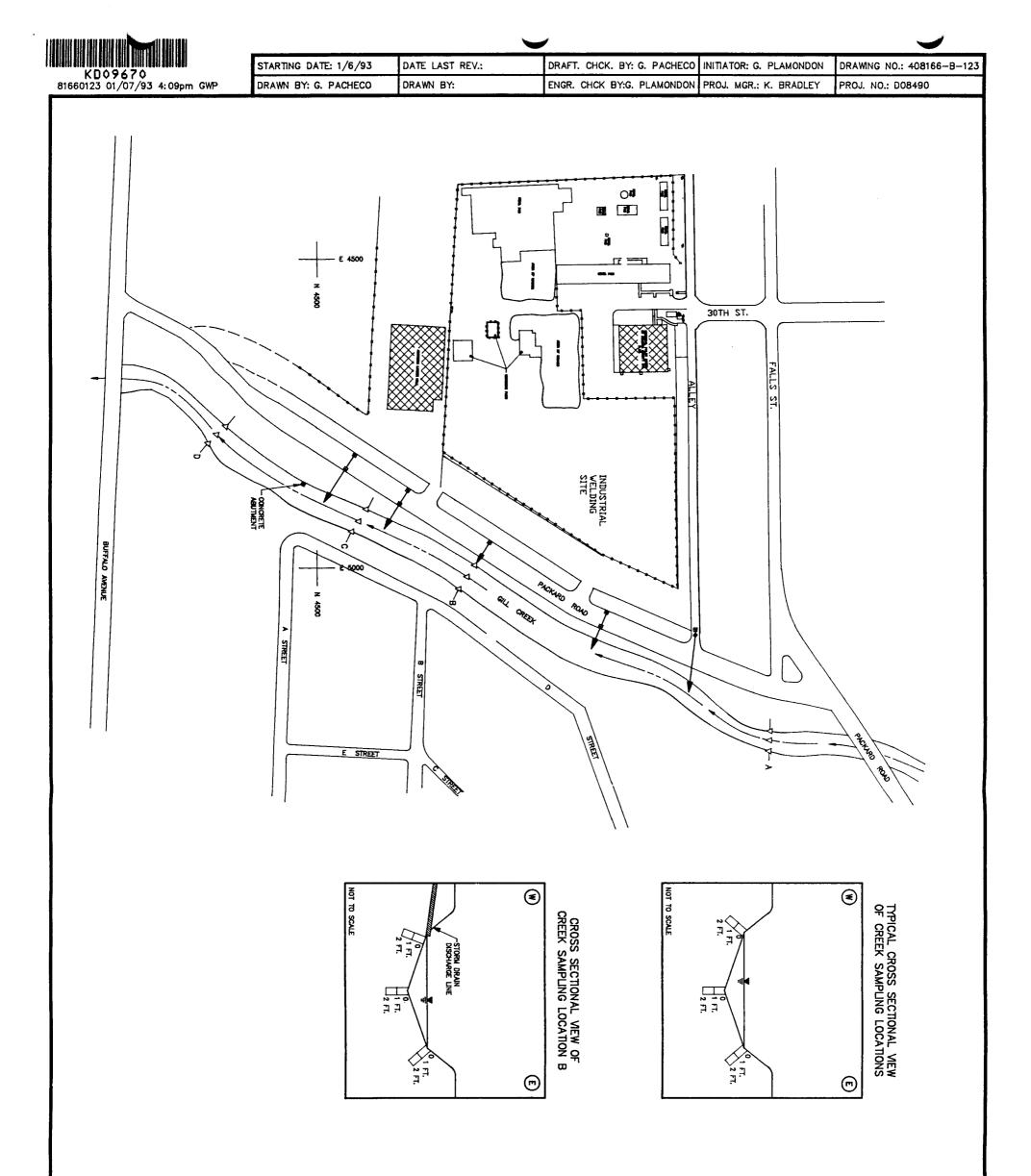
<u>Transect B</u> is at the location of a NYSDEC storm water outfall sample (Outfall 3). This sample contained the highest level of mercury of the three outfalls sampled in November 1990 (Section 3.1).

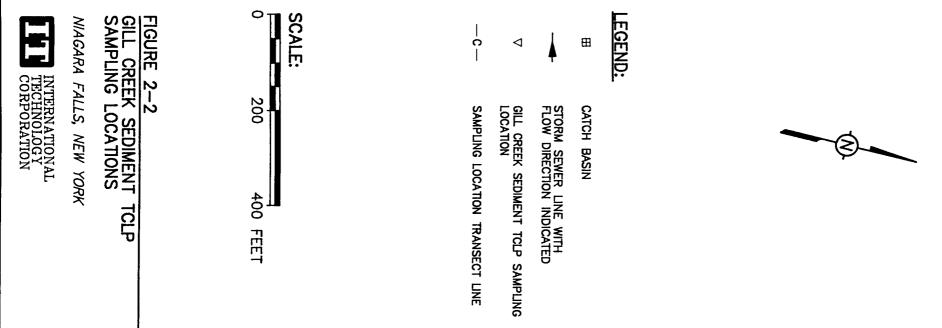
<u>Transect C</u> is at the location of NYSDEC sampling that indicated the highest levels of mercury in the creek sediments in November 1990 sampling (Section 3.2). It is approximately 175 feet downstream of the Industrial Welding Site waste area.

<u>Transect D</u> is located midway between Transect C and the Buffalo Avenue bridge. It provides an indication of sediment characteristics further downstream of the Industrial Welding Site.

Two-foot-long sediment core samples were collected at each of three locations on each transect, east bank, creek center, and west bank. The bank samples were collected at the estimated normal water level except at Transect B, where the west bank sample was collected at the storm drain outfall previously sampled by NYSDEC. All samples were collected in a perpendicular orientation to the sediment surface using a hand-driven core sampler. Each sediment core was then split into 0- to 1-foot and 1- to 2-foot samples and composited at the laboratory within each transect to result in a 0- to 1-foot and a 1- to 2-foot composite sample for each of the four transects.

Portions of each of the composite samples were analyzed for RCRA hazardous waste characteristics: ignitability, corrosivity, reactivity, and toxicity (Toxicity Characteristic Leaching Procedure [TCLP]). Corrosivity and ignitability characteristics are not applicable to solids (e.g., creek sediments) and the data are not included in this report. After the initial





analytical results revealed an elevated level for lead in the TCLP leachate in the 1- to 2-foot composite at Transect D, an additional aliquot of remaining sample from each of the 1- to 2-foot sample locations on Transect D was extracted by the TCLP procedure for lead analysis to determine if lead is present at elevated levels across the entire transect or if the lead is isolated.

In April 1993, Olin retained RECRA Environmental Inc. (RECRA) to resample the same locations using the same laboratory and field procedures used by IT in 1992. Data from both the IT (Sep92) and RECRA (Apr93) sampling events are presented in Appendix F and discussed in Section 3.2

#### 2.3 Analytical Methods

The analytical methods employed for all analyses of sediment and water samples from Gill Creek are from U.S. Environmental Protection Agency's (U.S. EPA) SW-846 manual, third edition. The specific analytical methods used are shown on Table 2-2.

#### 2.4 Data Quality Review

All of IT's sediment and water analytical data from the Olin Gill Creek sampling effort were reviewed prior to their interpretation. The review consisted of identifying field and laboratory situations that may have adversely affected accuracy of the data. Qualifiers were then assigned to the affected data by the reviewer based on the U.S. EPA Hazardous Site Evaluation Division's "Laboratory Data Validation: Functional Guidelines for Evaluating Organics Analyses" (February 1988) and "Laboratory Data Validation: Functional Guidelines for Evaluating for Evaluating Inorganics Analyses" (July 1988).

The reviewer examined field and laboratory documentation to verify that:

- Each analysis requested on the request-for-analysis form was performed by the laboratory.
- The preserving technique used was appropriate.
- Holding times were met for each analysis for each sample.
- Each sample was documented on the chain-of-custody and request for analysis forms.
- A trip blank for each sample requiring volatiles analysis was assigned.

#### Table 2-2

#### **IT/RECRA** Analytical Methods

Sample Type	Date	Analytical Method*
Water	November 1990	8240, 8270, 8080, 7470
Sediment	November 1990	8240, 8270, 8080, 7471
Catch Basin Sediments	May 1991	8240, 8080, 7471
Sediment	September 1992, April 1993	3010 followed by 6010, 7470, 8080/8150, 8240, 8270, PM, 9030/9010

\*8240 = EPA Method 8240 (VOCs).

8270 = EPA Method 8270 (Semivolatiles).

8080/8150 = EPA Method 8080/8150 (PCBs/pesticides).

7470/7471 = EPA Method 7470/7471 (Mercury - CVAA Analysis).

6010 = EPA Method 6010 (Metals - ICP Analysis).

PM = Pensky Martin Closed Cup Flashpoint Analysis.

9030/9010 = EPA Method 9030/9010 (Reactivity as total sulfide and total cyanide).

3010 = EPA Method 3010 (TCLP extraction).

- Calibration performance was acceptable: tuning, initial, and continuing calibration responses.
- Standard recoveries (internal, surrogate, spikes) were within procedure guidelines.
- Relative percent differences (RPD) between duplicates (precision) and matrix spike/matrix spike duplicate (MS/MSD) pairs were accurate within procedure guidelines.
- Blanks did not contain contamination (i.e., field, method, and equipment rinsate blanks.)

Most of the data were in full conformance with U.S. EPA's guidelines. As discussed in the following paragraphs, some samples or analytes required additional qualifiers or had qualifiers removed as a result of the data validation. Generally, however, the data were of good quality. The NYSDEC data were not validated and are presented as reported by the laboratory.

Qualifiers were added to all of the 1990 mercury results because no preservation was noted on the chain-of-custody and the soil matrix spike recovery was outside control limits. One sample had all of the volatile compounds qualified and one sample had all of the semivolatile compounds with positive results qualified because holding times were exceeded. Semivolatile nondetects for this sample were rejected. Five methylene chloride and nine bis(2-ethylhexyl)phthalate results were qualified as nondetected because these compounds were detected in the blanks. One bis(2-ethylhexyl)phthalate and two methylene chloride results exceeded ten times the blank contamination. The "B" qualifier was removed from these results. Eleven hexachlorocyclopentadiene, eleven 2,4-dinitrophenol and three 2-butanone results had qualifiers added because the initial calibration relative standard deviation (RSD) exceeded the quality control (QC) limit. Finally, one acetone result was qualified because the continuing calibration percent difference exceeded the QC limit.

Qualifiers were added to the 1991 mercury results because the duplicate RPD exceeded QC limits. No other qualifiers were added to any of the 1991 data results.

Qualifiers were added to all of the September 1992 TCLP pesticide results because the holding time was exceeded by one day. Nine other 1992 TCLP samples also had qualifiers added to the results. Eight 2-butanone results were rejected because the initial and continu-

ing calibration relative response factors (RRF) were below QC limits. One lead result (Table F-3) was qualified as estimated because the serial dilution percent difference (%D) was slightly above the QC limit.

The April 1993 TCLP volatile analyses reported trichloroethene, tetrachloroethene, and benzene in some samples. Those contaminants were also found in the associated method blanks, however, and the data were qualified.

### 3.0 Results

In many cases, IT and NYSDEC split samples. NYSDEC did not supply validation data packages to Olin. Consequently, IT can only verify its own data. Because of this, IT data are discussed in this section except where no IT data are available. In those cases, the NYSDEC data are discussed. IT and NYSDEC data are presented in their entirety in Appendices B through G.

#### 3.1 Catch Basins and Outfalls

In May 1991, sediments from four catch basins were sampled and analyzed by IT for VOCs, pesticides, BHC, and mercury. Split samples were analyzed by NYSDEC for those analytes plus SVOCs and additional metals. The sampling locations are shown in Figures 2-1 and 3-1. IT data are presented in Appendix B.1 and NYSDEC data are presented in Appendix B.2. The samples are designated CBSED1 through CBSED4.

Acetone and methylene chloride were detected at low concentrations in each sample. The concentrations of other detected VOCs were estimated below the detection limit. Either the alpha or beta isomer of BHC was detected in all samples except CBSED3 (Figure 3-1). Mercury ranged in estimated concentrations from 0.24 parts per million (ppm) in CBSED2 to 7.5 ppm in the duplicate sample for CBSED1 (Figure 3-2).

NYSDEC performed SVOC analysis on its catch basin sample splits. NYSDEC data showed PAHs present in sediments from all catch basins, ranging from a total of 13,740 ppb at Catch Basin 4 (CBSED 4) to 59,007 ppb at Catch Basin 2 (CBSED 2). PAH distribution is shown in Figure 3-3. Phthalates were found in each sample from 3,880 ppb (total phthalates) in Catch Basin 1 to 15,020 ppb in Catch Basin 2.

In November 1990, NYSDEC collected and analyzed sediment from the Gill Creek outfalls connected to the site catch basins. The correlation of the outfall samples to Phase II RI catch basin samples is as follows (see Figure 2-1):

Catch Basin Sample# CBSED1 CBSED2 CBSED3 CBSED4 No sample Outfall Sample# Outfall 5 No sample Outfall 3 No sample Outfall 1

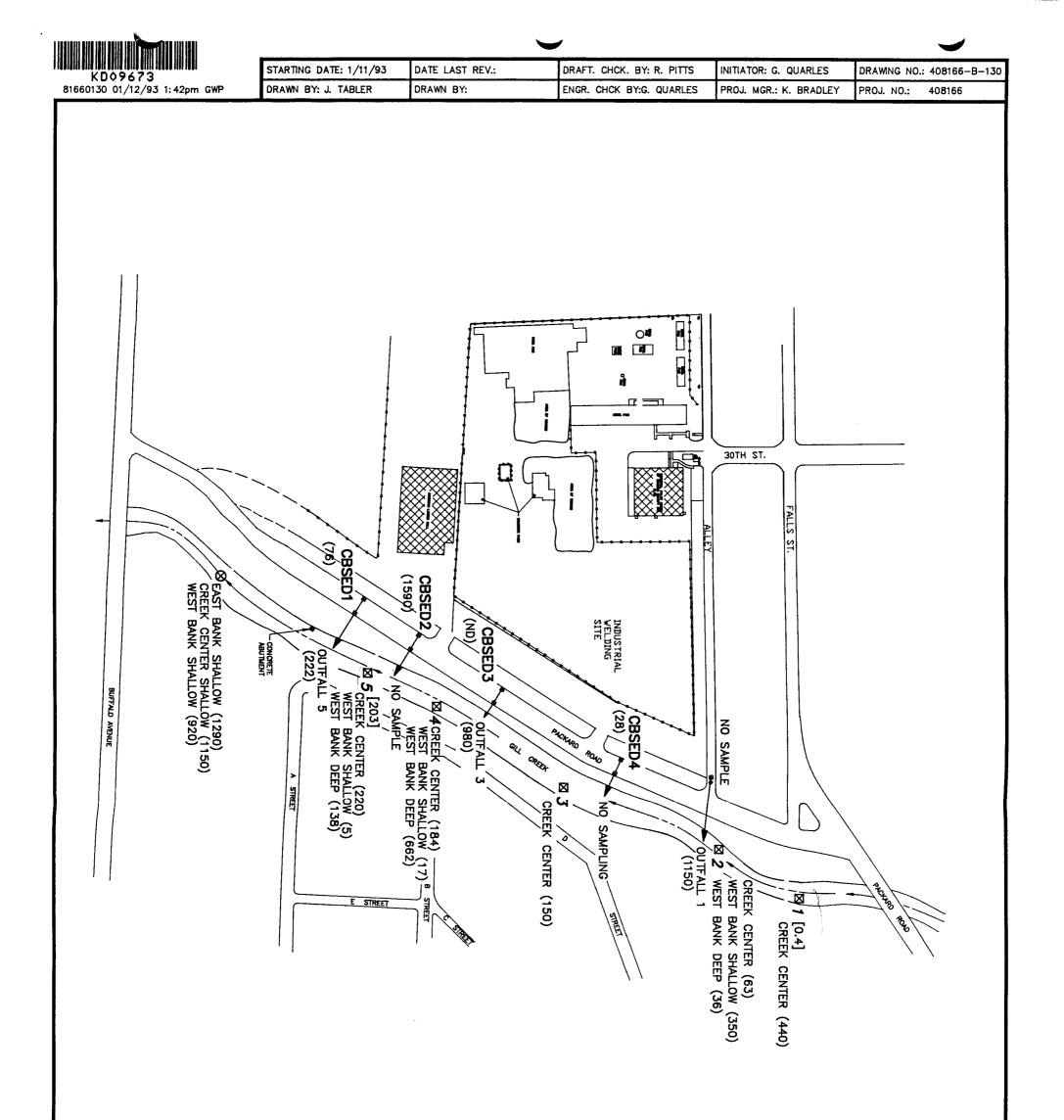
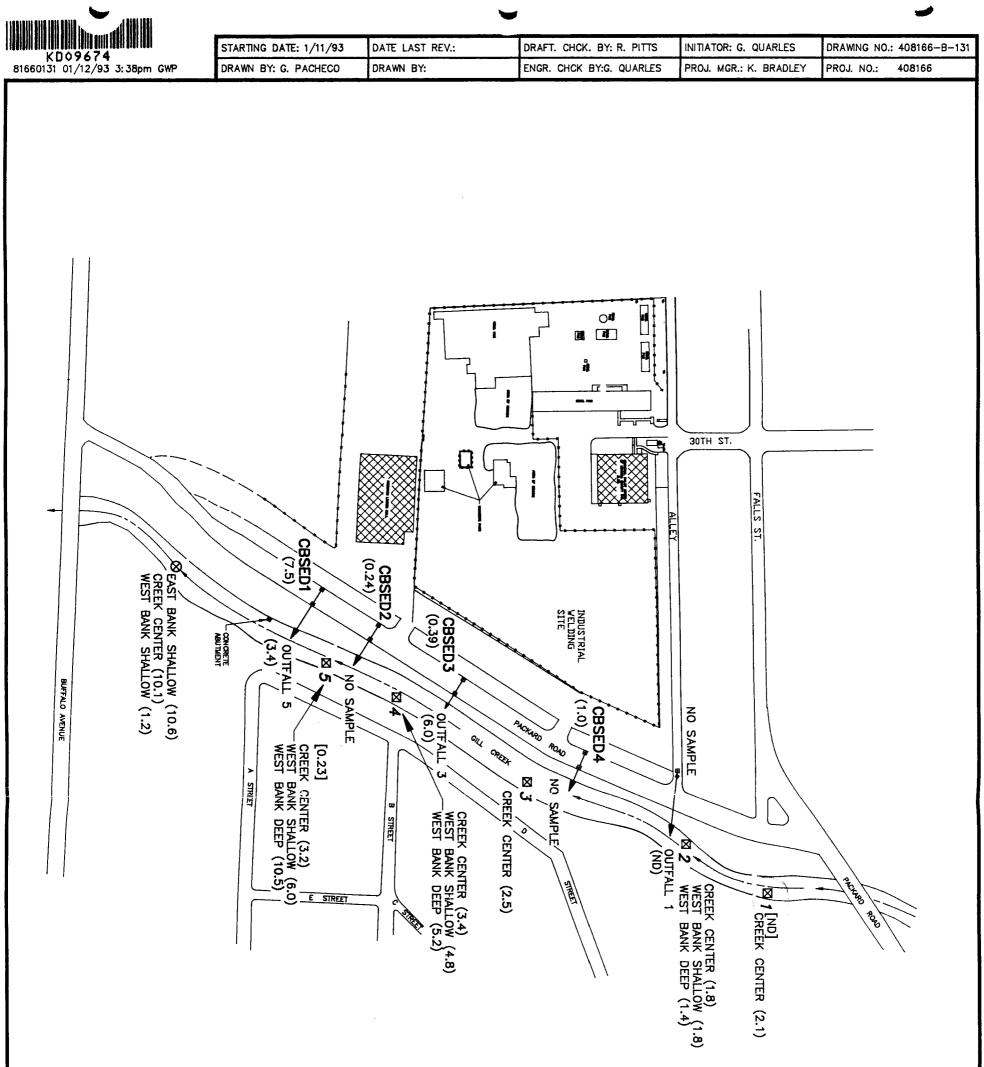
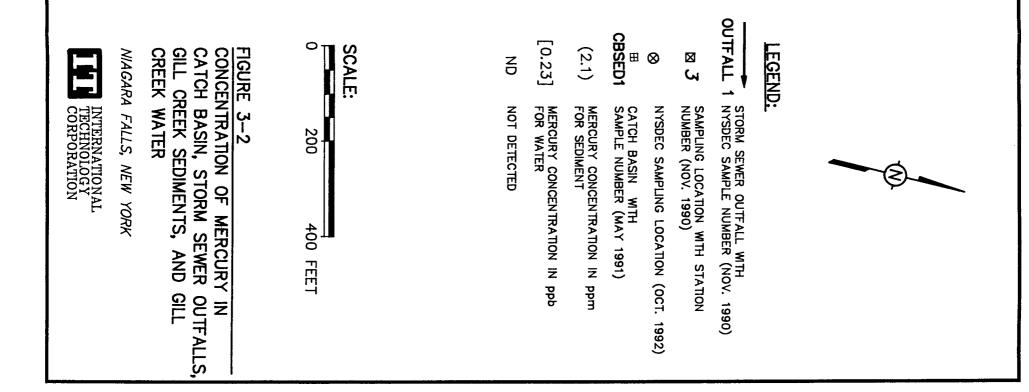


FIGURE 3- CONCENTR IN CATCH OUTFALLS, AND GILL MIAGARA FA	O SCALE:	[203] (ND)	(440)	⊞ CBSED1	8	⊠ 1	OUTFALL 1	LEGEND:	
FIGURE 3-1 CONCENTRATION OF TOTAL BHCs IN CATCH BASIN, STORM SEWER OUTFALLS, GILL CREEK SEDIMENTS, AND GILL CREEK WATER MIAGARA FALLS, NEW YORK MIAGARA FALLS, NEW YORK TECHNOLOGY TECHNOLOGY	: 200 400 FEET	TOTAL BHC CONCENTRATIONS IN PPB FOR WATER NOT DETECTED	TOTAL BHC CONCENTRATION IN PPb FOR SEDIMENT	CATCH BASIN WITH SAMPLE NUMBER (MAY 1991)	NYSDEC SAMPLING LOCATION (OCT. 1992)	SAMPLING LOCATION WITH STATION NUMBER (NOV. 1990)	STORM SEWER OUTFALL WITH NYSDEC SAMPLE NUMBER (NOV. 1990)	2:	



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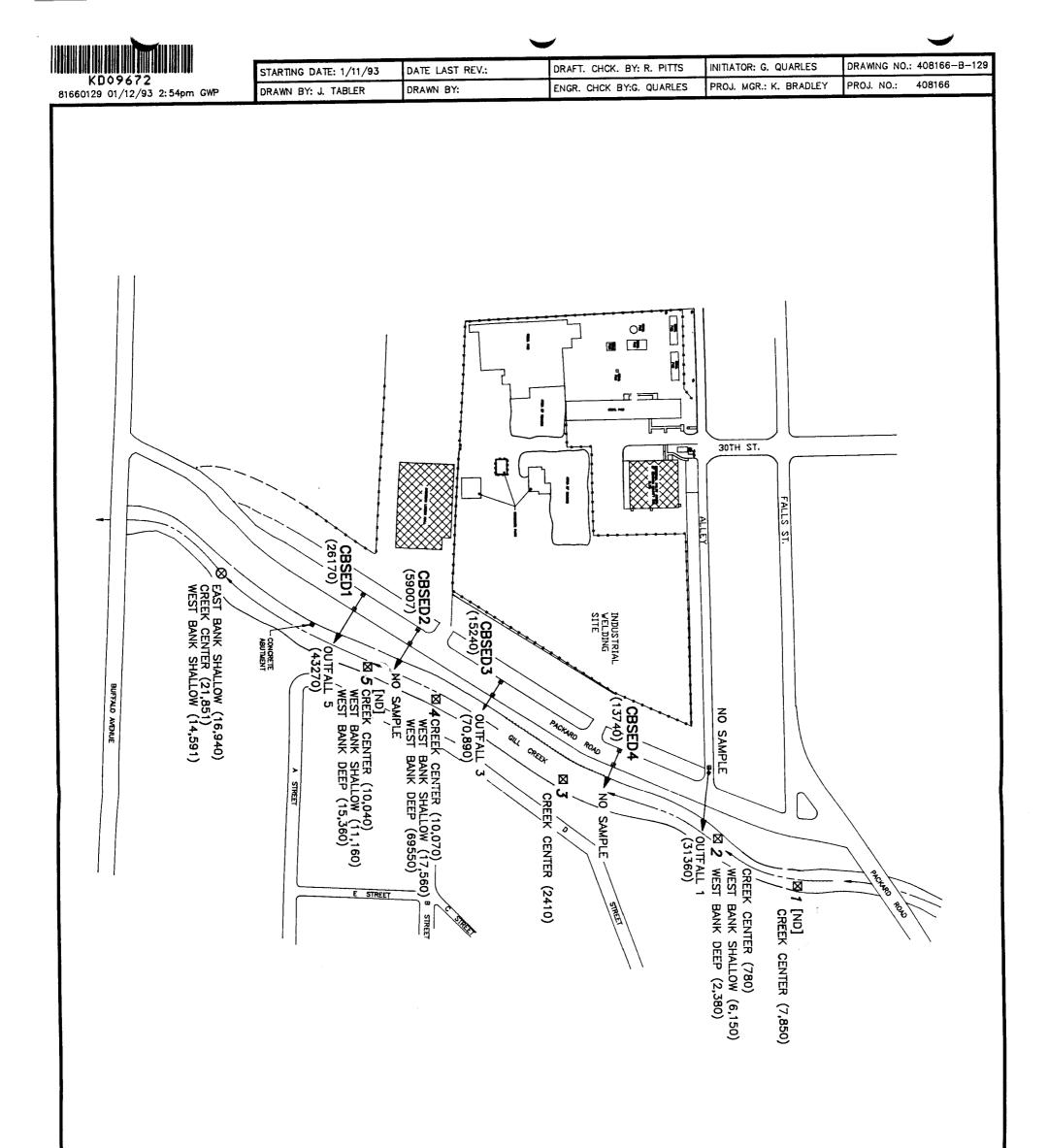


FIGURE 3- CONCENTR IN CATCH OUTFALLS, AND GILL <i>NIACARA FA</i>	O SCALE:	(NA)	[ND]	(2,380)	⊞ CBSED1	8	⊠ 1	OUTFALL 1	LEGEND:		
FIGURE 33 CONCENTRATIONS OF TOTAL PAHS IN CATCH BASIN, STORM SEWER OUTFALLS, GILL CREEK SEDIMENTS AND GILL CREEK WATER MIAGARA FALLS, NEW YORK INTERNATIONAL TECHNOLOGY CORPORATION	200 400 FEET	NOT ANALYZED	TOTAL PAH CONCENTRATION IN ppb FOR WATER	TOTAL PAH CONCENTRATION IN ppb FOR SEDIMENT	CATCH BASIN WITH SAMPLE NUMBER (MAY 1991)	SAMPLING LOCATION (OCT. 1992)	SAMPLING LOCATION WITH STATION NUMBER (NOV. 1990)	STORM SEWER OUTFALL MTH NYSDEC SAMPLE NUMBER (NOV. 1990)	<u>}:</u>		

The samples were analyzed for VOCs, SVOCs, pesticides and PCBs, and metals. The results are presented in Appendix C.

Low levels of acetone and methylene chloride were detected, but not in all samples. Benzene was detected in every outfall sample at very low concentrations ranging from 4 to 7 parts per billion (ppb). Chlorobenzene was detected in every sample at concentrations ranging from 14 ppb in Outfall 5 to 440 ppb in Outfall 3, and 1,4-Dichlorobenzene was estimated at 680 ppb in Outfall 1. PAHs were detected in every sample (Figure 3-3) with the highest concentrations in Outfall 3 (70,890 ppb total PAHs).

Aroclor-1242 was detected in a single outfall sample, Outfall 3, at 0.8 ppm. The alpha, beta, and delta isomers of BHC were detected in every sample with the highest concentration (1.2 ppm total BHC) in Outfall 1. The lowest total BHC concentration (0.22 ppm) was detected in Outfall 5 (Figure 3-1).

Mercury in the outfall samples ranged in concentration from ND (Outfall 1) to 6.0 ppm (Outfall 3) in the samples (Figure 3-2).

It does not appear reasonable to correlate data in catch basin versus outfall samples due to several factors. First, samples were collected approximately six months apart. The catch basin samples were collected during May 1991 and the outfall samples during November 1990. Degradation of various compounds, either by microbial or chemical mechanisms could reduce concentrations. Additional contaminants could be added to one or more locations, and flushing could occur during a storm event. Second, hydraulic separation of sediments by grain size may occur between the catch basin and corresponding outfall. During normal flow from the catch basin to the outfall, coarser-grained particles will tend to settle in the catch basins and finer clay sized particles will remain suspended in the water stream for a longer period, and are more likely to be deposited at the outfall. Finer particles tend to adsorb organics to a greater degree than coarser particles resulting in higher concentrations. Third, only two of the sampled outfalls correlate with sampled catch basins, thus resulting in a small data set for correlation. Fourth, during storm events, it is possible that the normal movement of sediments from the catch basins to the creek may be reversed and deposition of sediments into the catch basins from turbid creek water may occur.

#### 3.2 Creek Sediments

#### 3.2.1 November 1990 Sediment Sampling

In November 1990, NYSDEC took samples of surface water and sediments in Gill Creek and IT collected split samples. The sampling is described in Section 2-1 and the sample locations are shown on Figures 2-1 and 3-1. Results of the water sampling are discussed in Section 3.3. Eleven sediment samples were collected from five stations. Stations 1 and 2 are upstream of the Industrial Welding Site, Stations 3 and 4 are adjacent to the Industrial Welding Site, and Station 5 is slightly downstream of the Industrial Welding Site waste area. The results of the IT and NYSDEC split sampling are presented in Appendix D.

Methylene chloride, acetone, and chlorobenzene were found consistently in the sediment samples. Methylene chloride, which ranged from 5 ppb in deep sediment from Station 2 to 130 ppb from the center creek sample from Station 1, was also found in many of the associated method blanks. Acetone was detected in ten samples, ranging from 8 ppb in the deep sediment sample from Station 2 to 120 ppb from the center creek sample from Station 1. Chlorobenzene was found in ten of the samples ranging from 21 ppb in the shallow sediment sample from Station 5 to 59 ppb in the shallow sediment sample from Station 4.

PAHs were found in all samples; totals for these compounds are presented on Figure 3-3. The highest total value for PAHs was at the deep sample from the west bank at Station 4 (69,550 ppb) and the lowest value was at the creek center at Station 2 (780 ppb). No clear pattern was observed between shallow and deep samples or between upstream and downstream samples. Additional SVOCs detected were: dibenzofuran (1 sample), hexachlorobenzene (1 sample), 1,4-dichlorobenzene (4 samples), and bis(2-ethylhexyl)phthalate (all samples). The latter was also detected in the method blank samples.

BHCs were detected in all sediment samples. The total BHC (the sum of the various isomers) are shown in Figure 3-1. The totals range from a low of 5 ppb from the shallow sediment sample from Station 5 to a high of 630 ppb from the deep sediment sample from Station 4. PCB (Aroclor-1248) was confirmed in nine samples ranging from 130 ppb from the shallow sediment sample from Station 5 to 3,900 ppb from the center creek sample from Station 3. Other Aroclors detected were Aroclor-1221 and Aroclor-1260, both from upstream samples.

Mercury was detected in all eleven samples (Figure 3-2) ranging from 1.4 ppm in the deep sediment sample from Station 2 to 10.5 ppm from the deep sediment sample from Station 5.

#### 3.2.2 October 1992 Sediment Sampling

On October 6, 1992, NYSDEC collected three sediment samples from a transect downstream of the Industrial Welding Site; this transect is at the location of Transect D used for RCRA characteristics sampling (Section 2.2). The samples were collected from 0 to 1 foot deep and a sample was taken from the east bank, west bank, and the creek center. IT did not observe the sampling or receive sample splits. The NYSDEC analytical data for these samples are presented in Appendix E.

Acetone, 2-butanone, benzene, and chlorobenzene were found in all three samples. Acetone and chlorobenzene were the most elevated of these VOCs, with acetone found from 88 to 100 ppb and chlorobenzene found at 27 to 840 ppb.

PAHs were found in all three samples: 14,591 ppb total PAHs at the west bank, 21,851 ppb at the center, and 16,940 ppb at the east bank. Totals for the PAH compounds are shown on Figure 3-3. Various levels of 1,3-dichlorobenzene, 1,4-dichlorobenzene, and 1,2,4-trichlorobenzene were also observed in all samples.

BHC were observed in all three samples: 920 ppb total BHC at the west bank, 1,150 ppb total BHC at the creek center, and 1,290 ppb total BHC at the east bank (Figure 3-1). Aroclor-1248 was observed in all three samples also, with a range of 4,400 ppb to 8,200 ppb.

Mercury was found at 1.2 ppm at the west bank, 10.1 ppm at the creek center, and 10.6 ppm at the east bank (Figure 3-2).

#### 3.2.3 Sediment Sampling for RCRA Characteristics

In September 1992, IT collected 0- to 1-foot and 1- to 2-foot composite sediment samples from four transects on Gill Creek for RCRA characteristics analyses. The objective of the sampling was to characterize the sediments for final disposition. In April 1993, RECRA resampled the same locations for Olin to confirm the previous results. The sampling is described in Section 2.2 and the sample locations are shown on Figure 2-2. The analytical data are presented in Appendix F.

The only VOC found in the TCLP extract from either the September 1992 or April 1993 sampling was chlorobenzene at levels (ND to 0.054 ppm) within the allowable level (100.0 ppm). Trichloroethene (TCE) was observed in several samples from the April 1993 sampling and analysis; however, TCE was also present in the method blank for those samples and is believed, therefore, to be a lab contaminant. No SVOCs, pesticides, or herbicides were detected in the TCLP extracts.

TCLP extracts were within allowable levels for arsenic, barium, cadmium, and mercury. Arsenic (ND to 0.11 ppm) and barium (0.73 to 1.75 ppm) were detected in TCLP extracts, but at levels within allowable limits: 5.0 ppm for arsenic and 100.0 ppm for barium. Cadmium was found, in one sample, at 0.03 ppm which is within the allowable level of 1.0 ppm and mercury was found in a single sample at 0.0006 ppm which is within the regulatory level of 0.2 ppm.

At the 0- to 1-foot depth, lead was within the allowable level of 5.0 ppm (ND - 0.20 ppm) at all four transects. In the 1- to 2-foot composite for transect D, however, a lead concentration of 38.9 ppm was detected in the extract from the September 1992 sampling. Aliquots from each of the discrete samples (remaining in the laboratory) that made up the transect D 1- to 2-foot composite sample were then extracted by the TCLP procedure and analyzed for lead. In that analysis of discrete samples, only the sample from the east bank had detectable quantities of lead (estimated at 54.4 ppm). The April 1993 analysis for the samples composited at the 1- to 2-foot depth at transect D was below the detection level for lead (0.05U) and, therefore, did not confirm the presence of lead. Lead was not detected in either the September 1992 or April 1993 sampling events at any other transect at the 1- to 2-foot depth. It is apparent that the lead detected in the September 1992 sample at the 1- to 2-foot depth at transect D is confined to a very small volume, probably represents only a small mass of lead, and may be due to a sampling artifact. Based on the data, lead is not believed to be an element of concern in the creek sediments.

All of the samples were within the allowable levels of reactivity for sulfide (500 ppm). The September 1992 analyses (transect D, 0- to 1-foot) indicated 450 ppm of cyanide. The April 1993 resampling at the same location did not, however, detect any cyanide. The RCRA criterion for cyanide is 250 ppm. The occurrence of cyanide reactivity in Gill Creek sediments is considered highly unlikely and could not be confirmed by the follow-up sampling. Therefore, it is believed that the sediments do not exhibit reactivity.

#### 3.3 Creek Water

IT accepted split samples of two surface water samples collected by NYSDEC in November 1990 in conjunction with the sediment sampling. The sampling is described in Section 2.1 and the sample locations are shown on Figures 2-1 and 3-1. Complete analytical data are included in Appendix G.

The only VOC found in the water samples was methylene chloride, which was found in both samples below quantitation limits. Methylene chloride was also found in the method blank. No SVOCs were detected.

Both samples contained alpha, beta, and gamma BHC. Values for total BHC are 0.4 and 2.03 ppb in the samples from Stations 1 and 5, respectively (Figure 3-1). Mercury was found just above the quantitation limit at 0.23 ppb in the sample from Station 5 (Figure 3-1).

### 4.0 Conclusions

The stretch of creek investigated in this study contains various sediment contaminants, most notably PAHs, BHC, and mercury. The contaminants were present in all portions of the creek studied here, and no clear distribution pattern was evident. Only two water samples were collected, and mercury and BHC were detected in at least one of those samples.

No correlation could be established between contaminants in the catch basins and storm sewer outfalls, although it was observed that generally similar contaminants were found in the basins and the outfalls as well as in the creek sediments. It is unclear whether the sediment in the catch basins are simply creek sediments that are trapped in the basins during storm events, when turbid creek water may back into the catch basins, or if the sediments are from elsewhere.

The source of the contaminants in the creek was not conclusively determined. However, several observations can be made:

- The contaminants found in the catch basins, storm sewer outfalls, creek sediments, and creek water (most notably BHC, PAHs, and mercury) are similar to those found in wastes or soils nearby.
- The most upstream sample, upstream of the Industrial Welding Site but south of Packard Road, contained generally similar levels of contaminants as the down-stream levels. Due to the configuration of the creek bed between Packard Road and Buffalo Avenue and the periodic backflow of Gill Creek water from the Niagara River, it is likely that sediments have a tendency to be deposited in that creek stretch and little variation in contaminant levels would be expected.
- BHC, PAHs, and mercury have been measured in Gill Creek samples from previous studies as far upstream as just below Hyde Park Lake, approximately 1 mile upstream of the study area. The source(s) of the contaminants was not identified in those studies.
- There have been reports, which are still being investigated, that the City of Niagara Falls Wastewater Treatment Plant disposed of contaminated sludge into Gill Creek adjacent to the Industrial Welding Site.

The analysis of creek sediment samples for RCRA characteristics indicates that the sediments do not exhibit hazardous waste characteristics.

### **APPENDIX A**

# HISTORICAL GILL CREEK SAMPLING CHEMICAL ANALYSIS DATA





agara NEW YORK 143

July .12, 1984

Mr. Peter Buechi, P.E. New York State Department of Environmental Conservation 600 Delaware Avenue Buffalo, New York 14202

> RE: Gill Creek Sampling Plan -City WWTP Consent Decree (Civil No. 81-363C)

Dear Mr. Buechi:

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As you are aware, the referenced consent decree contains a provision for an Environmental Credit project to be performed by the City, identified as a "Gill Creek Restoration Project". Initially, a sediment sampling and analysis program is required, addressing both EP Toxicity and priority pollutants.

Mr Yavuz Erk of your office kindly supplied the results of previous sampling of Gill Creek in the reach of interest; from Buffalo Ave. to Hyde Park lake. Only lindane and PCB's were analyzed, with the particular sample results from this reach shown in Table I, attached. It appears there are only two areas of concern, one near Buffalo Ave. and one near the Falls Street bridge. I can possibly understand the high results for the sample near Buffalo Ave. (Site #4-1980) due to the nearby Industrial Welding site, but not the high results for the sample near the Falls St. bridge (Site #17-1980). Since these samples were probably analyzed by gas chromatography without confirmation, it is possible they are "false positives". Our pesticides analysis program will include a confirmatory analysis with a second GC column.

The City proposed sampling and analysis program consists of the following:

Five (5) transect composite samples will be taken, each being a composite of three (3) core samples of approximately 12"-18" depth. Approximate locations will be:

1. Immediately south of the Pine Ave. bridge

2. Along Hyde Park Blvd. at Orleans Ave.

- 3. Just south of the Falls St. bridge
- 4. Midway between Falls St. and Buffalo Ave.
- 5. 100' North of Buffalo Ave.

(continued)

Mr. Peter Buschi, P.E. July 12, 1984 Page 2

These locations are marked with X's on the attached sketch.

Laboratory analysis of each of the five(5) samples will consist of:

- 1. EP Toxicity extraction with subsequent analysis for the leachate for:
  - a. SDWA pesticides and herbicides by GC (6 compounds)
  - b. SDWA primary metals (8 metals)
  - c. Priority Pollutant Pesticides/PCB's by GC (25 compounds) ---
- 2. Direct analysis of the sediment for:
  - a. Volatile, Acid and Base/Neutral Priority Pollutants by GC/MS (88 compounds)
  - b. Priority Pollutant Pesticides/PCB's by GC (25 compounds) with second column confirmation.

Please review this proposed sampling and analysis program and determine whether or not it meets the requirements of your department and our consent decree. As soon as we get your concurrence, we will initiate the sampling and analysis program to get the project underway. When analytical results have been received, we would like to, at that point, sit down with you to interpret the numbers.

Thank you for your continued help in this matter. If you have any questions, please call me at 278-8138.

Very truly yours,

DEPARTMENT OF UTILITIES

Hy K. Wislend

John R. Westendorf Chemist

JRW:mo CC: R. Game C. Mooradian D. Brooks L. Krizan

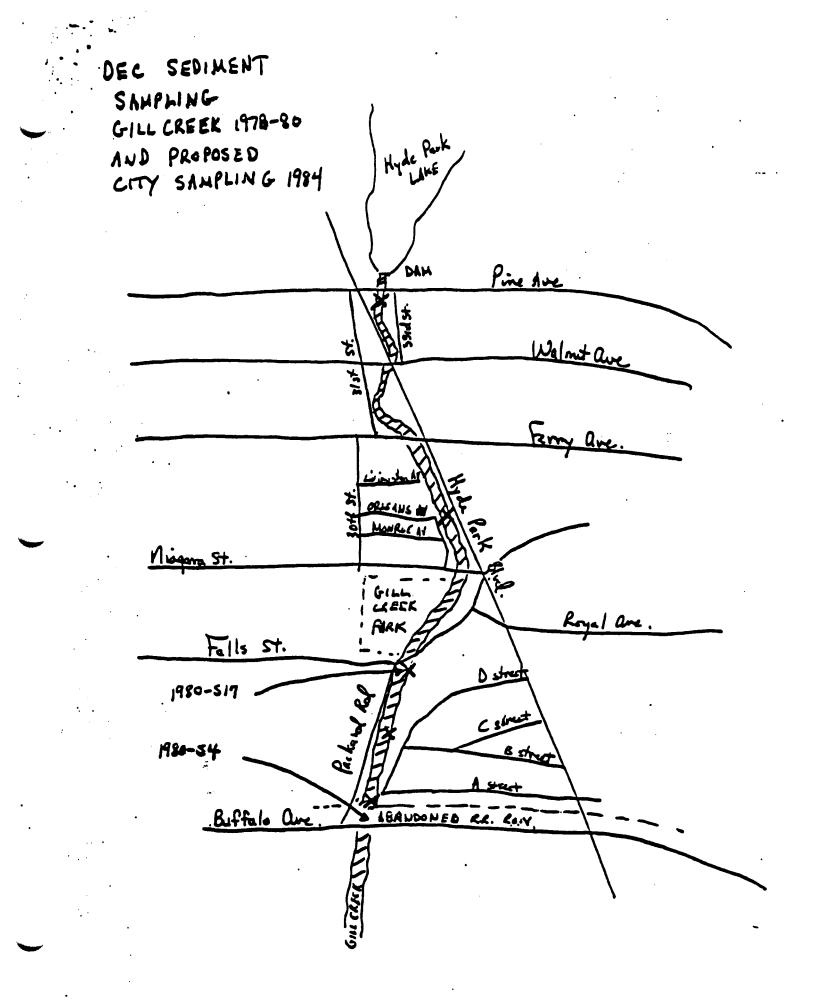
DEC SEDIMENT SAMPLES - GILL CREEK BETWEEN HYDE PARK LAKE & BUFFALO AVENUE		•
ENT SAMPLES - GILL CREEK BETWEEN HYDE PARK		VENUE
ENT SAMPLES - GILL CREEK BETWEEN HYDE PARK		5
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	•	A-BHC		8	ł	ł	211	120	0.52	0.14	0.01	0.21	90°0	0.10	0.06
	Lab Results (ppm)	PCB-1254		< 0.02	< 0.040	< 0.020	8 8 8	8 8 8	1 6 1 8	     	8 8 8	6 8 8 8	8 8 8	3 8 8 8	8
	Lab 1	PCB-1248	<0.0089 (Incl. 1254)	0.020	≤0.040	£0.020	2.75	1.23	- trace	trace	0.55	6.23	8.57	3.00	trace
		Location	100-150° N. of Buffalo Ave.	Near E. Sie Hyde Park @ Walnut; 8. of Dam	Near Ctr. E. Falls St. Bridge at Packard	Line W/Ctr. Am. Leg. Parking Lot; 100' N. of Dr. on Packard	Site 44 transect composite just up- stream of Buffalo Ave. Bridge	Site #17 transect composite 20° downstream of Falls St. Bridge	Site 45 transect composite 30° down- stream of Walnut Ave. Bridge	Site #10 transect composite midway between low dam and high dam	Site <b>#18</b> transect composite opposite Orleans Ave.	Site #17A 60° below S. curb on A Street - east side of creek	Site 417B 60° below S. curb on A Street - mid. of creek	Site #17C 60° below S. curb on A Street - west side of creek	Site <b>19 - 50' upstream from Royal</b> Ave. C 0
		Sample 4	10	R2	R3 /	<b>R</b> (	67	410	<b>\$11</b>	612	<b>11</b> 7	<b>1</b> 8	119 (John	420	121
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March 4, 1985

Mr. Robert Speed, P.E. Regional Water Ouality Engineer NYS Dept. of Environmental Conservation 600 Delaware Avenue Buffalo, N.Y. 14202

> RE: Gill Creek Restoration Project -Consent Decree, City of Niagara Falls, Civil No.: 81-363C

Dear Bob:

The attached report from Julie Wang, Environmental Chemist describes the sampling and analysis plan for the subject project as approved by your correspondence of August 24, 1984. The five (5) transect composite samples were taken on November 1, 1984 and sent to ETC Laboratories in Edison, N.J. for analysis. The City's Water Quality Laboratory also performed selected analyses on split samples.

The EP Toxicity extraction tests show that only zinc and alpha BHC were found above the method detection limits in any of the five (5) leachates.<sup>11</sup> Zinc was found in each, but with only a <u>maximum</u> concentration of 3.2 mg/l. It should be noted that there is no EP Toxicity action level for zinc. The only sample to show reportable amount of alpha BHC was sample number 28410, the one collected 25 feet north of Buffalo Avenue. Even this was well below (by 2 orders of magnitude) the EP Toxicity action level of 0.4 mg/l. It would appear that none of the sediments exhibit the characteristics of a hazardous solid waste, as far as EP Toxicity is concerned.

Further extensive testing of the sediments themselves were also performed for organic priority pollutants as well as metals. The ETC Lab volatiles analyses showed low parts per billion concentration of tetrachloroethylene, toluene and chlorobenzene in four (4) of the five (5) samples. Split sample results for acid, base/neutrals, pesticides and metals (only positive hits, including single PBL, are shown) show the presence at ppm levels, of polynuclear aromatics (PNA's) and phthalates. These two (2) classes of compounds are ubiquitous in sediments. In addition, a few hits for chlorinated benzenes were detected, with a maximum of 1.53 ppm. Of the metals analyzed, only lead and mercury exhibited patterns of increasing concentrations upon proceeding downstream. The concentrations seem to have stablized at around 100-160 ppm for lead and 3.9 to 5.0 ppm for mercury in the two downstream sediments (#28409 and #28410). These levels are probably not of concern, since the metals are shown to be in a stable non-soluble form (see the EP Toxicity results).

The pesticide results on the sediment samples (Table V attached memo) do reveal a pattern of increasing BHC's concentrations in the downstream samples. These results are not unexpected due to the past history of activity on this stream. The DEC proposed alpha plus gamma BHC sediment criterious of 2.0 mg/kg was exceeded in one instance by the City's results on sample #28410 (25 mg/kg), the most downstream sample near Buffalo Avenue. "PCB's, another expected detection, did not occur above 3 mg/kg (ppm), and are thus probably not of concern.

The toxaphene detections by ETC Laboratories are highly questionable. City review of their methods and results reveals that these detections should not have been reported. One interesting detection is that of Dechlorane Plus by the City Laboratory. All results are below one (1) ppm, but Dechlorane Plus exhibits a distinctive double isomer peak. The Concentrations are, however, too low for GC/MS confirmation and are to be considered somewhat suspect.

In conclusion, it would appear that only the most downstream sampling locations exhibits any analytical results of concern (BHC's), in my opinion. The City would like to proceed with the proposed Consent Decree Project, but only in the reach from Pine Avenue to "B" Street. Please review the data and advise the City of your agreement, if appropriate.

The detailed laboratory data reports are available for review at the City Wastewater Plant. Please call me at 278-8183 if you have any guestions.

Very truly yours,

DEPARTMENT OF UTILITIES

y R. Westerdor,

John R. Westendorf () Environmental Engineer

JRW:dc Att. cc: D. Jaros/M. Bettino R. Game L. Krizan/D. Brooks N. Marchelos C. Mooradian W. Garrow/J. Wang

## CITY OF NIAGARA FALLS

## NEW YORK

February 1, 1985

TO: John R. Westendorf Environmental Engineer

FROM: Julie Wang Environmental Chemist Jew

SUBJECT: Samples From Gill Creek

Five (5) sediment samples (see attached map) were taken from Gill Creek on November 1, 1984. The samples were split and one set was sent to Environmental Testing and Certification Laboratory, Edison, N.J. to analyze for all priority pollutants and for the metals, Hg, Pb, Zn in sediments. An EP toxicity test was also done. The City's Water Quality Laboratory analyzed the other set of split samples for pesticides, PCB's, toxaphene, B/N compounds and metals (Pb, Hg, Zn, Cu, Ni, Cd, Cr) in sediments.

The EP toxicity results (Table I) indicated trace amounts of BHC isomers were found in Sample #28407 and #28409. Sample #28410 had 3.6 ppb of Alpha-BHC along with other types of BHC isomers. Table II is the EP toxicity results for metals and herbicides. All the results are below the method detection limit and well below the RCRA Alert Level. Zinc is the only metal that was found in the leachates and its level ranged from 0.56 ppm to 2.8 ppm. There is no RCRA Alert Level for Zinc.

Table III is the volatile organics results for the sediments done by ETC Laboratory. Tetrachloroethylene, toluene and chlorobenzene were found in the sediments.

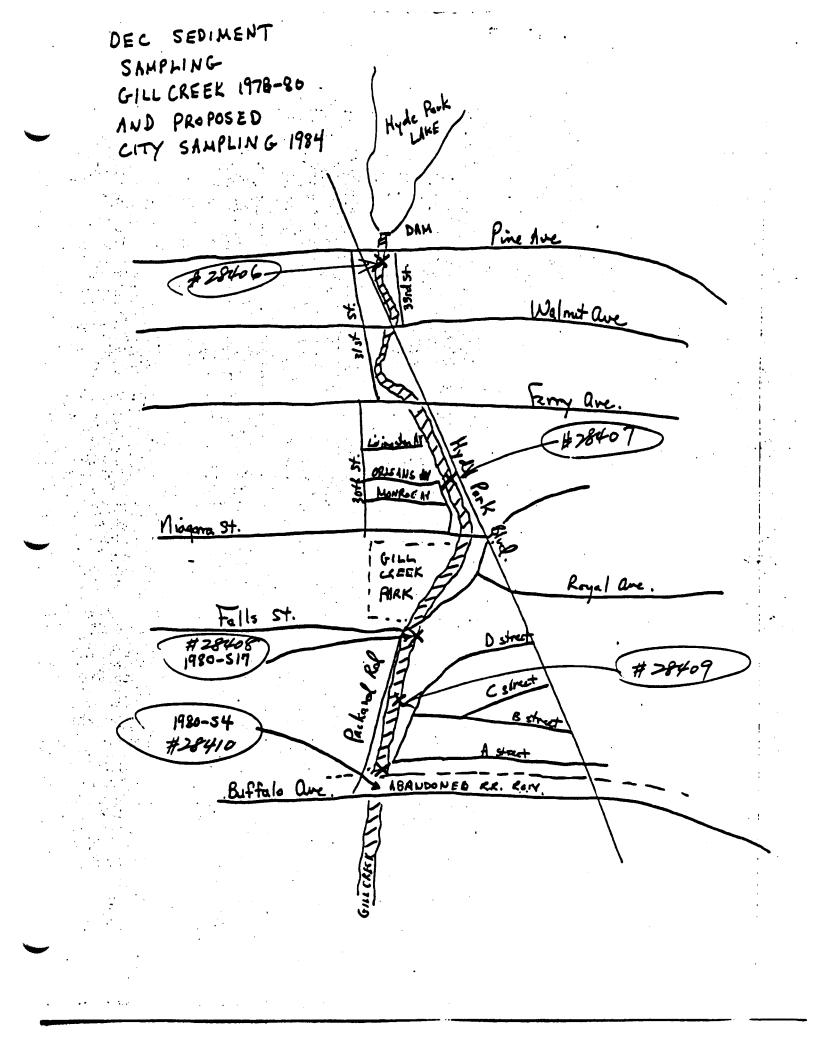
Table IV is the priority pollutant's B/N compounds in the sediments. The table shows the comparison of results between the ETC Laboratory and the City's Water Quality Lab. The City Lab results for the B/N compounds are higher than the ETC Lab. The original sample sizes used are different (1-5 g for the City Lab vs 30 g by the ETC Lab). The extraction procedures are different (sonication vs soxhlet extraction). The results for metals are similar for each laboratory.

Table V is the pesticides and PCB's results from both laboratories. The data was generated by using GC/EC single column determination. The City Lab used the fused silical capillary column (30 meter, 0.25 um Bonded SE-54) for the analysis. Sample #24810 (#5 sta ) has very high BHC's in the City's report. PCB's were found in samples #28407, #28408, #28409, and #28410 in approximately the 1 ppm range. Toxaphene was not detected in any of the samples. The ETC Laboratory used the standard packed column for pesticides and PCB's. The PCB's were not detected at the detection limit 5 ppm. Toxaphene was found in all samples in 1-3 ppm range. Per my phone conversion with ETC Lab, they are using one retention time (major peak) instead of pattern recogization. They recommended that GC/MS be used to confirm the compound. The GC/MS in the Environmental Lab will not be able to detect the compound below the 10 ppm range. I called the Sales Representative, Mike Bonomo several times regarding re-analysis of sample #28410 on GC/MS to confirm this compound. He has not called me back yet.

JW:dc Att. cc: W. Garrow S.V. Smith Lab

## GILL CREEK SAMPLES

- #28406 #1 Core grab taken at 9:30 AM from south of the Pine Avenue Bridge. Composite cores from points 1A, 1B, and 1C.
- #28407 #2 Core grab taken at 10:45 AM from Hyde Park Blvd. and Orleans Avenue. Composite the sample cores from 2A, 2B and 2C.
- #28408 #3 Core grab taken at 11:10 AM from south of Falls Street Bridge. Composite the core samples from point 3A, 3B, and 3C.
- #28409 #4 Core grab taken at 11:30 AM from the B Street between Falls Street and Buffalo Avenue. Composite the core samples from points 4A, 4B, and 4C.
- #28410 #5 Core grab at 12:00 PM from 25 feet north of Buffalo Avenue. Composite core samples 5A, 5B, and 5C.



AND PROPOSED CITY SAMPLING 1984

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11 3 1980 - \$17 ••• of FALLS T., BRIDGE	D 263/4" 1042" + 10" of Sepension	D 21* 10" + 7" of Segunder	D 14" 10" + 6" of SEPLMENT	<u>MEAS FROM' BRIDS</u> 11-1-84 11:10
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AVE. # 5 1980-\$4 25FT MORTH F BUFFALD AVE 3R1DGE	D 8- SANDLE NEAR BANK ROCK BOTTOM - HI TIDE	9" ROLKY BOTTOM	9" SAMPLE NEAR BANK ROCKI GITTOM HI TIDE	ROCKY BUTTOM MEAS FROM BRIDGE SAMPLED AF BANKS 11-1-84 12:00

D PRELIMINARY MEAS 10-12-84 - SURVEY OVLY NO SAMPLES

TABLE I

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LEACHATE FROM GILL CREEK SOIL SAMPLES

Analyzed by ETC Laboratory

		ANIALY ZED I	AUALYZEG DY ETC Laboratory	tory		
	1 1	( H	S. 11-	1 2 1		
PARAMETERS	1 284 Ub Leach	#28407	128408	128409	128410	Method
mg/kg bu wht ut	F7561	Leacn Erecr	Leach	Leach	Leach	Detection
	1021 -	700/3	F7565	F7563	F7564	Limit mg/kg
Aldrin	ND	BHDL	QN	RMDI.	INNG	100 0
Alpha-BHC	DN	RMDT.	CIN			
RetarBHC			NN	BMDL	0.0036	0.001
		QN	QN	BNDL	BMDL	0.001
channa - BHC	QN	BMDL	ND	Ð	BMDL	0.001
Delta-BHC	QN	IDNE	DN	BMDL	BMDL	0.001
Chlordane .	QN	ND	ND	QN	CIN	0.005
4,4'-DDT	QN	QN	QN	BMDL		0.001
4,4'-DDE	QN	QW	QN	QN		0,001
4,4'-DDD	QN	ND	QN			
Dieldrin	QN	ND	DN			
Endosulfan	QN	QN	QN			
Endosulfan II	DN	UN	DN			
Endosulfan Sulfate	QN	QN	ÛN			100.0
Endrin	QN	Q		2		
Endrin Aldehyde	QN	UN N	2	ON 2	QN	0.001
Heptachlor		9	ON I	QN	QN	0.001
Heptachlor enoxide			QN	DN	ND	0.001
		ND	QN	QN	ND	0.001
Toxapnene	ON	QN	, ON	DN	QN	0,005
Methoxy Chlor	QN	QN	QN	QN	QN	0.050
Arochlor 1242	QN	QN	ND	QN	UN	
Arochlor 1254	DN	ND	QN	ÛN		100.0
Arochlor 1260	DN	QN	QN			0.001
Arochlor 1248	ND	QN	QN			0.001
Arochlor 1232	QN	UN .				0.001
						* ( (

	Method Detection Limit mg/kg	0.001
	424810 Leach F7564	
(Cont'd)	<b>‡</b> 24809 Leach F7563	
TABLE I (Co	#28408 Leach F7565	
<b>C</b> 1	<b>#</b> 28407 I.each F7562	
	#28406 Leach mg/kg by witut F7561	
	PARAMETERS mg/kg 6	Arochlor 1016

TABLE II

LEACHATE FROM GILL CREEK SOIL SAMPLES

PARAMETERS Wet wt.(ppm) mg/kg	<b>#</b> 28406 Leach F7561	#28407 leach F7562	#28408 Leach F7565	<b>#</b> 28409 Leach F7563	#28410 Leach F7564	RCRA Alert Level (ppm)	Method Detection Limit
Arsenic	21.0	<1.0	Z1.0	<1.0	< 1.0	5	1.0
Barium	۲5.0	< 5.0	<b>2</b> 5.0	<b>&lt; 5.0</b>	< 5.0	100	2.0
Cadmium	く0.2	<b>∠0.</b> 20	く0.20	< 0.20	<0.20	1	0.0
Chromium	لال.0	Z1.0	<1.0	< 1.0	<1.0		
Lead	۲.0	<1.0	<1.0	< 1.0	< 1.0	1 10	
Mercury	< 0.003	Z 0.003	< 0.003	< 0.003	< 0.003	0.2	0.03
Selenium	< 0.30	< 0.30	< 0.30	< 0.30	<0.30		
Silver	< 0.20	< 0.20	<0.20	< 0.20	< 0.20	5	
Zinc	0.56	0.85	3.2	2.80	2.60	NA	NA. VA
2,4-D	<10	<10	< 10	< 10	200 OF	10	SUID BR
2,4,5-TP (Silvex)	< 1.0	< 1.0	<1.0	< 1.0	5000 2.17		× 0,00 ×

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== 01 1 6	L Cres	k Soi	l Samp	les	an Sera	
	LATILE O					al: SWOH
PRIORITY POLLUTANTS	₹284°6	#28407	#28408 F7560	# 28409	# 78410	Detection
(All Results	F7556	F. 7557	F7560	F1558	47554	Limit
Chloromethane	ND	ON	ND	ND	ND	50
Bromomethane	ND	ND	ND	ND	·ND	50
Vinyl Chloride #7	ND	ND	ND	ND	ND	50
Chloroethane	ND	ND	ND	ND	ND	50
Methylene Chloride #7	162	1BL	ND	1BL	NO	50
1, 1-dichloroethylene #7	ND	ND	ND	ND	ND	Ş
1, 1-dichloroethane	ND	ND	ND	ND	MD	50
Trans-1, 2-dichloroethylene #7		ND	ND	ND	ND	50
Chloroform #7	ND	·ND	ND	ND	ND	50
1, 2-dichloroethane	ND	ND	ND	ND	ND	50
1.1.1-trichloroethane #7	ND	ND	ND	ND	ND .	50
Carbon tetrachloride	ND	ND	ND	ND	ND	50
Bromodichloromethane #7	ND	ND	ND	ND	ND	50
1, 2-dichloropropane	ND	ND	ND	ND	ND	50
Trans-1, 3-dichloropropylene <sup>7</sup>		ND	ND	ND	ND	50
Trichloroethylene 7	ND	ND	ND	ND	ND	50
Dibromochloromethane #7	ND	ND	ND	ND	ND	50
1, 1, 2-trichloroethane	IVD	ND	ND	ND	ND	50
Cis-1. 3-dichloropropylene	ND	ND	ND	ND	ND	50
Benzene #7	IND	ND	ND	18L	ND	50
2-Chloro-ethylvinylether	ND	ND	ND	ND	ND	50
Bromoform #7	ND	ND	ND	ND	ND	50
1.1.2.2-tetrachloroethane #7	ND	ND	ND	ND	ND	.50
Tetrachloroethylene #7	95	73	ND	72	51	50
Toluene #7	1BL	76	ND	51	PBL	50
Chlorobenzene #7	ND	PBL	PBL	304	PBL	50
Ethylbenzene #7	ND	ND	ND	ND	ND	50
Acrolein	ND	ND	ND	ND	ND	500
Acrylonitrile	ND	ND	ND	ND	ND	500
1.2-Dichloroethane-D4		78%		917.	69%	
Toluene - De The	867.	87%		92%	1027	
D-Bromofluorobenzene	91%	89%	75%	95%	692	

TABLE IV

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GILL CREEK SOIL SAMPLES

	ADA OC A	ž	4 28407		128408	80	828409	σ	128410		DETECTION	t I ON
DAPAMETERS ma /ka dry wt.	ETC	CITY	ETC	CITY	ETC	CITY	ETC	CITY	ETC	CITY	EIC	CIT
1 3-DCB	£	Q	QN	QN	PBL	DN	PBL	QN	PBL	QN	0.33	s.
1.4-DCB	QX	QN	QN	QN	PBL	PBL	1.53	PBL	0.33	PBL	0.33	<b>s</b> .
	QN	QN	<b>FBL</b>	QN	PBL	ND	PBL	ND	PBL	QN	0.33	s.
1,2.4-Tríchlorobenzene	QN	Ð	QN	QN	PBL	QN	PBL	QN	PBL	QN	0.33	\$.
bhananthrene	0.335 PBL	PBL	PBL	PBL	PBL	PBL	PBL	0.3	0.5	0.7	.33	.2
richard and a second seco	QN	٢	QN	13	QN	12/6	PBL	13	PBL	e	.33	s.
Plucrathene	0.36	Ļ	PBL	0.2	PBL	2/3	116.0	2	0.6	e	££.	. 2
Dyrana Dyrana	PBL	2	PBL	I	PBL	0.7/0.4	PBL	7	0.47	9	.33	.2
<pre>size + hv]hexv]) phthalate)</pre>	PBL	6	PBL	12	PBL	31/22	PBL	13	0.867	56	.33	s.
arenaphthene	QN	Q	QN	QN	ND	ND	QN	QN	PBL	QN	.33	s.
Arthracene	PBL	QN	QN	QN	PBL	QN	PBL	QN	PBL	QN	.33	s.
Benzo (a) anthracene	PBL	QN	QN	QN	PBL	QN	PBL	QN	PBL	QN	٤ę.	5
Benzo (a) dvrene	QN	Q	ND	QN	PBL	QN	PBL	QN	PBL	QN	.33	ŝ
Benzo(b)fluoranthene	QN	VN	QN	NA	PBL	NA	PBL	<b>N</b> N	0.45	VN	.33	NA
Benzo(ahi) perylene	QN	NN	QN	VN	PBL	NN	QN	VN	0.567	VN	.33	NN
Benzo(k)fluoranthene	QN	NA	PBL	٧N	PBL	۲N	PBL	VN	PBL	NN	.33	۲N
Chrysene	PBL	QN	PBL	QN	PBL	QN	PBL	QN	PBL	QN	.33	• •
Flucrepe	PBL	QX	· QN	QN	QN	QN	PBL	QN	PBL	QN	.13	ŝ
Indeno(1,2,3-c,d) pyrene	QN	M	QN	NN	QN	NN	QN	NN	0.33	NA	.33	VN
Naphthalene	QN	QN	QN	QN	QN	QN	QN	Q	PBL	QN	.33	. 2
Isophorone	QN	QN	0.53	QN	QN	QN	QN	QN	QN	QN		0.5
t and	56	40	57	<b>6</b>	95	97/100	100	124	160	122	•	2
	0.2	20.5	0.9	1.4	1.0	1.0	5.0	4.6	5.0	3.9	0.3	0.5
	190	140	400	260	210	280/280	280	380	350	380	0.6	I
Copper	VN	18	NN	22	NN	39/34	NN	69	NN .	59	YN	1

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PARAMETERS mg/kg Drv Wt.	1284		1284	07	1284	80	\$ 284	60	4 28 4 1	0	Detection Limit	ion t
	STE	ETC CITY	ETC CITY	CITY	EIC	ETC CITY	ETC	ETC CITY	ETC	ETC CITY	ETC	CITY
Nickel	NN	16	VN	17	NA	21/22	NA	33	NA	27	NN	1
Cadmium	NN	0.42	NA	1.4	NA	1.2/1.2	NA	1.3	NA	1.6	VN	0.1
Chromium	NN	16	N	20	NA	29/34	VN	1	VN	36	VN	-

TABLE IV (CONT'd) GILL CREEK SOIL SAMPLES

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TABLE V

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GILL CREEK SOIL SAMPLES

PARMETERS mo/kg     P23406     428407       a-BHC     CITY     ETC     CITY     ETC     CITY       b-BHC     ND     ND     PBL     1.6       p-BHC     0.074     ND     PBL     1.6       p-BHC     0.074     ND     PBL     1.6       p-BHC     ND     ND     ND     ND       Aldrin     ND     ND     ND     ND       Aldrin     ND     ND     ND     ND       P:p'P-DDE     ND     ND     ND     ND       Dieldrin     ND     ND     ND     ND       P:p'P-DDE     ND     ND     ND     ND       Pieldrin     ND     ND     ND       Pieldrin     ND     <									DETECTION	NO.
TERS markg     Dry wit     ETC     CITY       ND     ND     ND     ND       Chlor     ND     ND     ND       Chlor     PBL     PBL     PBL       N     PBL     ND     ND       N     ND     ND     ND       N     ND     ND     ND       ND     ND     ND     ND       N     ND     ND     ND       M     ND     ND     ND       M     ND     ND     ND       N     ND     ND     ND       ND     ND     ND     ND       M     ND     ND     ND       M     ND     ND     ND       M     ND     ND	8406	128407	128408	3	1284 Emer	T TV	ETC.	CITY	LLC LLC	CITY
ND N	CITY	CI ₩			511					
Chlor ND	Ş			PBL/PBL	0.49	0.1	0.065	17		
ND N				DN	0.36	<u>с.</u>	0.27	13		
ND N				QN	0.65	Q	QN	60		
PBLPBLPBLnNDNDnNDNDchlorEpoxideNDulfan INDNDDENDNDDENDNDnNDNDnNDNDnNDNDnNDNDnNDNDnNDNDDDNDNDcirifan IINDNDcirifan SulfateNDNDcoranePlusNDortchlorNDNDortchlorNDND	N			11 0/11 0	0 -	0.5	0.85	7		
chlor Epoxide ND	PBL			• 7 • 0 / • 7 • 0		; ;				
Epoxide ND	QN			PBL/PBL	ND	BL	n N	TB1		
lor Epoxide ND				DBT/ND	0.4	Q	PBL	PBL		
M M M M M M M M M M M M M M M M M M M				0.1/PBL	QN	BL	ND	PBL		
IN I ND	2			QN	QN	QN	QN	QN		
ND PBL ND ND ND ND ND ND ND ND ND ND ND ND ND NA ND ND NA ND g/kq) ND ND NA ND NA ND NA ND ND ND NA ND ND ND NA ND				PRI./PRL	QN	BL	QN	PBL		
ND N	PBL						QN	DN		
an II ND		ON C		nn			2			
Lifate ND ND PBL ND ND PBL ND	QN			QN	QN	PBL				
us ND PBL ND PBL ND PBL ND ND PBL ND NN ND NN ND NN NN	Ę			DN	QN	Q	QN	QN		
nD FBU ND				PBL/PBL	DN	PBL	ND	PBL		
an Sulfate ND ND ND an Sulfate ND ND ND NA ND ar Plus ND ND g/kg) 0.68 ND blor ND ND				PBL/PBL	QN	PBL	QN	QN		
ND ND NA ND NA 0.24 ND ND 0.68 ND ND NA			2	QN	QN	Q	QN	QN	0.05	0.1
NA ND ane Plus NA 0.24 ag/kg) ND ND ne 0.68 ND chlor ND NA	QN			Det	<b>N</b> N	PBL	<b>N</b> N	QN		
US NA 0.24 ND ND 0.68 ND ND ND ND ND NA	QN			, (), (C		-	NA	0.46		
UN D. 68 UN D. 68 NN UN	0.24			cc./69.U		5		•		
0.68 ND ND NA	QN			PBL	QN		<b>N</b>	-		
lor ND NA				QN	2.8	N	1.8	QN		
				<b>V</b> N	QN	N	DN	NN		
				<b>N</b> N	QN	Z	QN	<b>N</b> N		
Chlordane ND NA NU	<b>VN</b>									

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f Niagara Ta NEW YORK

March 29, 1985

Mr. Robert Speed, P.E. New York State Department of Environmental Conservation 600 Delaware Avenue Buffalo, New York 14202

RE: Gill Creek Restoration Projection Consent Decree, City of Niagara Falls, Civil No.: 81-363C

Dear Bob:

After recent telephone discussions with Jim Wilding of NYSDEC Region 9, it appears that some clarifications and minor revisions are needed to the data tables which I sent you with my letter of March 4, 1985 (requesting permission for Gill Creek project). The corrected tables are enclosed with a copy to Jim Wilding, who is reviewing the data for you.

If you have any questions, please call me at 278-8138.

Very truly yours,

DEPARTMENT OF UTILITIES

John R. Westendorf Environmental Engineer

JRW:mo

- cc: D. Jaros/M. Bettino
  - R. Game
  - L. Krizan/D. Brooks
  - N. Marchelos
  - C. Mooradian
  - W. Garrow/J Wang

TABLE I

EP TOXICITY LEACHATE FROM GILL CREEK SEDIMENT SAMPLES

Analyzed by ETC Laboratory

PARAMETERS mg/l(ppm)	#28406 EP Leach. F7561	#28407 EP Leach F7562	#28408 EP Loach F7565	#28409 EP Leach F7563	#28410 EP Leach F7564	Method Detection Limit(mg/l)
aldrin	QN	BfIDL	DN	BMDL	BMDI	0.001
Alpha-BHC	QN	BMDL	QN	BMDL	0.0036	0.001
Beta-BHC	QN	UN	ND	BNDL	BMDL	0.001
Gamma – BHC	ND	BMDL	ND	QN	BMDL	0.001
Delta-BHC	ND	BMDL	ND	BMDL	BMDL	0.001
Chlordane	QN	UN	ND	ND	ND	0.005
4,4'-DDT	ND	ND	ND	BMDL	ND	0.001
4,4'-DDE	ND	ND	ND	ND	ND	0.001
4,4'-DDD	ND	ND	ND	QN	ND	0.001
Dieldrin	DN	DN	ND	QN	ND	0.001
Endosulfan	DN	ND	ND	ND	ND	0.001
Endosulfan II	ND	ND	ND	ND	ND	0.001
Endosulfan Sulfate	QN	QN	ND	QN	DN	0.001
Endrin	ND	DN	QN	QN	ND	0.001
Endrin Aldehvde	QN	ND	QN	ND	QN	0.001
Heptachlor	UN	QN	ND	QN	ND	0.001
Heptachlor epoxide	ND	ND	ND	ND	ND	0.001
Toxaphene	ND	ND	ND	ND	ND	0.005
Methoxy Chlor	ND	ND	ND	UN	ND	0.050
Arochlor 1242	UN	ND	ND	DIN	ND	0.001
Arochlor 1254	ND	ND	ND	ND	ND	0.001
Arcchlor 1260	ND	ND	ND	ND	ND	0.001
Arochlor 1248	ND	ND	ND	ND	ND	0.001
Arechlor 1232	QN	ON	ND	UN	ND	0.001

Method Detection Limit (mg/l) 0.001 EP Leach F7564 #24810 ND QN EP Leach F7563 \$24809 ND ND (Cont'd) #28408 EP Leach F7565 TADLE I QN QN EP Leach F7562 #28407 QN QN EP Leach F7561 #28406 QN QN Arochlor 1016 Arochlor 1221 PARAMETERS mg/l (ppm)

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TABLE II

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EP TOXICITY LEACHATE FROM GILL CREEK SEDIMENT SAMPLES

PARAMETERS mg/l (ppm)	#28406 EP Leach F7561	#28407 EP Leach F7562	#28408 EP Leach F7565	#28409 EP Leach F7563	#28410 EP Leach F7564	RCRA Alert Level (ppm)	Method Detection Limit(mg/l)
Arsenic	21.0	<1.0	Z1.0	<1.0	<1.0	5	1.0
Barium	۲5.0	۷.5 ک	2 5.0	∠ 5.0	< 5.0	100	5.0
Cadmium	L0.2	く0.20	< 0.20	< 0.20	<0.20	1	0.20
Chromium	<b>∠</b> 1.0	<b>∠1.0</b>	く1.0	< 1.0	<1.0	5	1.0
Lead	く1.0	<1.0	<1.0	< 1.0	< 1.0	5	1.0
Mercury	< 0.003	Z0.003	< 0.003	< 0.003	< 0.003	0.2	0.003
Selenium	L 0.30	<0.30	< 0.30	< 0.30	<0.30	1	0.30
Silver	< 0.20	<0.20	く0.20	< 0.20	< 0.20	2	0.20
Zinc	0.56	0.85	3.2	2.80	2.60	NA	NA
2,4-D	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	10	0.05
2,4,5-TP (Silvex)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	1.0	0.005

ETC laboratory VOL	<i>LL Crea</i> ATILE OI	K Sedimer RGANICS	t Same	le <u>s</u> S	Meth	I. SWOH
PRIORITY POLLUTANTS (All Results My/kg (ppb) wet wt.)	#28406 F7556	#28407 F. 7557	#28408 F7560	# 28409 F7558	#28410 F7559	Netection Limit <sub>/ppb</sub>
Chicromethane	ND	NO	ND	ND	ND	50
Bromomethane	ΩN)	ND	ND	ND	·ND	50
Vinyl Chloride #7	ND	ND	ND	ND	ND	50
Chloroethane	ND	ND	ND	ND	ND	50
Methylene Chloride #7	162	PBL	ND	PBL	NO	50
1, 1-dichloroethylene <sup>#7</sup>	IND	ND	ND	ND	ND	50
1, 1-dichloroethane	ND	ND	ND	ND	ND	50
Trans-1, 2-dichloroethylene #7		ND	ND	ND	ND	50
Chloroform #7	ND	ND	ND	ND	ND	50
1, 2-dichloroethane	ND	ND	ND	ND	ND	50
	ND	ND	ND	ND	ND	5
1.1.1-trichloroethane #7	ND	ND	ND	ND	ND	50
Carbon_tetrachloride Bromodichloromethane <sup>#7</sup>	ND	ND	ND	ND	ND	50
1, 2-dichloropropane	ND	ND	ND	ND	ND	50
Trans-1, 3-dichloropropylene <sup>7</sup>		ND	ND	ND	ND	50
Trichloroethylene #7	ND	ND	ND	ND	ND	50
Dibromochloromethane #7	ND	ND	ND	ND	ND	50
		ND	ND	ND	ND	0
1.1.2-trichloroethane	ND		ND	ND	ND	50
Cis-1.3-dichloropropylene	ND	ND	ND	PBL	ND	50
Benzene #7	/1D	ND		ND	ND	50
2-Chloro-ethylvinylether	ND	ND	ND NO	ND	NO	50
Bromoform #7	ND	ND	ND	ND	ND	.50
1.1.2.2-tetrachloroethane #7	ND	ND 73	ND ND	72	51	50
Tetrachloroethylene	95	73	ND	51	PBL	
Toluene #7	PBL	76 PBL	PBL			50
Chlorobenzene #7	ND	ND	ND	ND	ND	50
Ethylbenzene #7	ND	ND	ND	ND	ND	500
Acrolein	ND	ND	ND	ND	ND	500
Acrylonitrila	ND.					
Surrogate Stds Recovery (ac)		. 78	2 80%	3 917	697	
1.2-Dichloroethane-D+	86%					
<u>Toluene - De</u> D-Bromofiuorobenzene	917					

TABLE IV

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GILL CREEK SEDIMENT SAMPLES

											DETECTION	NOI
PARAHETERS 	# 28406 ETC C	06 CTTV	FTC C	07 C11Y	ETC C	08 CITY	ETC ETC	9 CITY	ETC ETC	CITY	ETC	CI TV
1	ЧD	QN	UN	UN	PBI,	DN	PBL	QN	PBL	QN	0.33	· 5
	DN	CIN	UN	(IN	PBI.	PBL	1.53	PBL	0.33	PBL	0.33	·.
	QN	(IN	I'BL	QN	PBL	QN	PBL	(IN	PBL,	CIN	0.33	.5
1 2.4-Trichlorobenzene	QN	QN	QN	<b>UN</b>	PBL,	QN	PBL	ND	PBL	QN	0.33	· 5
phenanthrene	0.335 PBL	PBL	PBL	PBL	PBL,	PBL	PBL	0.3	0.5	0.7	.33	. 2
Dibutvlphthalate	QN	٢	ND	13	N	12/6	PBL	13	PBL	e	.33	••
Fluoranthene	0.36	I	PBL	0.2	PBL.	2/3	0.341	2	0.6	٣	.33	. 2
PVF Che	PBI,	2	PBL	-	PBL	0.7/0.4	PBL	2	0.47	ę	.33	. 2
nis(2-ethvlhexyl)phthalate)	PBL	6	<b>PBL</b>	12	PBL	31/22	PBI,	13	0.867	56	.33	• 5
Acenaphthene	UD	QN	UN	QN	ND	ND	ND	QN	PBL	UN	.33	•••
Anthracene	PBI,	QN	ND	ND	PBL	ND	PBL	ND	PBL	CIN	.33	• 5
nenzo(a) anthracene	PBL	DN	QN	DN	PBI,	QN	PBL	ND	PBL	CIN	• 33	• 5
Benzo(a) py rene	กท	QN	QN	UN	PBI.	ND	PBL	ND	PBL	QN	.33	.5
Benzo(b) f l uor ant hene	(IN	VN	UD	٧N	PB1,	NA	PB1.	<b>NIA</b>	0.45	۲N	.33	VN
Benzo(ahi) perylene	UN	۲N	ND	VN .	PRI.	VN	ND	NA	0.567	۷N		VN
Benzo(k) f Luei anthene	ÎN	٧N	PBL	٧N	PBI.	VN	PBI.	VN	PBL	<b>N</b> A	££.	NA
Chi y sene	PBL.	GN	PHL	(IN	PBI.	CIN	PNL.	(IN	PBL	CIN	. 33	•5
Pluorene 	PBI.	QN	QN	(IN	UN	QN	PBL	QN	<b>PBL</b>	CIN	.33	ŗ.
	(IN	VN	(IN	VN	(IN	٨٨	ND	٧N	0.33	VN	.33	٧N
Naphthal ene	AN	QN	UN	ND	ND	UN	QN	QN	PBL	QN	.33	.2
Ι εοψοτοιιο	QN	ſIN	0.53	UN	QN	QN	QN	QN	QN	CIN	.33	0.5
Load	56	40	57	43	95	97/100	100	124	160	122	4	2
Mercury	0.2	2.02	0.9	1.4	1.0	1.0	5.0	4.6	5.0	3.9	0.3	0.5
Zinc	190	140	400	260	210	280/280	280	380	350	380	0.6	1
Copper	NA	18	NA	22	VN	39/34	NA	69	VN	59	NA	I

			0	ILL CREE	K SEDI	GILJ, CREEK SEDIMENT SAMPLES					Detect	ion
PARAMETERS mor∕ka (rom) dry weight	1284 ETC	28406 ETC C1TY	28407 ETC CITY	07 CITY	# 284 ETC	4 28 408 ETC CITY	# 2840 ETC	# 28409 ETC CITY	2841 ETC	28410 ETC CITY	Limi ETC	Limit ETC CITY
Nickel Cadmium Chromium	AN NA	16 0.42 16	N N N N N N	17 1.4 20	A N A N A N A N A N A N A N A N A N A N	21/22 1.2/1.2 29/34	A N A N A N	33 1.3 41	A N A N A N	27 1.6 36	AN AN AN	1 0.1 1

TABLE IV (Cont'd)

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TABLE	
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CILL CREEK SEDIMENT SAMPLES

0.1 0.1 0.1 0.1 0.1 0.1 NA AN ٩N 0.1 0.1 0.1 0.1 0.1 0.1 , 0.1 0.1 0.1 0.1 0.1 CITY DETECTION LIMIT 0.05 0.25 0.25 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 0.05 AN 0.05 S 0.05 0.05 AN ETC 0.46 NA ۲N GN QN QN QN PBL QN QN QN Q PBL PBL CITY PBL PBL 2 17 13 8 128410 ETC 0.065 1.8 0.85 QN QN 0.27 QN QN AN NA QN QN QN QN PBI. QN QN QN QN QN QN 0.77 PBL AN NA 0.34 PBL m QN 0.17 Q PBL 0.5 PBL. PBL PBL QN PBL Q CITY PBL. Q QN \$28409 2.8 Q 0.49 0.65 Q 0.36 QN ۲N 1.9 •.4 QN QN NA QN QN QN QN QN QN QN Q ETC 0.14/0.14 0.69/.55 PBL/PBL PBL/PBL PBL/PBL PBL/PBL 0.1/PBL PBL/PBL PBL/ND PBL QN QN QN PBL Q ٧N Ň QN QN CITY Q QN 128408 0.25 0.37 0.65 1.1 QN Q QN 1.0 Q Q ٩N AN QN QN QN QN QN QN QN QN Q ETC 0.16 QN QN AN NA QN QN \_ PBL GN QN 1.6 QN PBL QN CI TY PBL PBL ND QN PBI, QN 128407 0.69 0.098 QN ЦŅ QN Ň ٨N QN QN QN Q QN QN QN QN QN QN QN Q ETC PBL PBL 0.24 AN QN Q ź QN QN QN PBL QN QN QN QN PBL CITY QN 2 ND QN GN PBI, G # 28 406 0.68 0.074 QN QN QN AN GN QN QN Ŕ GN GN ND Q QN QN PBL PBL QN Q ErC QN my/kg (ppm) dry weight Endosu)fan Sulfate lleptachlor Epoxide Dechlorane Plus PCB's (ma/ka) Endosulfan II Methoyrchlor Endosulfan I Toxaphenc Chlordanc Heptachlor PARMETERS P, P'-DDD P., P' - DDT Dieldrin P, P'-DDE Endrin мітех Aldrin b-BHC d-BHC o-BHC a-BHC

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			GILL CREEK		SEDIMENT SAMPLES	MPLES						
											DETECTION	NOI
PARAMETERS	128406 Part	06 رات	128407 ETC C	17 C 1 TUV	# 28 4 08 Env	18 11-11-11-11-11-11-11-11-11-11-11-11-11-	#28409 ETC	9 CTTY	#28410 ETC C	о СТТУ	Limit ETC	t CITY
limd d		QN	QN	QN		QN	PBL	Q	PBL	QN	0.33	s.
I, J-DCB		Q	QN	QN	PBL	PBL	1.53	PBL	0.33	PBL	0.33	s.
	C N	QN	PBL	DN	PBL	QN	PBL	QN	PBL	QN	0.33	s.
1,2-UCB 1 2 4-Trichlorobenzene	QN	QN	QN	QN	PBL	QN	PBL	QN	PBL	QN	0.33	s.
benanthrene	0.335	PBL	PBL	PBL	PBL	PBL	PBL	0.3	0.5	0.7	.33	. 2
Dibutylphthalate	QN	7	QN	13	DN	12/6	PBL	13	PBL	e	.33	۰.
Fluoranthene	0.36	1	PBL	0.2	PBL	2/3	0.341	2	0.6	m	.33	.2
PVIEDE	PBL	2	PBL	1	PBL	0.7/0.4	PBL	2	0.47	9	.33	. 2
Big(2-ethylhexyl)phthalate)	PBL	6	PBL	12	PBL	31/22	PBL	13	0.867	56	.33	s.
Acenaphthene	QN	QN	QN	QN	QN	QN	QN	QN	PBL	QN	.33	• •
Anthracene	PBL	QN	DN	ND	PBL	QN	PBL	QN	PBL	QN	.33	• 5
Benzo(a) anthracene	PBL	DN	ND	ND	PBL	QN	PBL	QN	PBL	QN	٤ę.	• 5
Benzo(a) pyrene	Qn	QN	QN	ND	PBL	QN	PBL	QN	PBL	QN	.33	s.
Benzo(b) fluoranthene	QN	VN	QN	NA	PBL	NA	PBL	VN	0.45	<b>N</b>	.33	NA
Benzo(ghi) perylene	QN	VN	QN	NA	PBL	<b>N</b> N	QN	NA	0.567	VN	.33	NN
Benzo(k) fluoranthene	QN	NA	PBL	NA	PBL	NA	PBL	VN	PBL	NA	.33	NN
Chrysene	PBL	QN	PBL	QN	PBL	QN	PBL	QN	PBL	ŊŊ	.33	<b>.</b>
Fluorene	PBL	QN	QN	ND	QN	QN	PBL	QN	PBL	ND	.33	••
Indeno(1,2,3-c,d)pyrene	ND	NA	QN	NA	QN	NA	QN	VN	0.33	VN	.33	NN
Naphthalene	QN	QN	QN	ND	ND	QN	QN	QN	PBL	ND	.33	.2
I sophorone	QN	QN	0.53	QN	QN	QN	QN	QN	QN	QN	.33	0.5
Lead	56	40	57	43	95	97/100	100	124	160	122	4	2
Mercury	0.2	20.5	0.9	1.4	1.0	1.0	5.0	4.6	5.0	3.9	0.3	0.5
Zinc	190	140	400	260	210	280/280	280	380	350	380	0.6	1
Copper	NA	18	NA	22	NA	<b>3</b> 9/34	NA	69	NA	59	NA	1

## TABLE IV (Cont'd)

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# GILL CREEK SEDIMENT SAMPLES

			1									
											Detect	ion
DARMETERS	\$284		42840	70	# 28 4	08	\$ 2840	6	\$ 2841	0	Limi	Limit
mg/kg (ppm) dry weight	ETC	ETC CITY	ETC CIT	CITY	ETC	ETC CITY	ETC	ETC CITY	ETC CITY	CITY	ETC	CITY
Nickel	VN	16	NN	17	NA	21/22	NN	33	<b>N</b> N	27	NA	1
							1	•				•
Cadmium	YN	0.42	۲N	1.4	AN	1.2/1.2	٧N	1.3	<b>V</b> N	1.0	<b>V</b> N	1.0
										36		-
Chromium	YN	16	<b>V</b> N	20	AN	29/34		-		90	52	-

TABLE

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GILL CREEK SEPIMENT SAMPLES

											DETECTION	NOI
PARAMETERS	# 28 406	Ì	12840	07 CI TTV	# 28408 ETC C1	ž	#28409 ETC C	ТY	#28410 ETC C1	0 CITY	LIMI	r CITY
mg/kg (ppm) dry weight	213		DDT	ND	0.25	L/PBL	0.49	0.17	0.065	17	0.05	0.1
a-BHC	N		101								L (	•
h-bHC	0.074	QN	PBL	1.6	0.37	ND	0.36		0.27	13	<b>CD.0</b>	1.0
	QN	QN	QN	DN	QN	DN	0.65	DN	DN	8	0.05	0.1
g-BHC	DBC	DRI.	0.098		0.65	0.14/0.14	1.9	0.5	0.85	7	0.05	0.1
d-BHC					ÛN	PRL/PRL	DN	PBL	ND	PBL	0.05	0.1
<b>Heptachlor</b>	<b>NN</b>	n N							Tad	Dof	0.05	- 0
Aldrin	PBL	QN	QN	PBL	1.0	PBL/ND	• • •	Ŋ	101			•••
usseshior Froxide	QN	QN	QN	PBL	QN	0.1/PBL	QN	PBL	QN	PBL	0.05	0.1
representation and and and and and and and and and an	QN	QN	DN	DN	ND	ND	ŊŊ	QN	QN	QN	0.05	0.1
	QN	PBL	QN	PBL	QN	PBL/PBL	ND	PBL	ND	PBL	0.05	0.1
	ÛN	QN	QN	ND	ON	QN	QN	PBL	QN	QN	0.05	0.1
Dielarin	ON N	QN	QN	ND	QN	ND	DN	PBL	ND	ND	0.05	0.1
Endrin	QN N	QN	UN	ND	QN	ND	QN	QN	ND	ND	0.05	0.1
Endosulfan II	QN	PBL	QN	PBL	QN	PBL/PBL	QN	PBL	ND	PBL	0.05	0.1
	QN	DN	QN	QN	QN	PBL/PBL	QN	PBL	QN	QN	0.05	0.1
P,P'-UUI reaccultan Sulfate	QN	QN	QN	QN	QN	QN	QN	QN	ND	QN	0.05	0.1
	VN	QN	NA	QN	NN	PBL	NA	PBL	NA	DN	<b>N</b> N	0.1
Milex Statication Dive	YN	0.24	NA	0.16	NA	0.69/.55	NA	0.77	NA	0.46	VN	0.1
Decilitorarie filma acorte (las/ka)	QN	QN	QN	1	QN	PBL	QN	e	QN	I	ŝ	I
PCB 5 million 201	0.68	QN	0.69	QN	1.1	QN	2.8	QN	1.8	DN	0.25	VN
Toxaprene 	QN	NN	DN	NA	QN	N	QN	N	QN	NA	0.05	NN
chlordane	QN	NA	QN	NA	DN	NA	QN	NA	ŊŊ	NA	0.25	NN

Niagara River Project

Programme de la rivière Niagara



of the

June 12, 1987

Ministère Ministry de Environment l'Environnement

> 119 King St W 12th Floor - Box 2112 Hamilton Ontario L8N 3Z9 416/521-7640

119 ouest, rue King 12e étage - Casier 2112 Hamilton (Ontario) L8N 3Z9 416/521-7640

....... DECH. DIAMOND *م*ړ خ

Mr. Richard K. Diamond **Operations Manager** DuPont Company P. O. Box 787 26th Street & Buffalo Ave. Niagara Falls, New York 14302

Dear Mr. Diamond:

### Impact of Gill Creek on the Niagara River Re:

You are aware that the Ministry has been monitoring the Niagara River for impacts from land-based operations for some time. It is apparent that Gill Creek is one of these areas that can be isolated as contributing contaminants to the river system. Therefore, I have enclosed for your information a copy of an internal memorandum dated April 7, 1987 which includes data from biomonitoring programs carried out in 1983. As you will note, a final report on the 1983 monitoring is anticipated later this year.

Should you have any questions on the enclosed report, please contact me.

Yours truly,

. Viirland Niagara River Co-ordinator

Encl.

JV:cm

CCA - IX RA RFS-ED



Ministry Ministère of the de Environment l'Environnement

135 St Clair Avenue West135 ouest avenue St ClairSuite 100Bureau 100Toronto OntarioToronto iOntarioiM4V 1P5M4V 1P5

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MISISTRY OF EINIGORYFYT Y EST CENTLAL RECION ( JELLTG R

## 323-4952

April 7, 1987

## MEMORANDUM

TO: J. Viirland, Co-ordinator Niagara River Improvement Team Hamilton Regional Office

FROM: P.B. Kauss Senior Environmental Scientist Great Lakes Section Water Resources Branch

## RE: NIAGARA RIVER BIOMONITORING STUDIES

In recent years, intensive biological monitoring studies have been carried out on the Niagara River by Ministry staff, and this data (up to and including the 1982 field year) was included in the Report of the Niagara River Toxics Committee (NRTC) released in October, 1984.

Since then, annual biomonitoring using <u>Cladophora</u> and young forage fish (<u>Notropis hudsonius</u>) has been continued at many of the sites recommended by the Long Term Monitoring chapter of the NRTC report. In addition, an extensive biomonitoring program was conducted in the river during 1983 by the Ministry's Great Lakes and Aquatic Biology Sections. The objectives of this program were to: (i) provide more detailed definition and information on contaminants source areas identified in the NRTC report; and (ii) further investigate the comparability of the three biota with respect to their use in trace contaminants monitoring.

The 1983 biomonitoring program in the Niagara River nearshore waters was conducted at 27 locations, 20 of which were concentrated in areas of suspected contaminant inputs along the New York mainland shore. At each of the 20 sites, caged clams (<u>Elliptio</u> <u>complanata</u>) were exposed for 5 consecutive 3-week exposure periods to determine contaminant availability and temporal variation in contaminant inputs. Clams were also exposed for the full 15 weeks period at all stations. Water samples were collected at all stations at 3-week intervals. Native <u>Cladophora</u> and young-ofthe-year spottail shiners were also collected (in late June and late September, respectively) at as many of these locations as possible. A final report on these data is anticipated later this year.

Some of the 1983 study data (see Figure 2 regarding total PCBs) and examples of the long-term monitoring data were presented by me at the International Symposium on Toxics in the Niagara held in Toronto, February 3-6. Other 1983 data pertaining to alpha-BHC, mirex and mercury levels in water, Cladophora, clams and spottail shiners are shown in Figures 3 to 5. These, as well the PCBs comparisons, were communicated to you previously in a memo from myself, M. Jackson and K. Suns. Figures 6 to 8 indicate the spatial distribution of additional organochlorine contaminants in clams from one of the 3-week exposures (August 24 - September 14, 1983). Values plotted are arithmetic means and maximum and minimum values of the number of replicates analyzed per site. Means were calculated using all data, and replicates with no quantifiable concentrations (<w) were assigned a value of half the method detection limit.

The combined water and biota data from 1983 indicate elevated levels and biological availability of contaminants such as mercury, polychlorinated biphenyls (PCBs), mirex, hexachlorocyclohexane (BHC), octachlorostyrene (OCS) hexachlorobenzene (HCB), hexachlorobutadiene (HCBD), pentachlorobenzene (QCB), trichlorobenzene (TCB), tetrachlorobenzene (TeCB) and trichlorotoluene (TCT) at the following areas or sites:

Love Canal/102nd St./Griffon Park - mercury, OCS.

Little River (Cayuga Creek) -  $\alpha$ -BHC, PCBs, mirex, QCB.

S-Area/Occidental 003 outfall -  $\alpha$ -BHC, PCBs, mirex, HCB, HCBD, OCS, QCB, 1,2,4,5-TeCB, 1,2,4-TCB, 2,3,6-TCT.

Upstream of Gill Creek - 1,2,3,4-TeCB.

Gill Creek - mercury,  $\alpha$ -BHC, PCBs, 2,3,6-TCT.

Upstream of Bloody Run Creek - mercury.

Bloody Run Creek/Hyde Park -  $\alpha$ -BHC, PCBs, mirex, HCB, OCS, QCB, 1,2,3,4-TeCB, 2,3,6-TCT.

The possible sources of these contaminants are numerous. These include the many industrial discharges to the river section covered by stations 6 to 18 (Search and Rescue Station upstream to Occidental dock in Niagara

- 2 -

Falls). For example, Occidental's outfall 003 (Figure 1B), had an immediate impact on the nearshore downstream waters as shown by elevated conductivity values (Figure 9).

Records also indicate that contaminated materials (e.g. BHCs or BHC cake, PCBs, mirex, mercury brine sludge and chlorinated benzenes) have been disposed of at a number of sites in the Niagara Falls, N.Y. area - either in close proximity to the river or in its drainage basin. Furthermore, a number of these sites are believed to have contributed or are contributing contaminants to the Niagara River (NRTC, 1984).

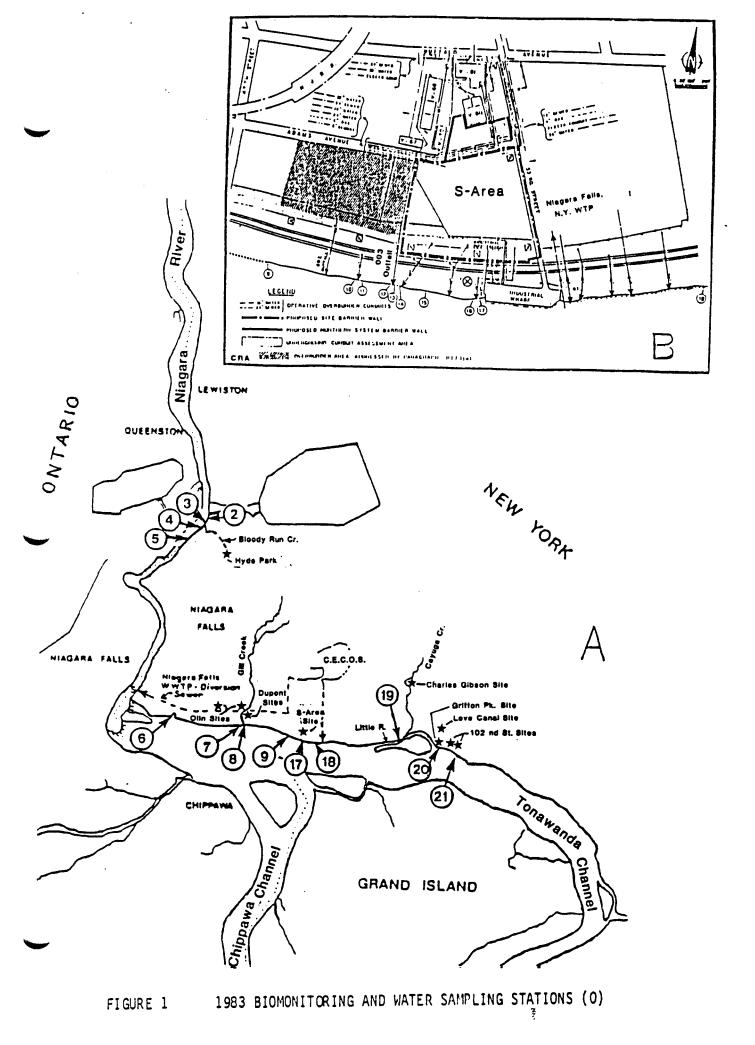
These results further confirm some of the findings reported by the NRTC and emphasize the impacts of point sources and landfills on the aquatic environment of the Niagara River. They also show that biological monitoring can provide an enhanced ability to detect and monitor contaminants inputs, even in locations where these materials may not be detectable by routine sampling/analytical procedures for water samples or when their concentrations are highly variable temporally.

As you are aware, an extensive Ministry biological monitoring program has been proposed for both the Ontario and New York sides of the Niagara River this summer. This will: (i) update our existing 1983 data base on contaminants sources as well as identify additional sources along the river, and (ii) will serve as a basis for evaluating the effectiveness of the implementation plan for cleanup of the Niagara River, as stated in the Declaration of Intent.

If you have any questions regarding the existing biomonitoring data, please do not hesitate to call me or Janette Anderson (323-4953).

1.et Tarms

PBK/eal A0200B/GL-6 Att. cc: F.C. Fleischer Y. Hamdy, Attn: J. Anderson K. Suns, M. Jackson, A. Hayton



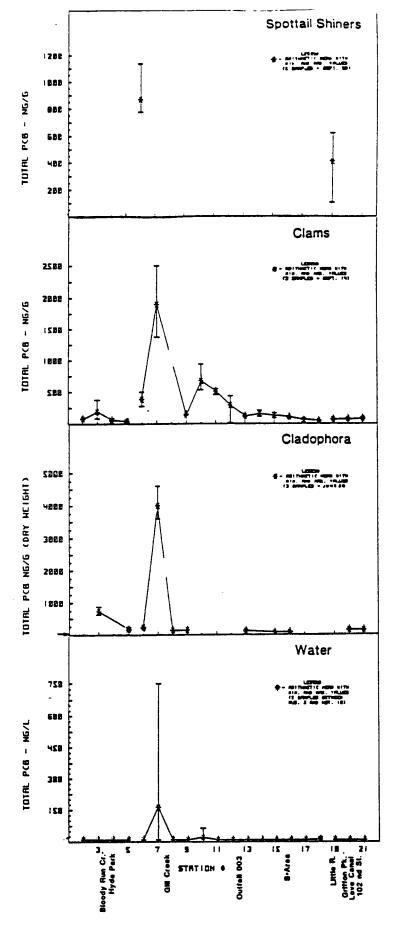
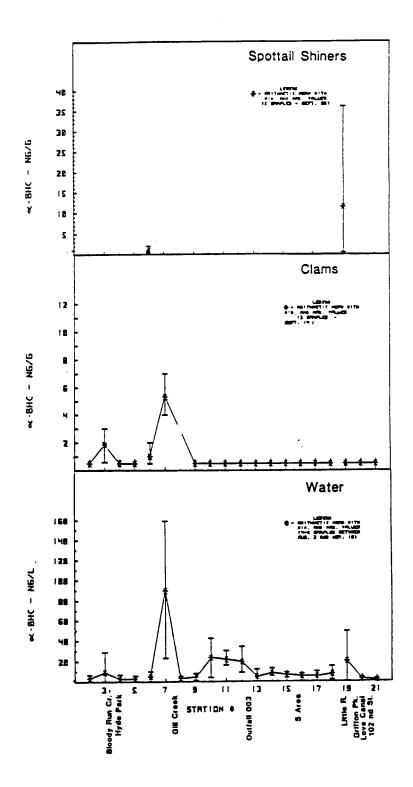


FIGURE 2

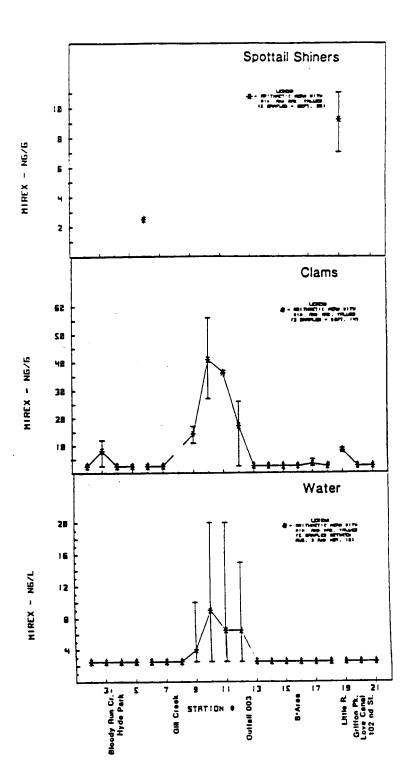
TOTAL PCBs IN WATER, CLADOPHORA, CLAMS AND SPOTTAIL SHINERS Detection limit is 20 ng/l for water; 20 ng/g for biota. Objectives for water (Provincial) and whole fish (Agreement) are 1 ng/l and 100 ng/g, respectively.



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FIGURE 3 ALPHA-BHC IN WATER, CLAMS, AND SPOTTAIL SHINERS Detection limit is 1 ng/l for water; 1 ng/g in biota. Criterion for water (USEPA) is 10 ng/l.





MIREX IN WATER, CLAMS AND SPOTTAIL SHINERS Detection limit is 5 ng/l for water; 5 ng/g for biota. Objectives for water (Provincial) and whole fish (Agreement) are 1 ng/l and "not detectable", respectively.

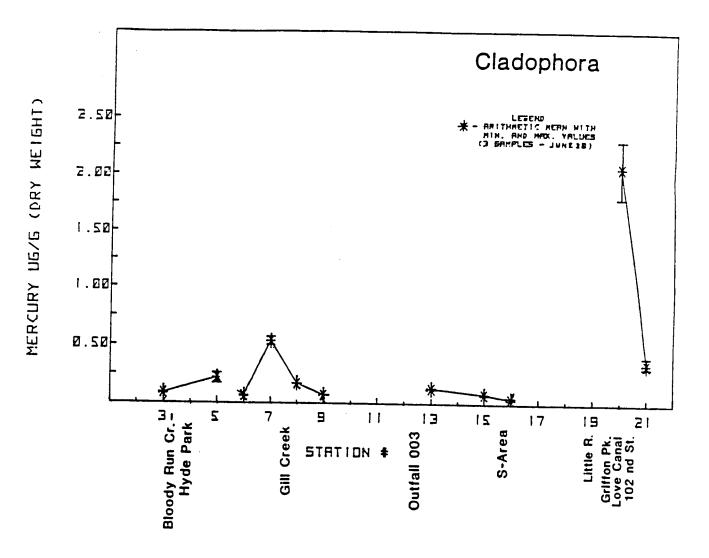


FIGURE 5 MERCURY IN CLADOPHORA Detection limit is 0.01 ug/g (water samples were not analyzed for mercury or other inorganics).

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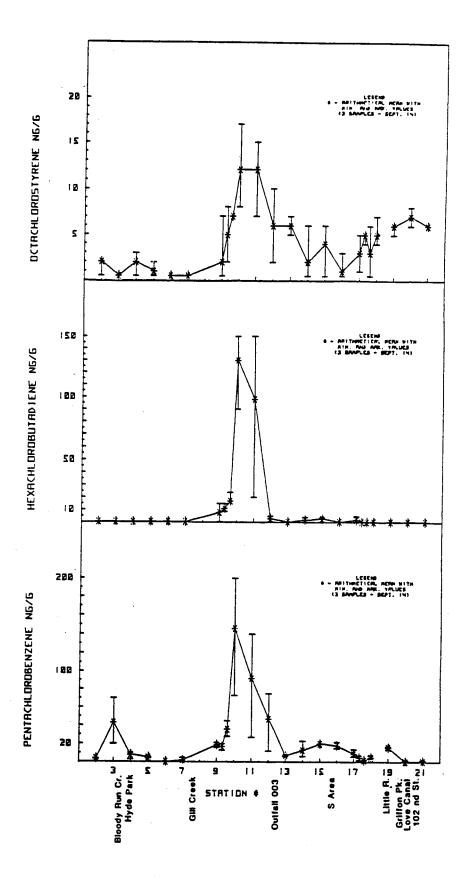


FIGURE 6

OCTACHLOROSTYRENE, HEXACHLOROBUTADIENE AND PENTACHLOROBENZENE IN CLAMS. Detection limits are 1 ng/g for each compound.

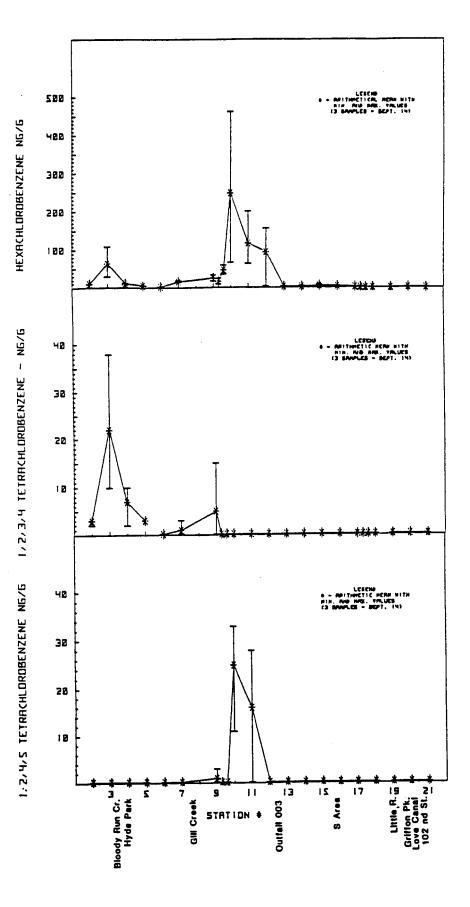


FIGURE 7

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> HEXACHLOROBENZENE, 1,2,3,4- AND 1,2,4,5-TETRACHLOROBENZENE IN CLAMS. Detection limits are 1, 0.5 and 0.5 ng/g, respectively.

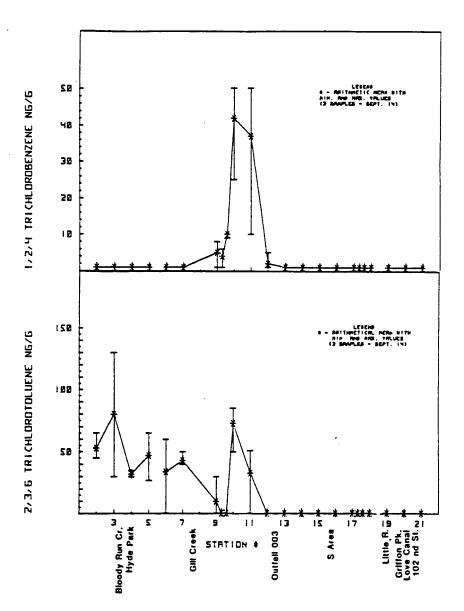


FIGURE 8

1,2,4-TRICHLOROBENZENE AND 2,3,6-TRICHLOROTOLUENE IN CLAMS. Detection limits are 2 and 1 ng/g, respectively.

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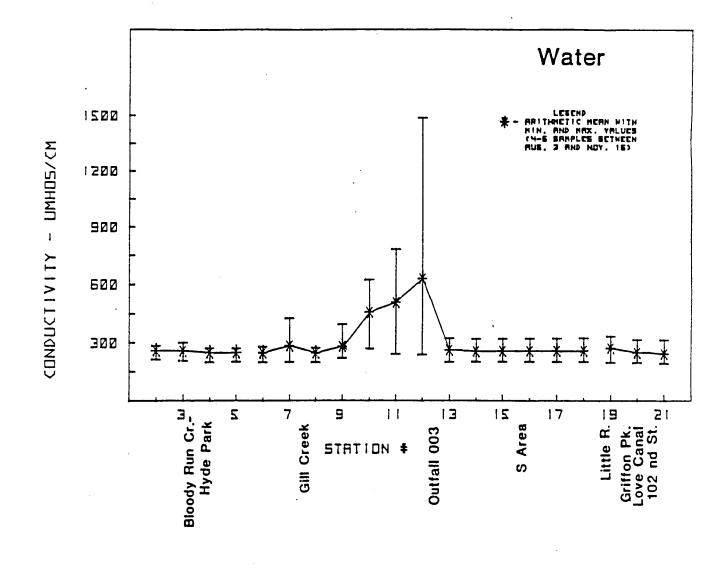


FIGURE 9

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CONDUCTIVITY OF WATER SAMPLES (standardized to 25°C.)

### CITY OF NIAGARA FALLS

NEW YORK

March 31, 1988

N. Marchelos, D. Bettino

TO:

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FROM: Walt Garrow (original & one copy)

SUBJECT: Gill Creek Analysis - March 1988

Attached are the raw results from our recent analysis. A more detailed comparison of the results will be made available on request. This note is brief due to the requested quick response.

In comparing the City's results to Ecology & Environment results, multiply the E & E results by 2.1. This is because the E & E results are reported on the sample as received. The City results are based on dry weight (i.e., with water removed). The E & E sample #88-16260 is the same as the City's S-88-0664. This sample was of the top 4-6 inches of sediment. The next sample is E & E #88-16261, the City's S-88-0665, or Gill Creek sediment from 0-36 inches.

Please note that the EP Toxicity test conducted by E & E failed the maximum allowable concentration for Lindane. This is a possible result supported by the City analysis showing high levels of Benzenehexachloride (BHC) in the same sample. These levels were not found in the upper level sediment. This result would label the material as a "hazardous waste" under RECRA. Purgeable organic compound results also showed 2700 ppb of chlorobenzene in the deeper sample. Both labs also found some levels of PCB in the samples.

(I have attached a copy of the March 4, 1985 report for comparison. That report was on the top 4-6 inches of sediment.)

Att WG:vr cc: J. Westendorf R. Game J. Wang B. Bolents

A. Zaepfel



# ecology and environment, inc.

ANALYTICAL SERVICES CENTER, P.O. BOX D, BUFFALO, NEW YORK 14225, TEL. 716-631-0360 International Specialists in the Environment

Mr. Walt Garrow City of Niagara Falls Utilities Department 53rd and Buffalo Avenue Niagara Falls, NY 14304

RE: U-7546

Dear Mr. Garrow:

Attached is the laboratory report of the analysis conducted on two samples received at the Analytical Services Center on March 18, 1988. Analysis was performed according to the procedures set forth in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

The accuracy of all analyses depends upon the representative nature of the sample and the reliability of collection procedures as well as the accuracy of the laboratory analysis of the sample as submitted. Ecology and Environment, Inc.'s activity and representations with respect to these samples are limited solely to the laboratory analysis of the samples presented to us.

All samples on which this report is based will be retained by E & E for a period of 30 days from the date of this report, unless otherwise instructed by the client. If additional storage of samples is requested by the client, a storage fee of \$1.00 per sample container per month will be charged for each sample, with such charges accruing until destruction of the samples is authorized by the client.

Very truly yours,

Day Hoh

Gary Hahn, Manager Analytical Services Center

GH/db-L1/G

Enclosure

recycled baber



### LABORATORY REPORT

FOR

# CITY OF NIAGARA FALLS, NEW YORK UTILITIES DEPARTMENT

U-7546

JOD NO.: U-7546			RE:			
Sample Date: 3/18/8	8		P.0. No.:			
Date Received: 3/18/8	8		Sampled By: Client			
Sample Type: Soil			Delivered By: Client			
E & E Lab. No. 88-	16260	16261				
Customer No.	*	<b>B</b> .				
Sample Identity	Gill Creek	GIII Creek				
	Results 1	n: mg/kg as	received unless noted			
Cadmium	<1.00	<1.00				
Chromium	22.3	20.2				
Copper	18.8	18.6				
Lead	45.7	47.7				
Mercury	0.576	0.653				
Nickei	9,15	10.2				
Zinc	120	139				
Total Solids	48	46				
		1				

### Analytical References:

"Test Methods	tor Evaluating	Solid W	waste,	Physical/Chemical	Methods, " SW-846, Second
Edition, U.S.	EPA, 1982.			Supervisor:	_ E Han
				Date:	3-31-85



### LABORATORY REPORT

FOR

## CITY OF NIAGARA FALLS, NEW YORK UTILITIES DEPARTMENT

U-7546.1

			1				
JOD NO.: U-7546			RE:				
Sample Date: 3/18/8	8		P.0	P.0. No.:			
Date Received: 3/18/8	8		Sam	oled By:	Cilent		
Sample Type: Soil			Del	ivered By:	Cilent		
RESULTS OF	CHEMICAL	ANALYSIS OF	EXTRA	CTS FROM E	P TOXICIT	Y TESTS	
	Maximu Allowab Concen tratio mg/L (mg/L)						
E & E Lab. No. 88-	16,260	16,261					
Customer No.	^	8.					
Sample identity	GIII Creek	GIII Creek					
Arsenic Barlum Cadmium Chromium Lead Mercury Selenium Silver Endrin Lindane Methoxychlor Toxaphene 2,4-D	<0.50 <5.00 <0.10 <0.50 0.613 <0.0008 <0.50 <0.50 <0.001 <0.0005 <0.005 <0.010 <0.005	<0.50 <5.00 <0.10 <0.50 <0.50 <0.0008 <0.50 <0.001 0.850 <0.005 <0.010 <0.005					5.0 100.0 1.0 5.0 0.2 1.0 5.0 0.02 0.4 10.0 0.5 10.0 1.0
2,4,5-TP (Silvex)	<0.0005	<0.0005					L

### Anaivtical References:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," SW-846, Second Edition, U.S. EPA, 1982.

Supervising Analyst: 31 Date:

### QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY FOR SPIKED SOIL SAMPLES

U-7546.2

	<b>5 1 5</b>	Original Value	Amount Added	Amount Determined		
Parameter	E & E Laboratory No. 88- Di Spike		(mg/L)		Percent Recovery	
2,4 - D		<0.005	0.0100	0.0071	71	
Silvex		<0.0005	0.0100	0.0069	69	
					-	

### QUALITY CONTROL FOR PRECISION RESULTS OF ANALYSIS OF REPLICATE ANALYSES OF SOIL SAMPLES

U-	75	46	5.	3
				-

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		(п	ng/L)	Relative
Parameter	E & E Laboratory No. 88- 16260	Original Analysis	Replicate Analysis	Percent Difference (RPD)
Lindane		<0.0005	<0.0005	
Endrine		<0.001	<0.001	
Methoxychlor		<0.005	<0.005	
Toxaphene		<0.010	<0.010	

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### RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT PURGEABLE ORGANIC COMPOUNDS BY GC/MS

(all results in ug/kg, as received)

U-7546.4

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	E & E Lab. No. 88-	16260	16261	Method Blank		
Compound	Sample Identity	GILI Creek A	Gill Creek B.			
chloromethane		<12	<60	<10		
bromomethane		<12	<60	<10		
vinyl chloride		<12	<60	<10		
chloroethane		<12	<60	<10		
methylene chloride		11	34	<5*		
1.1-dichloroethene		<6	30	<5	[	
1,1-dichloroethane		<6	<30	<5	[	
trans-1,2-dichloroethene		<6	<30	<5		
chloroform		<6*	<30*	<5*		
1,2-dichloroethane		<6	<30	<5		
1,1,1-trichloroethane		<6	<30	<5		
carbon tetrachloride		<6	<30	<5		
bromodichloromethane		<6	<30	<5		
1,2-dichloropropane		<6	<30	<5		
trans-1,3-dichloropropene		<6	<30	<5		1
trichloroethene		<6	<30	<5		
chlorodibromomethane		<6	<30	<5	[	
1,1,2-trichloroethane		<6	<30	<5	Í	1
benzene		<6	210	<5		
cls-1,3-dichloropropene		<6	<30	<5		
2-chloroethylvinyl ether		<12	<60	<10		
bromotorm		<6	<30	<5	1	1
tetrachioroethene		<6	<30	<5	1	
1,1,2,2-tetrachloroethane		<6	30	<5	ł	1
toluene		<6	<30	<5		
ch iorobenzene	-	86	2,700	<5	}	
ethyibenzene		<6	<30	<5		

\*Compound present below measurable detection limit.

### QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY OF SURROGATE SPIKES

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U-7546.5

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	E&E	Amount Added	Amount Determined		
Compound	Laboratory No. 88-		(ng)	Percent Recovery	
1,2-dichlorosthane-04	16260 16261	250 250	322 280	129 112	
toluene-08	16260 16261	250 250	272 30 1	109 120	
4-bromofluorobenzene	16260 16251	250 250	229 271	92 108 	

### ECOLOGY AND ENVIRONMENT'S, INC. A N A L Y T I C A L S E R V I C E S C E N T E R

### RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT BASE/NEUTRAL EXTRACTABLE COMPOUNDS BY GC/MS

### (all results in ug/kg, as received)

U-7546.6

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	E & E Lab. No. 88-	. 16260	16261+	Method Blank		
Compound	Sampie Identity	Gill Creek A	Gill Creek B			
bis(2-chloroethyl)ether		<330	<330	<3 30		
1,3-dichlorobenzene		<330	<330*	<3 30		
1,4-dichlorobenzene		<330	800	<330		
1.2-dichlorobenzene		<330	<3.30*	<3 30		
bis(2-chlorolsopropyl)ether		<330	<330	<330		
N-nitrosodipropylamine		<330	<3.30	<330		
hexachloroethane		<330	<3.30	<330		
nitrobenzene		<330	<330	<3 30		
Isophorone		<330	<330	<3 30		
bis(2-chloroethoxy)methane		<330	<330	<330		
1,2,4-trichlorobenzene		<330	390	<3 30		
naphthalene		<330	<330	<3 30		
hexachlorobutadiene		<330	<330	<3 30		
hexachlorocyclopentadiene		<330	<330	<3 30		}
2-chloronaphthalene		<330	<330	<3 30	1	1
dimetnyl phthalate		<330	<330	<330		1
acenaphthylene		<330	<330	<3 30		1
fluorene		<330	<3.30*	<330	ļ	1
acenaphthene		<330	<330*	<3 30		
2.4-dinitrotoluene		<330	<330	<330		
2.6-dinitrotoluene		<330	<3.30	<3 30		
diethylphthalate		<330	<3 30	<330	1	1
4-chlorophenyl phenyl ether		330	<330	<3.30		
N-nitrosodiphenylamine		<3.30	<3 30	<3 30		1
4-bromophenyl phenyl ether		<330	<3 30	<3 30	1	
hexachlorobenzene		<330	<330	<330	ł	
phenanthrene		<330*	<3.30*	<3 30	1	
anthracene		<330	<3 30*	<330	1	
di-n-butyl phthalate		<330*	<330*	<3 30*	1	
fluoranthene		<330	<330*	<330		
benzidine		<1,500	<1,600	<1,600		
pyrene		<330*	<330*	<330		
butyl benzyl phthalate		<330	<330	<330		
3,31-dichlorobenzidine		<560	<660	<660		1
benzo(a)anthracene		<330*	<330*	<330		
bis(2-ethylhexyl)phthalate		550	410 <330*	<330* <330		
chrysene		<3.30*		<330	1	
di-n-octyl phthalate		<330	<330 <330*	<330	1	
benzo(b)fluoranthene		<330*		<330		
benzo(k)fluoranthene		<330	<330	<330		
benzo(a)pyrene		<330*	<330*	<330		
indeno(1,2,3-cd)pyrene		<330	<330*	<330		
dlbenzo(a,h)anthracene		<330	<330			
benzo(ghi)perylene		<330	<330*	<330	1	i

\*Compound present below measurable detection limit. +Sample 16261 contained high levels of BHC isomers (confirmation of GC analysis)

### ECOLOGY AND ENVIRONMENT'S, INC. A NALYTICAL SERVICES CENTER

### RESULTS OF SOIL ANALYSIS FOR PRIORITY POLLUTANT PESTICIDES AND PCBs BY GC

### (all results in mg/kg as received)

U-7546.9

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	E & E Lab. No. 88-	16260	16261					
Compound	Sampie Identity	GIII Creek A	Gill Cresk B.					
Aldrin		<0.04	<5.0					
а-внс		<0.04	72	1	<u>}</u>		]	
5-2HC		<0.04	<u>19</u>			ţ	1	
g-8HC		<0.04	72 19 59 17				1	
d-BHC		<0.04				1		
Chlordane		<0.40	<10			1	1	
4,4'-000		<0.08	<2.0			ļ		
4 4'-DDE		<0.08	<2.0		1			
4,4'-DDT		<0.08	<2.0			1		
Dieldrin		<0.08	<2.0			1		
Endosulfan 1		<0.04	<1.0					
Endosulfan II		<0.08	<2.0					
Endosulfan sulfate	1	<0.08	<2.0	1	]			
Endrin		<0.08	<2.0	1				
Endrin aldenyde		<0.08	<2.0			Į		}
Heptachlor		<0.04	<1.0					
Heptachlor epoxide	•	<0.04	<1.0					
PCB - 1016		<0.40	<10					
PCB - 1221		<0.40	<10					
PCB 1232		<0.40	<10					
PCB - 1242		3.2	<10					
PCB 1248	_	<0.40	<10 <20					
PCB 1254	-	<u>0.96</u> <0.50	<20					
PCB 1260		1	<20			ł		
Toxaphene		<0.80	1 20	1		1		

### QUALITY CONTROL FOR PRECISION RESULTS OF ANALYSIS OF REPLICATE ANALYSES OF SOIL SAMPLES

U-7546.7

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		ug/kg		Relative	
Compound	E & E Lab. No. 88- 16260	Original Analysis	Replicate Analysis	Percent Difference (RPD)	
bis(2-chloroethyl)ether		<330	<330		
1,3-dichlorobenzene		<3 30	<330		
1,4-dichlorobenzene		<330	<330		
1,2-dichlorobenzene		<330	<330		
bis(2-chlorolsopropyl)ether		<330	<330		
N-nitrosodipropylamine		<330	<330		
hexachloroethane		<330	<330		
nitrobenzene		<330	<330		
Isophorone		<330	<330		
bis(2-chloroethoxy)methane		<330	<330		
1,2,4-trichlorobenzene		<330	<330		
naphthalene		<330	<330		
hexachlorobutadiene		<330	<330		
hexachiorocyclopentadiene		<330	<330		
2-chioronaphthaiene		<330	<330		
dimetnyl phthalate		<330	<330		
acenaphthylene		<330	<330		
fluorene		<330	<330		
acenaphthene		<330	<330	÷=	
2,4-dinitrotoluene		<3 30	<330		
2,6-dinltrotoluene		<330	<330		
diethylphthalate		<330	<330		
4-chlorophenyl phenyl ether		<330	<330		
N-nitrosodiphenylamine		<330	<330		
4-bromophenyl phenyl ether		<330	<330		
hexachiorobenzene		<330	<3 30		
phenanthrene		<330*	<330*		
anthracene		<330	<330		
di-n-butyl phthalate		<330*	<330*		
fluoranthene		<330	<330		
benzidine		<1,600	<1,600		
pyrene		<330*	380		
butyl benzyl phthalate		<3 30	<330		
3,3'-dichlorobenzidine		<660	<660		
benzo(a)anthracene		<330*	<330*		
bis(2-ethylhexyl)phthalate		550	690	23	
chrysene		<330*	<330*		
di-n-octyl phthalate		<330	<330*		
benzo(b)fluoranthene		<330*	<330*		
benzo(k)fluoranthene		<330	<330		
benzo(a)pyrene		<330*	<330*		
Indeno(1,2,3-c,d)pyrene		<330	<330		
dibenzo(a,h)anthracene		<330	<330		
		<330	<330		
benzo(g,h,i)perylene	1	1			

### QUALITY CONTROL FOR ACCURACY: PERCENT RECOVERY OF SURROGATE SPIKES

	E&E	Amount Added	Amount Determined	
Compound	Laboratory No. 88-		(ug/kg)	Percent Recovery
Nitrobenzene-D5	16260 1626 1	1.7 1.7	1.1 1.2	65 71
2-fluorobiphenyl	16260 16261	1.7	1.5 1.6	88 94
Terphenyl-014	16260 16261	1.7	1.5	88 76

U-7546.8

These recoveries are acceptable to EPA Contract Lab Program (CLP) guidelines.

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### QUALITY CONTROL FOR PRECISION RESULTS OF ANALYSIS OF REPLICATE ANALYSES OF SOIL SAMPLES

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U-7546.10

		(mg	/kg)	Relative
Compound	E & E Laboratory No. 88- 16260	Original Analysis	Replicate Analysis	Percent Difference (RPD)
Aldrin		<0.04	<0.04	
a-BHC		<0.04	<0.04	
5-3HC		<0.04	<0.04	
g-8HC		<0.04	<0.04	
d-BHC		<0.04	<0.04	
Chlordane	· ·	<0.40	<0.40	
4,4'-DDD		<0.08	<0.08	
4,4'-DDE		<0.08	<0.08	
4,4'-DDT		<0.08	<0.03	
Dieldrin		<0.08	<0.08	
Endosulfan l		<0.04	<0.04	
Endosulfan II		<0.08	<0.08	
Endosulfan sulfate		<0.08	<0.08	
Endrin		<0.08	<0.08	
Endrin aldehyde		<0.08	<0.08	
Heptachlor		<0.04	<0.04	
Heptachion epoxide		<0.04	<0.04	
PCB - 1016		<0.40	<0.40	
PCB - 1221		<0.40	<0.40	
PCB - 1232		<0.40	<0.40	
PCB - 1242		3.2	3.4	6.1
PC3 - 1248		<0.40	<0.40	
PC3 - 1254		0.96	0.62	43
PCB - 1250		<0.80	<0.80	
Toxaphene		<0.80	<0.80	

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### NIAGARA FALLS WASTEWATER TREATMENT PLANT ENVIRONMENTAL METHOD \$5

Page 1 of 2

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### NEWUTP GILL CREEK'S SEDIMENT #R-88-012

(SAMPLED ON MARCH 18, 1988)

SURFACE	18-36" DEPTHS		
SEDIMENT	SEDIMENT		
-0664	-0665		
		DETECTION	LIMITS
ried weight)		LGD	LOQ
Ú.O6	400 ••	0.01	0.02
0.06	70 ••	0.01	0.02
(0.01)	16Ú 🕶	0.01	0.02
0.1	100 **	0.01	0.02
0.03	3	0.01	Ú.Ú2
0.1	1	0.01	9.02
0.04	0.04	0.01	0.04
ND	ND	0.01	0.02
0.05	1	0.01	0.02
ND	0.3	ð.01	0.02
GR	0.9	Û.01	0.02
0.05	1	0.01	0.02
0.07	ND	0.01	0.02
ND	3	0.01	0.05
NO	ЭA	0.01	0.02
(0.01)	2	0.01	0.02
(0.01)	1	0.01	0.02
0.1	ND		
4 ••	5 **	0.05	
ND	ND	2	5
21MARCH ' 99	21MAR '88		-
	SEDIMENT -0664 tried weight) 0.06 0.06 (0.01) 0.1 0.03 0.1 0.04 ND 0.05 ND 0.05 ND 0.05 ND 0.05 ND 0.05 ND 0.07 ND 0.07 ND 0.07 ND 0.01 0.01 0.03 0.1 0.04 ND 0.05 ND 0.05 ND 0.05 ND 0.05 ND 0.07 ND 0.01 0.07 ND 0.07 ND 0.07 ND 0.01 0.07 ND 0.07 ND 0.07 ND 0.01 0.01 0.07 ND 0.07 ND 0.01 0.01 0.07 ND 0.01	SEDIMENT         SEDIMENT           -0664         -0665           0.06         400 **           0.06         70 **           (0.01)         160 **           0.1         100 **           0.03         3           0.1         1           0.04         0.04           ND         ND           0.05         1           ND         0.3           ND         0.9           0.35         1           0.07         ND           ND         3           ND         0.3           ND         1           0.1         1           0.1         ND           0.05         1           ND         0.3           ND         0.9           0.07         ND           NO         ND           NO         ND           4 **         5 **           NO         ND	SEDIMENT         SEDIMENT           -0664         -0665           0.06         400 **         0.01           0.06         70 **         0.01           0.06         70 **         0.01           0.06         70 **         0.01           0.01         160 **         0.01           0.02         0.03         3         0.01           0.03         3         0.01         0.01           0.04         0.04         0.01         0.01           0.05         1         0.01         0.01           0.05         1         0.01         0.01           ND         ND         0.01         0.01           ND         0.33         0.01           ND         0.33         0.01           ND         0.1         0.01           ND         0.02         0.01           ND         0.01         0.01           ND         0.01         0.01           ND         ND         0.01           ND         ND         0.01           ND         ND         0.01           ND         ND         0.01           ND

ANALYSIS DATE (column \$1): 28-31 MARCH, 1988 ANALYSIS DATE (column \$2): 29-30 MARCH, 1988

### COLUMNS:

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Fused silica capillary J&W DB-5 (30H, 0.25micron, 0.25mmiD): used for identification and quantification.
 Fused silica capillary J&W DB-1701 (30H, 0.25micron, 0.25mmiD):used for confirmation of identification.

### : COHTE:

ENU - 5 - WWIP-Environmental Pesticides, PCBs and Hexachlorocyclopentadiene (C-56) in sediments.

\*\* Compounds are confirmed by GC/TS (HP-5996) with column (1).

Page 2 of 2

ORGANIC COMPOUNDS by GC/MS (Results are ug/gr or PPM by dried weight)

	Surface Sed. ‡S-88-0664	Depth Sed. \$5-88-0665
1). 1,3-Dichlorobenzene	• CH	0.5
2), 1,4-Dichlorobenzene	ND •	1.6
3), 1,2-Dichlorocenzene	ND ·	ú.7
4). 1,2,4-Trichioropenzene	ND +	0.7
5), 1,2,3-Trichlorobenzene	NÐ •	0.1
6). 1,2,4,5-Tetrachlorobenzene	Trace *	0.3
7), 1,2,3,4-Tetrachlorobenzene	Trace *	0.2
B). Acenaphthylene	0.1	0.1
9). Acenaphthene	0.1	0.1
10), Pentachiorobenzene	ND +	0.1
11). Fluorene	0.2	0.2
12). Diethylphthalate	9.1	Trace *
13). Hexachlorobenzene	ND ·	Trace *
14). Phenanthrene	Q.6	0.5
15). Anthracene	0.3	Ű.2
16). Di-n-Butylphthalate	3.2	1.8
17). Fluoranthene	1.2	0.9
15). Pyrene	1.7	0.9
19). Benzo(a)Anthracene	+ CM	0.6
20). Chrysene	NO ·	Ú.o
21). Bis(2-ethylhexyl)Phthalate	1.4	<b>Ú.</b> 9
22). Di-n-Octylphthalate	0.2	Trace *
23). Benzo(b)Fluoranthene	1.1	0.5
24). Benzo(k)Fluoranthene	0.7	0.4
25). Benzo(a)Pyrene	5.0	0.1
26). Indeno(1,2,3-cd)Anthracene	1.0	0.3
27). Benzo(g,h,i)Perylene	û.8	0.2

Extraction Date: March 19, 1988 Analysis Date: March 29, 1988 on HP-5996 GC/MS

Column: Fused silica capillary J&W DB-5 (30H, 0.25micron, 0.25mmiD)

Each compound's concentration was based on the responds factor of the nearest ISTD.

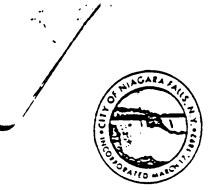
• Non Detected

• Compound was detected but the concentration level was below 0.1ppm.

		(			(		
/		SPECIAL	ANALYSI	S REPORT	SHEET		
DATE: 3					- 1	NALYST:	
COMPLETES					( )	Compos	uted_
<u></u> = <u></u> = <u></u> = <u></u> = <u></u> =	<u> </u>	-0664	(Eill	reck A	- surface	<u>نه (ر</u>	
<u>= 5-88</u>	-0665	(Gill (	net F	3- cone	) 01	3/18/8	8
REQUESTED	ANALYTIC	AL PROCED	URE(S): <u>5</u>	PDES	metal	s-as	ng/Kg
					dry	weig	Put
REQUESTED	BY: HA	JAROS	(PHONE)	(WRITE) TO:	0	ر/ @	·
			•				
SAMPLE	CD	Сг	Cu	PL	Ha	ηĹ	Zn
5-88-		35	48	119	, 9*	31	33/
0664	0.6						
							1
5-88-							
0665	0.7	31	88	113	2.5	33	319
	<u> </u>						
					<u> </u>	<u> </u>	
COMMENTS	+ Ma	trie.	spike	Alcon	ery =	111.76	ut
•					0		
Proje	2 ± #	R-8	8-012				
0							
REPORTED	то	) Gar	10u)		<u></u>		

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iagara Tal NEW YORK

March 4, 1985

Mr. Robert Speed, P.E. Regional Water Ouality Engineer NYS Dept. of Environmental Conservation 600 Delaware Avenue Buffalo, N.Y. 14202

> RE: Gill Creek Restoration Project -Consent Decree, City of Niagara Falls, Civil No.: 81-363C

Dear Bob:

The attached report from Julie Wang, Environmental Chemist describe the sampling and analysis plan for the subject project as approved by your correspondence of August 24, 1984. The five (5) transect composite samples were taken on November 1, 1984 and sent to ETC Laboratories in Edison, N.J. for analysis. The City's Water Quality Laboratory also performed selected analyses on split samples.

The EP Toxicity extraction tests show that only zinc and alpha BHC were found above the method detection limits in any of the five (5) leachates. Zinc was found in each, but with only a <u>maximum</u> concentration of 3.2 mg/l. It should be noted that there is no EP Toxicity action level for zinc. The only sample to show reportable amount of alpha BHC was sample number 28410, the one collected 25 feet north of Buffalo Avenue. Even this was well below (by 2 orders of magnitude) the EP Toxicity action level of 0.4 mg/l. It would appear that none of the sediments exhibit the characteristics of a hazardous solid waste, as far as EP Toxicity is concerned.

Further extensive testing of the sediments themselves were also performed for organic priority pollutants as well as metals. The ETC Lab volatiles analyses showed low parts per billion concentrati of tetrachloroethylene, toluene and chlorobenzene in four (4) of the five (5) samples. Split sample results for acid, base/neutrals pesticides and metals (only positive hits, including single PBL, are shown) show the presence at ppm levels, of polynuclear aromatics (PNA's) and phthalates. These two (2) classes of compounds are ubiquitous in sediments. In addition, a few hits for chlorinated benzenes were detected, with a maximum of 1.53 ppm. Of the metals analyzed, only lead and mercury exhibited patterns of increasing concentrations upon proceeding downstream. The concentrations seem to have stablized at around 100-160 ppm for lead and 3.9 to 5.0 ppm for mercury in the two downstream sediments (#23409 and #28410). These levels are probably not of concern, since the metals are shown to be in a stable non-soluble form (see the EP Toxicity results).

The pesticide results on the sediment samples (Table V attached memo do reveal a pattern of increasing BHC's concentrations in the downstream samples. These results are not unexpected due to the past history of activity on this stream. The DEC proposed alpha plus gamma BHC sediment criterious of 2.0 mg/kg was exceeded in one instance by the City's results on sample #28410 (25 mg/kg), the most downstream sample near Buffalo Avenue. PCB's, another expected detection, did not occur above 3 mg/kg (ppm), and are thus probably not of concern.

The toxaphene detections by ETC Laboratories are highly questionable City review of their methods and results reveals that these detectio: should not have been reported. One interesting detection is that of Dechlorane Plus by the City Laboratory. All results are below one (1) ppm, but Dechlorane Plus exhibits a distinctive double isomer peak. The Concentrations are, however, too low for GC/MS confirmation and are to be considered somewhat suspect.

In conclusion, it would appear that only the most downstream samplinlocations exhibits any analytical results of concern (BHC's), in my opinion. The City would like to proceed with the proposed Consent Decree Project, but only in the reach from Pine Avenue to "B" Street Please review the data and advise the City of your agreement, if appropriate.

The detailed laboratory data reports are available for review at the City Wastewater Plant. Please call me at 278-8183 if you have any guestions.

Very truly yours,

DEPARTMENT OF UTILITIES

ofy R. Westerdor/

John R. Westendorf () Environmental Engineer

JRW:dc Att. cc: D. Jaros/M. Bettino R. Game L. Krizan/D. Brooks N. Marchelos C. Mooradian W. Garrow/J. Wang

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### CITY OF NIAGARA FALLS

### NEW YORK

### February 1, 1985

TO: John R. Westendorf Environmental Engineer

FROM: Julie Wang Environmental Chemist (CU)

SUBJECT: Samples From Gill Creek

Five (5) sediment samples (see attached map) were taken from Gill Creek on November 1, 1984. The samples were split and one set was sent to Environmental Testing and Certification Laboratory, Edison, N.J. to analyze for all priority pollutants and for the metals, Hg, Pb, Zn in sediments. An EP toxicity test was also done. The City's Water Quality Laboratory analyzed the other set of split samples for pesticides, PCB's, toxaphene, B/N compounds and metals (Pb, Hg, Zn, Cu, Ni, Cd, Cr) in sediments.

The EP toxicity results (Table I) indicated trace amounts of BHC isomers were found in Sample #28407 and #28409. Sample #28410 had 3.6 ppb of Alpha-BHC along with other types of BHC isomers. Table II is the EP toxicity results for metals and herbicides. All the results are below the method detection limit and well below the RCRA Alert Level. Zinc is the only metal that was found in the leachates and its level ranged from 0.56 ppm to 2.8 ppm. There is no RCRA Alert Level for Zinc.

Table III is the volatile organics results for the sediments done by ETC Laboratory. Tetrachloroethylene, toluene and chlorobenzene were found in the sediments.

Table IV is the priority pollutant's B/N compounds in the sediments. The table shows the comparison of results between the ETC Laboratory and the City's Water Quality Lab. The City Lab results for the B/N compounds are higher than the ETC Lab. The original sample sizes used are different (1-5 g for the City Lab vs 30 g by the ETC Lab). The extraction procedures are different (sonication vs soxhlet extraction). The results for metals are similar for each laboratory.

Table V is the pesticides and PCB's results from both laboratories. Th∈ data was generated by using GC/EC single column determination. The City Lab used the fused silical capillary column (30 meter, 0.25 um Bonded SE-54) for the analysis. Sample #24810 (#5 sta ) has very high BHC's in the City's report. PCB's were found in samples #28407, #28408, #28409, and #28410 in approximately the 1 ppm range. Toxaphene was not detected in any of the samples. The ETC Laboratory used the standard packed column for pesticides and PCB's. The PCB's were not detected at the detection limit 5 ppm. Toxaphene was found in all samples in 1-3 ppm range. Per my phone conversion with ETC Lab, they are using one retention time (major peak) instead of pattern recogization. They recommended that GC/MS be used to confirm the compound. The GC/MS in the Environmental Lab will not be able to detect the compound below the 10 ppm range. I called the Sales Representative, Mike Bonomo several times regarding re-analysis of sample #28410 on GC/MS to confirm this compound. He has not called me back yet.

JW:dc Att. cc: W. Garrow S.V. Smith Lab

- #28406 #1 Core grab taken at 9:30 AM from south of the Pine Avenue Bridge. Composite cores from points 1A, 1B, and 1C.
- #28407 #2 Core grab taken at 10:45 AM from Hyde Park Blvd. and Orleans Avenue. Composite the sample cores from 2A, 2B and 2C.
- #28408 #3 Core grab taken at 11:10 AM from south of Falls Street Bridge. Composite the core samples from point 3A, 3B, and 3C.
- #28409 #4 Core grab taken at 11:30 AM from the B Street between Falls Street and Buffalo Avenue. Composite the core samples from points 4A, 4B, and 4C.
- #28410 #5 Core grab at 12:00 PM from 25 feet north of Buffalo Avenue. Composite core samples 5A, 5B, and 5C.

DEC SEDIMENI SAMPLING GILL CREEK 1978-80 Hyde Perk AND PROPOSED .... UKE CITY SAMPLING 1984 DAM Pine Ave 日 # 28406 Walnut ave tem ave # 7840 M SULFILM MONROCH! Bpt comp. / lanelys.s Seiment to refund Niasona St. LEEK Royal are. FIRK Falls St. O street # 28408 Ritand Ep. # 28409 Repeat Cstreet 18-36 B :th 1980-54 Depth #28410 A start Biffalo are KBAUDONED RR. KON For Analysis: ייי כאצי 4 Sampts; enchis a composite & 3 gendes to 18-36" or refusal.

AND PROPOSED CITY SAMPLING 1984

NA	'A-	WEST SIDE	<u>'6</u>	CEL	VIER	CI	AST	<u>SIDE</u>	C CMME	
50. OF PWE	Ø	291/2-	$\bigcirc$		40"	$\oslash$		35~	HEAS FROM H" OF	a BRIK <u>SED 14 E</u>
AVE BRIDGE Lacated L STAKED		21.			26"			26'	11-1-84	9.'30,
ILVO AT SLUD AT NRLEANS AVE	D.	18* 13'12*		11	 ×		9 1/2		1i-1-84	fican B: 10-4
-11 3 1980-\$17	D 1.042	263/4" * + 10°0+500000	() 10 <sup>~</sup> 1	TOF	211 " SEDMENT	D 10'' ;	+6 °0F .	,14:* SERMEN	MEAS_ER 11-1-8 4	
C. OF FALLS T., PRIDGE		,		•						
#4.	$\square$					$(\mathcal{O})$		_15_		
B. ST ETWEEN FALS I & BUFFALC		+ ) 5 SEQMENT	13 +	14 .+ .	5E0146~~	13"	† 16 cf	SEGULEM	11-1-8'4'	11:2
AVE.								· 9	ROCKY.	BUTTER
# 5- 1980-\$4 25FT NORTH		С меня бник Своттал - 11, года	ROLAY	BETRA	9		с NEAL Стат.	1	MEAS F	<u>Con BRI</u> 47 BANES 12:0
F BUFFALD AVE										··.
3RIDGE	1					1				

D PRELEMENTERS 10-12-84 - SURVEY OVLY NO SAMPLES

TABLE I

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# LEACHATE FROM GILL CREEK SOIL SAMPLES

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Analyzed by ETC Laboratory

PARAMETERS mg/kg by Wit WH. aldrin	128406	128407	#28408	128409	#28410	Method
aldrin	Leach F7561	Leach F7562	Leach F7565	Leach F7563	Leach F7564	Detection Limit mg/kg
	QN	BHDL	DN	BMDL	BMD1.	0.001
Alpha-BHC	QN	BMDL	ND	BMDL	0.0036	0.001
Beta-BHC	UN	ND	QN	BNDL	BMDL	0.001
Gamma – BHC	ND	BMDL	ND	UN	BMDL	0.001
Delta-BHC	QN	BMDL	ND	EMDL	BMDL	0.001
Chlordane	UN	ΟN	ND	ND	ND	0.005
4,4'-DDT	DN	QN	ND	BMDL	ND	0.001
4,4'-DDE	ND	<b>Din</b>	ND	ND	QN	0.001
4,4'-DDD	DN	ND	ND	QN	ND	0.001
Dieldrin	QN	QN	ND	DN	ND	0.001
Endosul£an	ND	ON .	ND	ND	ND	0:001
Endosulfan II	ND	UN	ND	ND	ND	0.001
Endosulfan Sulfate	DN	ND	ND	DN	ON	0.001
Endrin	ND	QN	ND	QN	DN	0.001
Endrin Aldehyde	DN	ND	ND	DN	ON	0,001
lieptachlor	ND	QN	, ON	DN	ND	0.001
Heptachlor epoxide	ND	ND	QN	ND	UN	0.001
Toxaphene	DN	ND	, UN	ND	UN	0,005
Methoxy Chlor	ND	DN	DN	ND	ND	0.050
Arochlor 1242	DN	UN .	ND	QN	ND	0.001
Arochlor 1254	DN	UN .	ND	ND	QN	0.001
Arochlor 1260	DN	UN	ND	DN	DN	0.001
Arochlor 1248	ND	QN	DN	UN	ND	0:001
	114	-	514		~	100 C

PARAMETERS mg/ka	#28406 Leach mg/kg bj <i>u</i> tut F7561	#28407 Leach F7562	#28408 Leach F7565	<b>1</b> 24809 Leach F7563	N 24810 Leach F7564	Methcd Detection Limit mg/kg	  /kq
	-07	QN	QN	ND	DN	00.00	
Arochlor 1221	<b>ND</b>	2					
Arochlor 1016	ND	ND	ND	QN	QN	0.001	

TABLE I (Cont'd)

TABLE II

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LEACHATE FROM GILL CREEK SOIL SAMPLES

PARAMETERS WLf Lyf (ppm) ma/kg	128406 Leach F7561	#28407 leach F7562	#28408 Leach F7565	<b> </b> 28409 Leach F7563	284]0 Leach F7564	RCRA Alert Level (ppm)	Method Detection Limit
	1.0	<1.0	۲۱.0	<1.0	41.0	5	1.0
Arsenic Barium	<ul><li>5.0</li></ul>	2 5.0	2 5.0	<b>45.0</b>	< 5.0	100	5.0
Cadminm	Z 0.2	20.20	く0.20	< 0.20	<0.20	1	0.20
Chromium	۲.0	<b>∠1.0</b>	く1.0	< 1.0	<1.0	2	1.0
Lead	<1.0 <1.0	<1.0	<1.0	< 1.0	< 1.0	2	1.0
Mercury	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.2	0.003
selentum selentum	Z 0.30	< 0.30	< 0.30	< 0.30	<0.30	1	0.30
selentum Silver	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	ŝ	0.20
	0.56	0.85	3.2	2.80	2.60	NA	NA
2 A-D	< 10	<10	く10	く 10	5-40 0.05	10	SJO DT
2,4,5-TP (Silvex)	< 1.0	< 1.0	< 1.0	< 1.0	5000 2-17	1.0	7. 0. K

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Jun Wilding

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PRIORITY POLLUTANTS	#28406 F7556	#28407 F. 7557	#28408 F7560	# 28409 F7558	#28410 F7559	Detect Limit
Chicromethane	ND	NO	ND	ND	ND	50
Bromomethane	כוא	ND	ND	ND	·ND	مى
Vinyi Chloride #7	ND	ND	ND	ND	ND	50
Chloroethane	ND	ND	ND	ND	ND	50
Methylene Chloride	162	PBL	ND	PEL	ND	50
1, 1-dichloroethylene	ND	ND	ND	ND	ND	5
1, 1-dichloroethane	ND	ND	·ND	ND	MD	5
Trans-1, 2-dichloroethylene <sup>#7</sup>		ND	NO	ND	ND	5
Chloroform #7	ND	·ND	ND	ND	ND	50
1, 2-dichloroethane	ND	ND	ND	ND	ND	5
	ND	ND	ND	ND	ND .	50
1.1.1-trichloroethane #7	ND	ND	ND	ND	ND	50
Carbon tetrachloride Bromodichloromethane #7	ND	ND	ND	ND	ND	50
1, 2-dichloropropane	ND	ND	ND	ND	ND	50
Trans-1, 3-dichloropropylene <sup>7</sup>		ND	ND	ND	ND	52
Trichloroethylene 7	ND	ND	ND	ND	ND	50
Dibromochloromethane #7	ND.	ND	ND	ND	ND	50
1, 1, 2-trichloroethane	IVD	ND	ND	ND	ND	5
<u>7</u> لا\	ND	ND	ND	ND	ND	5
Cis-1. 3-dichloropropylene	IND	ND	ND	PBL	ND	5
Benzene "	ND	ND	ND	ND	ND .	5
2-Chloro-ethylvinylether Bromoform <sup>#7</sup>	ND	ND	ND	ND	NO	
• • •	ND	ND	ND	ND	ND	.5
1, 1, 2, 2-tetrachloroethane */ Tetrachloroethylene *7	95	73	ND	72	57	5
Toluene #7	PBL	76	ND	51	PBL	5
Chlorobenzene #7	ND	PBL	PBL	304	PBL	5
Ethylbenzene #7	ND	ND	ND	ND	ND	2
Acrolein	ND	ND	ND	ND	ND	ى
Acrylonitrila	ND	ND	ND	ND	ND	5
1:2-Dichloroethane-D4	85%	78	2 802	917.		
Toluene - Dr.	867	877	7. 787.	92.9		
O-Bromofluorobenzene	917	892	70 75%	95%	697	2

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# GILL CREEK SOIL SAMPLES

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		90 V	128407	5	1 28 4 08	80	128409	6	1 28 4 1 0		DETECTION Limit	t
annunces and by alit wh	ETC	CITY	ETC	CITY	ETC	CITY	ETC	CITY	ETC	CITY	ETC	CITY
	đ	QN	QN	QN	PBL	QN	PBL	QN	PBL	ND	((.)	s.
1, 3-008	QN	QN	QN	QN	PBL	PBL	1.53	PBL	66.0	PDL	<b>ίί.</b> Ο	ŗ.
1,4-UCB	QN	ND	1.BL	QN	PBL	DN	PBL	QN	PBL	ON	((,))	s.
l,Z-UCB 1 - 4.5rr(ch)orohenzene	QN	QN	QN	QN	PBL	ND	PBL	QN	PBL	QN	((,0	s.
1, 2, 4-1110100000000000000000000000000000000	0.335	PBL	PBL	PBL	PBL	PBL	PBL	0.3	.0.5	0.7	٤٤.	
Plenallistic Strivitshebalate	QN	۲	UN	C 1	QN	12/6	PBL	13	PBL	ſ		s.
DIDUTYIPHICHAIACE Sliceranthera	0.36	÷	PBL	0.2	PBL	3/3	0.341	2	0.6	•	"	
	PBL	2	PBL	1	PBL	0.7/0.4	PBL	2	0.47	9	"	
ryrena -1-13thulhavvllnhthalate)	PBL	6	PBL	12	PBL	31/22	PBL	61	0.867	56	"	s.
Bletz-cutters at Firmer-cut	DN	QN	QN	QN	QN	ND	QN	QN	PBL	QN		s.
Acenaphcuste	PBL	QN	DN	QN	PBL	QN	PBL	QN	PBL	QN		s.
Anthracene	PBL	DN	QN	QN	PBL	QN	PBL	QN	PBL	DN	ct ·	s.
	QX	QN	QN	DN	PBL	QN	PBL	QN	PBL	DN		s.
Benzo (a) pys end	QN	N	QN	NN	PBL	NA	PBL	<b>NIA</b>	0.45	NA	"	NN
Ben 20 (D) 1 1401 = 1 1712	QN	NN	QN	NA	PBL	NN	ND	٧N	0.567	٧N	"	NA
Benzo(gni) Perjacio	QN	VN	PBL	<b>N</b> A	PBL	<b>N</b> N	PBL	NA	PBL	٧N	EC.	<b>N</b>
	PBL	QN	PBL	QN	PBL	QN	PBL	QN	PBL	ND.		s.
Lnrysene	PBL	QN	QN	DN	QN	ND	PBL	QN	PBL	QN	"	s.
rluorene T-dano (1 2. ]-c.d) DVFENE	UN	NA	ND	<b>N</b> N	QN	NN	UN	٧N	<b>EE.0</b>	N N	[[]	٨٨
	QN	QN	ND	QN	QN	ND	QN	QN	78d	ND	с.	
Isophorone	QN	QN	0.53	QN	, UN	QN	QN	QN	QN	QN	"	0.5
	ì	6	5		5	001/26	001	124	160	122	-	2
Lead	26	•		•	1		2	•		4	•	
Hercury	0.2	2.02	0.9	1.4	1.0	1.0	5.0	4.6	5.0	3.9	0.3	0.5
	190	140	400	260	210	280/280	280	380	350	380	. 0.6	1
Copper	11A	18	AN	22	<b>N</b>	¥€/6€	ИЛ	69	<b>Y N</b>	59	YN .	-
		••·										

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				TABLE GILL CRE	TABLE IV (Cont'd)	TABLE IV (Cont'd) GILL CREEK SOIL SAMPLES						
PARAHETERS mg/kg Dry Wt.	128406 ETC CITY	)6 C1TY	1 28 407 ETC CI	07 CITY	1 28 408 ETC CI	08 CITY	<b>J</b> 28409 ETC C	09 CITY	128410 ETC C	10 CITY	Detection Limit ETC CIT	citry citry
	:	91	4 Z	11	NN N	21/22	¥ N	EE	M	27	NN	1
Nickel		0.42	A N	•	AN	1.2/1.2	NA	1.J	N N	1.6	٧N	0.1
Cadmium Chromium	Y N	16	<b>V</b> N	20	N	16/62	NN	4	<b>V</b> N	96	4 N	
	-		· · ·									
		<b>.</b> •										

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TABLE V

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GILL CREEK SOIL SAMPLES

13405         13405 <th colsp<="" th=""><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>DETECTION</th><th>NO</th></th>	<th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>DETECTION</th> <th>NO</th>										DETECTION	NO
rrd         rrd <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>12841</td> <td>0</td> <td>LIMIJ</td> <td>•</td>								12841	0	LIMIJ	•	
ETC         CITY         ETC         CITY         ETC         CITY         ETC         CITY         ETC         CITY         ETC         CITY		1 78 406	128407		2	1 7 8 4 0	CITY	ETC	CITY	ETC	<u>F</u>	
ND         ND         PBL         ND         O.25         PBL/PBL         O.29         ND	Pri Ht.		ETC CI1				610	0.065		0.05	0.)	
	PARAMETERS INVESTIGATION		PBL NC		_			0.27	11	0.05	0.)	
ND	a - BHC		PBL 1.			00		UN N	60	0.05	.0	
PBL         PBL         PBL         PBL         PBL         O.036         NO         O.655         0.14/0.14         1.9         O.0         NO         NO         NO         PBL         PBL         NO         NO         PBL         NO         NO         PBL         NO         NO <td>b-BIIC</td> <td></td> <td>ND ON</td> <td>QN</td> <td>QN</td> <td></td> <td></td> <td>0.85</td> <td>2</td> <td>0.05</td> <td>0</td>	b-BIIC		ND ON	QN	QN			0.85	2	0.05	0	
Chlor         ND         ND         ND         PBL         ND         PBL/ND         C         PBL           n         n         ND         ND         ND         PBL         ND         PBL         ND         PBL           n         chlor         PBL         ND         ND         ND         PBL         ND         PBL           chlor         PBL         ND         ND         ND         PBL         ND         N	g - BHC		0.098 NI	0.65	0.14/0.14		u.u	QN	PBL	0.05	0	
PBL         ND         ND         PBL         1.0         PBL/ND         0.1/PBL         ND         PBL         ND           1         ND         ND         ND         ND         ND         ND         ND         ND         ND           1         ND         ND         ND         ND         ND         ND         ND         ND         ND           1         ND         ND         ND         ND         ND         ND         ND         ND         ND           1         ND         ND         ND         ND         ND         ND         ND         ND         ND           11         ND         ND         ND         ND         ND         ND         ND         ND           11         ND         ND         ND         ND         ND         ND         ND         ND         ND           11         ND         ND         ND         ND         ND         ND         ND         ND           11         ND         ND         ND         ND         ND         ND         ND           11         ND         ND         ND         ND         ND         ND<	d-BHC		ND PB	QN	PBL/PBL			-	PBL	0.05	•	
Ior Epoxide         ND         ND         ND         PBL         ND         O.17 PBL         ND         ND <td>Heptecutor</td> <td></td> <td>Bd ON</td> <td>1.0</td> <td>PBL/NU</td> <td></td> <td>PBL</td> <td></td> <td>PBL</td> <td>0.05</td> <td></td>	Heptecutor		Bd ON	1.0	PBL/NU		PBL		PBL	0.05		
N0         N0<	Aldfin blor Enoxide		AN DB	QN	0.1/70		QN		QN	0.05	ò	
ND         PBL         ND         PBL         ND         PBL/PBL         ND         PBL/PBL         ND           ND         ND         ND         ND         ND         ND         ND         PBL         ND           ND         ND         ND         ND         ND         ND         ND         PBL         ND           ND         ND         ND         ND         ND         ND         ND         ND         ND           ND         ND         ND         ND         ND         ND         ND         ND         ND           ND         ND         ND         ND         ND         ND         ND         ND         ND           Sulfate         ND         ND         ND         ND         ND         ND         ND         ND           Sulfate         ND         ND         ND         ND         ND         ND         ND         ND           Sulfate         ND         ND         ND         ND         ND         ND         ND           Sulfate         ND         ND         ND         ND         ND         ND         ND           Sulfate         ND			NON	QN	DN TTT		PBL		PBL	0.05	.0	
ND         ND<	Endosultan 1		ND PB	QN	PBL/PBL		Pal.		QN	0.05	0	
an IINDNDNDNDNDNDNDNDan IINDNDNDNDNDNDNDNDNDan IINDNDNDNDNDNDNDNDNDan SulfateNDNDNDNDNDNDNDNDan SulfateNDNDNDNDNDNDNDNDan SulfateNDNDNDNDNDNDNDnoNDNDNDNDNDNDNDNDan SulfateNDNDNDNDNDNDNDan SulfateNDNDNDNDNDN			N DN	QN	QN		DAL		ND	0.05	0	
Ifan II       ND	pleidrin		N N	QN	QN				QN	0.05	0	
<pre>ND PBL ND PBL ND PBL ND PBL/PBL ND ND</pre>	Endrin		QN						PBL	0.05	0	
an Sulfate ND ND ND ND ND PBL/PBL ND PBL/PBL ND PBL an Sulfate ND	Endosulfan II		ND PI				701 101		ND	0.05	0	
An Sulfate ND	P, P' - DDO		ND		·		794		QN	0.05	0	
NA       ND       NA       ND       NA       PBL       NA       O. 77       NA         NA       0.24       NA       0.16       NA       0.69/.55       NA       0.77       NA         ND       ND       ND       1       ND       0.16       NA       0.77       ND         ND       ND       ND       1.1       ND       2.8       ND       1.8         ND       NA       0.69       ND       1.1       ND       2.8       ND       ND         ND       NA       ND       NA       ND       NA       ND       ND       ND         ND       NA       ND       NA       ND       NA       ND       ND	P,P'-DDT		QN				PRL		QN	N	0	
rane     Plus     NA     0.21     NA     0.051/23     NA       (mg/kq)     ND     ND     PBL     ND     3     ND       (mg/kq)     ND     ND     1.1     ND     3.8     ND       ene     0.68     ND     0.69     ND     1.1     ND     2.8     ND       chlor     0.68     ND     0.69     ND     1.1     ND     2.8     ND     1.8       chlor     0.68     ND     0.69     ND     1.1     ND     2.8     ND     1.8       chlor     0.68     ND     0.69     ND     1.1     ND     2.8     ND     ND       chlor     ND     NA     ND     NA     ND     NA     ND       chlor     ND     NA     ND     NA     ND     ND     ND			- VN				0.77		0.46	NA	0	
ND ND ND ND PBL ND PBL ND PBL ND PBL ND PBL ND PPL ND PPL ND PPL ND PPP	HITEX		NN				-		T	ŝ	•	
O. 68 ND O. 69 ND J. I ND J. B. ND O. 68 ND NA	Dechlorate Flus		QN		:		l ≥		QN	0.25	-	
lor ND	by /6m) 9.804						A N		N	0.05	~	
AN AN AN AN AN AN AN	Toxaphene					ON CN	YN.		MN	0.25	-	
			ŊŊ			2						
	Chlordang											

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# **APPENDIX B**

# ANALYTICAL DATA FOR MAY 1991 CATCH BASIN SAMPLING

# OLIN (IT) ANALYTICAL DATA FOR MAY 1991 CATCH BASIN SAMPLING

Volatile Organic Analyses

Matrix Soil

	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2	
ТҮРЕ		DUP	MS	MSD						WS	<u></u>
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91	
UNIT of MEASURE	UG/KG	NG/KG	NG/KG	NG/KG	NGKG	NGKG	NGKG	NG/KG	NGKG	NGKG	
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0530	VSP0530	
COMPOUND											Γ
VOLATILES											Τ
Chloromethane	13 (	U 15 U	) 13	U 13	U 12 U	J 12 U	12 U	∩ ₽	□ 0	1	5
Bromomethane	13 (	U 15 U	ا 13	U 13	U 12 U	J 12 U	12 U	10 10	∩ ₽	1	⊐
Vinyl Chloride	13	U 15 U	1 13	U 13	U 12 U	12 U	12 U	10 1	1 0	1	<b>_</b>
Chloroethane	13 1	U 15 U	1 13	U 13	U 12 U	J 12 U	12 U	101	D 01	1	5
Methylene Chloride	5 J	L 4 1	4	J 4	J 15	14	21	5 U	5 U	5	5
Acetone	83	68	55	52	8	ଷ୍ପ	17	10 U	10 U	1	5
Carbon Disulfide	9	U 7 U	9 6	U 6	U 6 U	) 6 U	6 U	5 U	5 U	5	5
1,1-Dichloroethene	6 U	J 7 U	J 58	S 61	s 6 U	1 6 U	6 U	5 U	5 U	51	S
1,1-Dichloroethane	6 U	u 7 u	) 6	U 6	u e u	۱ e U	6 0	5 U	5 U	5	5
1,2-Dichlorothene (total)	6 U	J 7 U	) 6	U 6	U 6 U	1 6 U	0 9	5 U	5 U	5	5
Chloroform	6 U	ן 7 U	) 6	U 6	u 6 U	1 6 U	9	5 U	5 U	5	∣⊃
1,2-Dichloroethane	9 9	J 7 U	) 6	U 6	u 6 U	1 6 U	6 U	5 U	5 U	5	5
2-Butanone	ر 10 ک	L 11	8	ل 8	J 12 U	1 12 U	12 U	10 U	10 U	10	5
1,1,1-Trichloroethane	6 U	J 7 U	9	U 6	U 6 U	ا 6 U	6 U	5 0	5 U	5	5
Carbon Tetrachloride	6 U	J 7 U	9	U 6	u 6 U	1 6 U	6 U	5 0	5 U	5	5
Vinyl Acetate	13 U	J 15 U	1 13	U 13	U 12 U	1 12 U	12 U	10 U	10 1	9	5
Bromodichloromethane	9	J 7 U	9 6	U 6	u 6 U	1 e U	6 U	5 U	5 U	5	5
1,2-Dichloropropane	9 9	J 7 U	9	U 6	U 6 U	1 6 U	6 U	5 U	5 U	5	15
cis-1,3-Dichloropropene	9 9	J 7 U	9	U 6	U 6 U	6 U	6 U	5 U	5 0	5	5
Trichloroethene	6 U	J 7 U	29	S 60	s 6 U	۲   2   1	e   U	5 0	5 U	50 S	S

Volatile Organic Analyses

Matrix Soil															
SAMPLE LOCATION	CBSED1	CBSED1D	1D	CBSED1	CBSED1	10	CBSED2	CBSED3	CBSED4	<b>F</b>	VBLK1	VBLK2	N N	ABI	VBLK2
түре		DUP		WS	MSD	0								2	SM
DATE ANALYZED	5/29/91	5/29/91	-	5/29/91	5/29/91	91	5/30/91	5/30/91	5/30/91		5/29/91	5/30/91	91	23	5/30/91
UNIT of MEASURE	UG/KG	UG/KG	(7)	UG/KG	NG/KG	â	NGKG	NGKG	NGKG		NGKG	NGKG	â	۵ ۵	NGKG
SAMPLE NUMBER	BB6833	BB6836	g	BB6834	BB6835	35	BB6837	BB6838	BB6839		VB05293	VB0530	83	VSP	VSP0530
COMPOUND													-		
Dibromochloromethane	9	n	7 U	9	D	9	n 9 n	9		د و	5	<b></b>	5		5
1,1,2-Trichloroethane	6	Ŀ	l 7	9	D	9	n 9 N	9	n	⊃ 9	<u>۔</u> ۲	5	5 (	5	5
Benzene	2	۱	8	62	S	65	s 6 U	9	n	۲ 9	- 2	<b>_</b>	5	5	49 S
trans-1,3-Dichloropropene	9	n	7 U	9	n	6 1	n 9 n	9	n	0 9	5		5	5	5 U
Bromoform	9	U	7 U	9	, N	9	U 6 U	9	n	n 9	5		5	<b>_</b>	5 U
4-Methyl-2-Pentanone	13 1	U	15 U	13	U	13 1	U 12 U	12	n	12 U	9	n	2		⊇ ₽
2-Hexanone	13 1	n	15 U	13	u 🛛	13 (	U 12 U	12	n	12 U	9	<b>_</b>	2	<b></b>	⊃  ₽
Tetrachloroethene	9	n	7 U	6	n	6 1	u 6 U	9	n	0 9	5	<u>ہ</u>	5	5	5
1,1,2,2-Tetrachloroethane	9	n	7 U	6	U	6 1	u 6 U	9	n	6 U	5		5	5	5
Toluene	5	ر	14	68	S	20	s e u	9	n	6 U	5	n	5	5	48 S
Chlorobenzene	6 1	U	۲ J	60	S	61 \$	s 6 U	9		n 9	5	<b></b>	5	<b></b>	48 S
Ethylbenzene	6 1	U	7 U	9	n	6 1	u e U	9		6 U	5	Л	5		5 U
Styrene	9	D	7 U	6	u	6 1	u 6 U	9	n	6 U	5	5	5	   _	5 U
Xylenes (total)	3	۔ ا	4 J	4	J	5 ,	J 6 U	9	n	2 7	5	<u> </u>	5		5
2-Chloroethylvinylether	A		AN	NA		NA	NA	NA	AN	4	9		9		A
Ethane, 1,1,2-Trichloro-1,2	A	2	NA	AA		A	AN	NA	AN	A	NA		A		A
Unknown (Freon)	N	~	NA	A		¥	AN	NA	AN	4	NA		AN		A
Freon	Ą	~	MA	AA		¥	NA	NA	NA	A	NA		٩N		A

NIAGARA FALLS, NEW YORK **CATCH BASIN SAMPLES** GILL CREEK, MAY 1991

Volatile Organic Analyses

Matrix Soil

ppm - MG/KG ppb - MG/KG

NA - Not Analyzed

U - Analyzed for but not detected. Reported value is quantation limit.

J - Reported value was estimated
 X - Laboratory defined qualified, See original data package.

Semi-volatiles Organic Analyses

hix Soil	
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CANNIFLEE LOUATION	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2
түре		DUP	¥	MSD						SW
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91
UNIT of MEASURE	NGKG	NGKG	NG/KG	UG/KG	NGKG	NGKG	NGKG	NGKG	NGKG	NGKG
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0530	VSP0530
COMPOUND										
SEMI-VOLATILES										
Phenol	NA	A	AN	Å	NA	NA	AN	AN	NA	NA
bis(2-Chloroethyl)Ether	NA	NA	NA	A	N	NA	AN	AN	AN	NA
2-Chlorophenol	AN	NA	A	AN						
1,3-Dichlorobenzene	AN	A	NA	NA	NA	NA	AN	AN	AN	AN
1,4.Dichlorobenzene	AN	A	NA	NA	NA	NA	AN	NA	AN	A
Benzyl Alcohol	AN	NA	NA	NA	NA	NA	AN	NA	AN	Ą
1,2-Dichlorobenzene	AN	NA	Ą							
2-Methylphenol	NA	N	NA	NA	NA	NA	NA	AN	AN	AN
bis(2-ChloroisopropyI)Ether	AN	A	NA	NA	AN	NA	AN	NA	NA	AN
4-Methylphenol	NA	Å	AN	AA	NA	NA	NA	AN	NA	AN
N-Nitroso-Di-n-Propylamine	NA	Ą	AN	NA	NA	NA	AN	AN	NA	AN
Hexachloroethane	AN	NA	NA	NA	NA	AN	NA	AN	A	A
Nitrobenzene	NA	AN	AN	NA	NA	NA	AN	AN	A	NA
tsophorone	AN	AN	NA	NA	NA	AN	NA	AN	NA	A
2-Nitrophenol	NA	Å	AN	A	NA	NA	NA	AN	AN	AN
2,4 Dimethylphenol	¥	M	A	NA	NA	AN	AN	NA	NA	¥
Benzoic Acid	AN	AN	NA	NA	NA	NA	NA	AN	NA	Ą
Endrin Ketone	A	Ą	Ą	AN	NA	NA	NA	NA	NA	AN
2,4-Dichlorophenol	Ą	AN	AN	Ą	NA	NA	NA	NA	NA	A
1,2,4-Trichlorobenzene	Ą	N	¥	Ą	AN	NA	NA	NA	NA	AN
Naphthalene	M	NA	NA	M	NA	NA	NA	NA	NA	NA

NIAGARA FALLS, NEW YORK CATCH BASIN SAMPLES GILL CREEK, MAY 1991

Semi-volatiles Organic Analyses

Matrix Sould Ogeneration											
SAMPLE LOCATION	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2	_
ТҮРЕ		DUP	SM	MSD						WS	
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91	_
UNIT of MEASURE	NGKG	UG/KG	NG/KG	NGKG	UGKG	NGKG	NGKG	NGKG	NGKG	NGKG	
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0630	VSP0530	
COMPOUND											
4 -Chloroanitine	NA	AN	AN								
Hexachlorobutadiene	NA	AN	AN								
4-Chloro-3-Methylphenol	NA	AN	AN	AN	_						
2-Methylinaphthalene	NA	AN	AN	AN							
Hexachlorocydopentadiene	NA	AN	AN	AN	-						
2,4,6. Trichlorophenol	NA	AN									
2,4,5 Trichlorophenol	NA	AN	-								
2-Chloronaphthalene	AN	NA									
2-Nitroaniline	¥	M	A	NA	NA	NA	NA	NA	NA	AN	-
Dimethyl Phthalate	¥	NA	AA	NA	NA	NA	NA	NA	NA	AN	
Acenaphthylene	Ą	A	AA	NA							
2.6. Dinitrotoluene	A	AA	AA	NA							
3-Nitroaniline	¥	NA	AN	AN	NA	NA	NA	NA	NA	NA	
Acenaphthene	¥	Ø	AN	NA	NA	NA	NA	NA	AN	AN	
2,4-Dinitrophenol	AN	NA	NA	NA	NA	NA	NA	AN	AN	AN	-

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4-Chlorophenyl-phenylether

4-Nitroaniline

Fluorene

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2,4-Dinitrotoluene Diethylphthalate

4-Nitrophenol Dibenzofuran

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Semi-volatiles Organic Analyses

Soil	
Matrix	

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SAMPLE LOCATION	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2	
TYPE		DUP	SW	MSD						S	
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91	
UNIT of MEASURE	UG/KG	NGKG	UG/KG	UG/KG	NGKG	NGKG	NGKG	NGKG	NGKG	NGKG	
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0530	VSP0530	
COMPOUND											<u> </u>
4,6. Dinitro - 2. Methylphenol	NA	NA	NA	NA	NA	NA	AN	AN	AN	AN	r
N-Nitrosodiphenylamine (1)	NA	NA	NA	NA	AN	NA	AN	AN	NA	NA	
4-Bromophenyl-phenylether	NA	NA	NA	NA	AN	NA	NA	NA	NA	AN	<u> </u>
Hexachlorobenzene	NA	NA	NA	NA	AN	NA	AN	AN	AN	AN	ŀ
Pentachlorophenol	NA	NA	NA	NA	NA	NA	NA	AN	AN	AN	ļ —
Phenanthrene	NA	NA	NA	NA	AN	NA	NA	AN	NA	AN	Γ
Anthracene	NA	NA	NA	NA	NA	NA	AN	AN	AN	AN	Г
Di-n-Butylphthalate	NA	NA	NA	NA	NA	NA	NA	NA	AN	NA	Γ
Fluoranthene	NA	NA	NA	NA	NA	NA	AN	NA	NA	AN	<u> </u>
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	AN	
Butytbenzylphthalate	A	AN	A	NA	NA	NA	NA	NA	NA	AN	
3,3 - Dichlorobenzidine	AN	AN	NA	NA	NA	NA	NA	NA	AN	AN	T
Benzo(a)Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	AN	AN	<u> </u>
Chrysene	¥	NA	Ą	NA	AN	NA	NA	NA	AN	AN	1
bis(2-Ethylhexyl)Phthalate	AN	AN	AA	AA	NA	NA	NA	NA	NA	AN	r—
Di-n-Octyl Phthalate	¥	¥	A	NA	NA	NA	NA	NA	AN	AN	
Benzo(b)Fluoranthene	¥	¥	¥	Ą	Ν	NA	NA	NA	NA	AN	1
Benzo(k)Fluoranthene	¥	¥	A	¥	NA	NA	NA	NA	NA	AN	I
Benzo(a)Pyrene	¥	AN	A	A	AN	NA	NA	NA	AN	AN	Γ
Indeno(1,2,3-cd)Pyrene	AN	AN	¥	Ą	<b>V</b>	NA	NA	NA	NA	AN	
Dibenz(a,h)Anthracene	Ą	Ą	A	Ą	٩N	A	NA	NA	NA	AN	<u> </u>
Benzo(g,h,i)Perytene	A	M	NA	NA	AN	NA	NA	NA	NA	AN	

Semi-volatiles Organic Analyses

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SAMPLE LOCATION	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2
түре		DUP	SM	MSD						WS
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91
UNIT of MEASURE	UG/KG	NG/KG	UGKG	UG/KG	NGKG	NGKG	NGKG	NGKG	NGKG	NGKG
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0530	VSP0530
COMPOUND										
1,3-Butadiene, Pentachloro	AN	NA	AN							
Hexanedioic Acid, Bis (2 ethy	NA									
Hexanedioic Acid, Mono (2-eth	NA									
Dichlorobenzene	NA									
Dichlorophenol	NA									
Heptadecane,2,6,dimethyl-(1)	NA	AN								
Pentachlorobenzene	NA	٩N								
Pentachloronitrobenzene	AN	AN	NA	AN	NA	NA	NA	NA	NA	NA
Phenanthrene,3,6-dimethyl- (1)	NA									
Tetrachlorobenzene	M	M	AN	AN	AN	NA	NA	NA	NA	NA
Tetramethyl Phenanthrene (1)	NA	AN	NA	AA	AN	NA	NA	NA	NA	NA
Trichlorobenzene	NA	AN	NA	NA	AN	NA	NA	NA	NA	NA
Trichlorophenol	NA									
Unknown (1)	A	¥	Ą	A	AN	NA	NA	NA	NA	NA
2-pentanone,4-hydroxy-4methyl- (1)(2)	M	AN	NA	NA	NA	NA	NA	AN	NA	AN

ppb · MG/KG

ppm - MG/KG

NA - Not Analyzed

U · Analyzed for but not detected. Reported value is quantation limit.

J - Reported value was estimated

X Laboratory defined qualified, See original data package.

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Pesticide/PCB Analyses

SAMPLE LOCATION	CRSENT	CRSEDID		C	CRAFD1	CRSEDI		CBSEDS	CBSED3	~	CBCEDA	_				 ,
		222	_	>			> 	- CCC		2		_				
ТҮРЕ		ana			SM	USW									SA	
DATE ANALYZED	5/29/91	5/29/91	91	2 C	5/29/91	5/29/91		5/30/91	5/30/91	_	5/30/91		5/29/91	5/30/91	5/30/91	=
UNIT of MEASURE	NG/KG	NGKG	ŋ	_	UG/KG	UG/KG		NGKG	NGKG	15	NGKG	-	NGKG	NGKG	NGKG	U
SAMPLE NUMBER	BB6833	BB6836	36	8	BB6834	BB6835		BB6837	BB6838	en.	BB6839		VB05293	VB0530	VSP0530	8
COMPOUND																┢─
PESTICIDES												<u> </u>				
a-BHC	61 (	n	42		AN	¥		1100		S C	21 1	5	16 U	AN		16 U
B-BHC	76		4		AN	A		490		S C	28	<u> </u>	16 U	NA		16 U
y-BHC	61 1	n	42 L	n	AN	NA		190 (	n B	54 U	21 1	2	16 U	NA		16 U
g-BHC	61	n	42 L	n	AN	M		190	S N	54 U	21 1	5	16 U	NA		5
Heptachlor	61	n	42 L	n	NA	NA		190	n n	54 U	21 L		16 U	AN		2
Aldrin	61	U	42 L	۱	NA	NA		190 (	s n	54 U	21 (		16 U	NA		5
Heptachlor Epoxide	61	U	42 L	۱ ا	NA	NA		190 (	n e	54 U	21 (	5	16 U	AN		16 U
Edosulfan I	61	U	42 U	ľ	NA	NA		190 1	U E	54 U	21 (	n	16 U	AN		16 U
Diekdrin	120	u]	84 L	n	NA	NA	-	390 (	u 11	110 U	41   r	n	32 U	AN		5
4.4 DDE	120	n	84 U		AN	NA		390 (	U 11	110 U	41 L	n	32 U	NA		32 U
Endrin	120	С	8	)	AN	NA		390 (	u 11	110 U	41 F		32 U	AN		31
Endosultan ti	120	D	84 U	_	AN	M		390 (	U 11	110 U	41 L	n	32 U	AN		32 U
4,4'-DDD	120	U	84 U		NA	M		390 (	n 11	110 U	41 L		32 U	NA		32 U
Endosultan Sultate	120	U	84 U	[	NA	NA		390 (	u 11	110 U	41 r	n	32 U	NA		32 U
4,4'.DDT	120	n	84 ∪	_	¥	AA		390 (	u 11	110 U	41 L	n	32 U	AN		5
Methoxychlor	610	n '	420 U		NA	M		1900 (	U 54	540 U	210 L	D	160 U	NA	-	160 U
Endrin Ketone	120	U	84 (	n	NA	NA		390 (	U 11	110 U		n	32 U	AN		32 U
Alpha-Chlordane	610	, n	420 U		NA	NA		1900	U 54	540 U	210 L	n	160 U	AN		160 U
Gamma Chlordane	610 1	י ח	420 L	D	NA	NA		1900	U 54	540 U	210 L	n	160 U	NA	-	160 U
Toxaphene	1200	л П	840 (	5	AN	¥		3900	U 1100	Ν	410 L	U	320 U	NA	3	320 U
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Pesticide/PCB Analyses

SAMPLE LOCATION	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2	
ТҮРЕ		DUP	WS	MSD						SM	
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91	
UNIT of MEASURE	NG/KG	NG/KG	UG/KG	NG/KG	NGKG	NGKG	NGKG	NGKG	NGKG	NGKG	
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0530	VSP0530	
COMPOUND											г
PCBs											<u> </u>
PCB-(Aroclor)-1016	610 U	420 U	AN	A	U 0061	540 (	J 210 U	160 U	A	160 L	1-
PCB (Aroclor)-1221	610 U	420 U	NA	AN	1900 U	540 [	J 210 U	160 U	A	160 L	15
PCB-(Arocior)-1232	610 U	420 U	NA	NA	1900 U	540 (	J 210 U	160 U	AN	160 L	
PCB-(Arockor)-1242	610 U	420 U	NA	NA	1900 U	540 (	J 210 U	160 U	AN	160 L	
PCB (Arockor)-1248	610 U	420 U	NA	NA	U 0001	240 (	J 210 U	160 U	AN	160 L	
PCB (Aroclor) - 1254	1200 U	840 U	NA	NA	006E	1100 1	1 410 U	320 U	AN	320 L	
PCB (Aroctor)-1260	1200 U	840 U	NA	NA	3900 U	1100 (	J 410 U	320 U	AN	320 L	
											1

ppb · MG/KG

ppm · MG/KG

NA - Not Analyzed

U Analyzed for but not detected. Reported value is quantation limit.

J Reported value was estimated

X - Laboratory defined qualified, See original data package.

Inorganic Analyses

<u>Soi</u>	
Matrix 5	

SAMPLE LOCATION	CBSED1	CBSED1D	CBSED1	CBSED1	CBSED2	CBSED3	CBSED4	VBLK1	VBLK2	VBLK2
түре		dUQ	SW	MSD						SW
DATE ANALYZED	5/29/91	5/29/91	5/29/91	5/29/91	5/30/91	5/30/91	5/30/91	5/29/91	5/30/91	5/30/91
UNIT of MEASURE	NG/KG	UGKG	UG/KG	NGKG						
SAMPLE NUMBER	BB6833	BB6836	BB6834	BB6835	BB6837	BB6838	BB6839	VB05293	VB0530	VSP0530
COMPOUND										
Lead	NA	NA	NA	NA	AN	NA	A	AN	AN	NA
Mercury	4.4 J	7.5 J	NA	NA	0.24 J	f 66:0	L 0.1	0.2 U	NA	AN

ppb · MG/KG

ppm - MG/KG

NA - Not Analyzed

U Analyzed for but not detected. Reported value is quantation limit.

J - Reported value was estimated

X - Laboratory defined qualified, See original data package.

# NYSDEC (RECRA) ANALYTICAL DATA FROM MAY 1991 CATCH BASIN SAMPLING

# VOLATILE ORGANICS ANALYSIS DATA SHEET RESULTS 1855Cl Contract. COO2412 ----

Jab Name: <u>RECRA ENVI</u>	RONCO	$\mathbf{ntract:} \ \underline{\mathbf{COO2412}} \qquad [$	
		AS NO.: SDG	No.: <u>0524</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	<u>1855C1</u>
Sample wt/vol:	<u>5.1</u> (g/mL) <u>G</u>	Lab File ID:	<u>G8954</u>
Level: (low/med)	LOW	Date Received:	05/24/91
<pre>% Moisture: not dec.</pre>	32	Date Analyzed:	05/25/91
Column: (pack/cap)	PACK	Dilution Factor	: <u>1.00</u>
CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>	Q

CAS NO.

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74-87-3Chloromethane	14	υ
74-83-9Bromomethane	- 14	U
75-01-4Vinyl Chloride	- 14	U
	- 14	U
75-00-3Chloroethane	- 0.8	
75-09-2Methylene Chloride	- 37	B
67-64-1Acetone	-  7	U
75-15-0Carbon Disulfide	- 7	U
75-35-41, 1-Dichloroethene	-  7	U
75-34-31,1-Dichloroethane	- 7	U
540-59-01,2-Dichloroethene (total)	- 7	U
67-66-3Chloroform		1 -
107-06-21,2-Dichloroethane	- 7	U
78-93-32-Butanone	3	J
71-55-61,1,1-Trichloroethane	7	U
56-23-5Carbon Tetrachloride	- 7	U
108-05-4Vinyl Acetate	14	U
75-27-4Bromodichloromethane	_  7	U
78-87-51,2-Dichloropropane	7	U
10061-01-5cis-1,3-dichloropropene	- 7	U
79-01-6Trichloroethene	7	U
124-48-1Dibromochloromethane	- 7	U
79-00-51,1,2-Trichloroethane	7	U
71 42-2	2	J
10061-02-6trans-1,3-dichloropropene	- 7	U
75-25-2Bromoform	- 7	U
108-10-14-Methyl-2-Pentanone	- 14	U
591-78-62-Hexanone	- 14	U
127-18-4Tetrachloroethene	- 7	U
79-34-51,1,2,2-Tetrachloroethane	- 7	U
108-88-3Toluene	- 4	J
108-90-7Chlorobenzene		JJ
100-41-4Ethylbenzene	- 7	U
100-42-5Styrene	- - 7	U
1330-20-7Total Xylenes		J
1330-20-/IOCAI Aylenes	-  -	

1E VOLATILE ORGANICS ANALYSIS	EPA SAMPLE NO.
TENTATIVELY IDENTIFIED (	COMPOUNDS 1855C1
b Name: <u>RECRA ENVIRON</u>	Contract: <u>COO2412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u>	SAS No.: SDG No.: 0524
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>1855C1</u>
Sample wt/vol: $5.1$ (g/mL) G	Lab File ID: <u>G8954</u>
Level: (low/med) LOW	Date Received: 05/24/91
<pre>% Moisture: not dec32</pre>	Date Analyzed: 05/25/91
Column (nack/can) PACK	Dilution Factor: <u>1.00</u>

Column (pack/cap) PACK

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u>

Number TICs found: <u>0</u>

CAS NUMBER	COMPOUND NAME	RT =======	EST. CONC.	Q =====
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VOLATILE	ORGANICS	ANALYSIS	DATA	SHEET

	VOLATILE	ORGANICS ANALISIC			·	
Tab Name:	RECRA ENVI	RON	Contract: <u>CC</u>	002412	185	55C2
		Case No.: <u>SH991</u>			No.:	0524
		SOIL		Sample ID:		
		<u>5.1</u> (g/mL) <u>G</u>	Lab	o File ID:	<u>G896</u>	50
Level:				e Received:	<u>05/2</u>	24/91
<pre>% Moisture</pre>	: not dec.	<u>17</u>	Dat	ce Analyzed:	05/2	25/91
Column: ()	pack/cap)	PACK	Dil	lution Factor	:: <u>1.0</u>	00
CAS	NO.	COMPOUND		ATION UNITS: ug/Kg) <u>UG/KG</u>	<u>i</u>	Q
74- 75- 75- 75- 75- 75- 75- 75- 75- 75- 75	83 - 9	trans-1,3-dich Bromoform 4-Methyl-2-Pent 2-Hexanone Tetrachloroethe 1,1,2,2-Tetrach	ride		12 12 12 12 12 14 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	U U U U U B J B U U U U U U U U U U U U U

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#### LE VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

		EPA Sample No.
b Name: RECRA ENVIRONMENTAL, INC.		Contract: COO2
Lab Code: RECNY Case No: SH991	SAS No.:	SDG No.: 0524
Matrix (Soil/Water): SOIL		Lab Sample ID
Sample wt/vol: 5.1 (g/ml): G		Lab File ID.:
Level (low/med): LOW		Date Received
* Moisture not Dec: 17		Date Analyzed
Column (pack/cap): PACK		Dilution Facto
Number TICs Found: 1		Concentration

EPA Sample No.: 1855C2 Contract: C002412 SDG No.: 0524 Lab Sample ID.: 1855C2 Lab File ID.: G8960 Date Received: 05/24/91 Date Analyzed: 05/25/91 Dilution Factor: 1.00 Concentration Units:

(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	UNKNOWN	28.52	12	J
2				
3				
4		<b>]</b>		
<b>4</b> 5 6		1		
6				
7				
8				
9				
10				ļ
11				1
12 13 14 15 16 17				
13				
14				
15				1
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18 19				ţ
20		1		1
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22				
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24				
25				
26				
27				
28 29	· -	-		
29				
30				1

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VOLATILE	ORGANICS	ANALYSIS	DATA	SHEET	

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	1855C3	

VOLATILE ORGANICS ANALYSIS	DATA SHEET
	1855C3
> Name: <u>RECRA ENVIRON</u>	SDG No.: 0524
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u>	
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>1855C3</u>
Sample wt/vol:5.0 (g/mL) G	Lab File ID: <u>G8958</u>
Level: (low/med) LOW	Date Received: 05/24/91
<pre>% Moisture: not dec24</pre>	Date Analyzed: 05/25/91
Column: (pack/cap) <u>PACK</u>	Dilution Factor: <u>1.0</u>
Column: (pack/cap/ <u>rnon</u>	CONCENTER MICH
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> Q
74-87-3Chloromethane	13 U
74-87-3Bromomethane	
75-01-4Vinyl Chloride	13 U
75-00-3Chloroethane	
75-09-2Methylene Chlor	cide 3 BJ
67-64-1Acetone	55 B
75-15-0Carbon Disulfid	
75-35-41,1-Dichloroeth	nene 7 U
75-34-31,1-Dichloroeth	nane / 0
540-59-01,2-Dichloroeth	nene (total) 7 U
67-66-3Chloroform	7 0
107-06-21,2-Dichloroeth	nane 7 U
78-93-32-Butanone	
71-55-61,1,1-Trichlord	oethane / U
56-23-5Carbon Tetrach	loride 7 U
108-05-4Vinyl Acetate	
75-27-4Bromodichlorome	ethane 7 U
78-87-51,2-Dichloropro	opane 7 U
10061-01-5cis-1,3-dichlor	ropropene 7 U
79-01-6Trichloroethene	e 7 U
124-48-1Dibromochlorom	ethane / 0
79-00-51,1,2-Trichlor	oethane / 0
71-43-2Benzene	
10061-02-6trans-1,3-dich	loropropene 7 U
75-25-2Bromoform	/ 0
108-10-14-Methyl-2-Pen	tanone13 U
591-78-62-Hexanone	
127-18-4Tetrachloroeth	ene / 0
79-34-51,1,2,2-Tetrac	hloroethane / 0
108-88-3Toluene	2 0
108-90-7Chlorobenzene_	2 J
100-41-4Ethylbenzene	/  0   _
100-42-5Styrene	
1330-20-7Total Xylenes_	3 J

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1E VOLATILE ORGANICS ANALYSIS DATA SHEE	EPA SAMPLE NO.	
TENTATIVELY IDENTIFIED COMPOUNDS		1855C3
b Name: <u>RECRA ENVIRON</u> Contract:		
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.:		No.: <u>0524</u>
Matrix: (Soll/Water) <u>Bolg</u>	Lab Sample ID:	
Sample wt/vol: (9/		<u>G8958</u>
Level: (IOW/med) LOW	Date Received:	
Moisture: not dec. <u>24</u>	Date Analyzed:	05/25/91
Column (pack/cap) <u>PACK</u> I	Dilution Factor	: 1.0

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER COMPOUND NAME RT EST. CONC. Q

Number TICs found: <u>0</u>

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VOLATILE	ORGANICS	ANALYSIS	DATA	SHEET

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	100	5C4
b Name: <u>RECRA ENVIRON</u> Contract: <u>COO2412</u>	I	
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.: SDG		
Matrix: (soil/water) <u>SOIL</u> Lab Sample ID:		
Sample wt/vol: <u>5.1</u> (g/mL) <u>G</u> Lab File ID:		
Level: (low/med) LOW Date Received:		
<pre>% Moisture: not dec20 Date Analyzed:</pre>		
Column: (pack/cap) <u>PACK</u> Dilution Facto	r: <u>1.0</u>	0
CAS NO. COMPOUND CAS NO. COMPOUND (ug/L or ug/Kg) UG/K	<u>G</u>	Q
74-87-3Chloromethane         74-83-9Bromomethane         75-01-4Bromomethane         75-01-4Bromomethane         75-00-3Chloroethane         75-09-2	12 12 1 32 6 6 6 6 6 5 6 5 6 12	บ บ - บ
100-42-5Styrene 1330-20-7Total Xylenes	2	J

LE VOLATHLE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: RECRA ENV	IRONMENIAL, INC.	
Lab Code: RECNY	Case No: SH991	SAS No.:
Matrix (Soil/Water	): SOIL	
Sample wt/vol: 5.1	(g/ml): G	
Level (low/med): I	WO.	
* Moisture not Dec	:: 20	
Column (pack/cap):	PACK	
Number TICs Found:	1	

KPA Sample No.: 1855C4

Contract: C002412

SDG No.: 0524

Lab Sample ID.: 1855C4

Lab File ID.: G8959

Date Received: 05/24/91

Date Analyzed: 05/25/91

Dilution Factor: 1.00

Concentration Units:

(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1 110-54-3 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	HEXANE	17.20	8	J
17 18 19 20 21 22 23 24 25 26 27 28 29 30	-			

# FORM I VOA-TIC

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	11			
SEMIVOLATILE	ORGANICS	ANALYSIS	DATA	SHEET

	1855C1	
Tab Name: <u>RECRA ENVIRON</u> Contract	·	
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.	: SDG No.: <u>0524</u>	
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>1855C1</u>	
Sample wt/vol: <u>30.6</u> (g/mL) <u>G</u>	Lab File ID: 7433X	
Level: (low/med) LOW	Date Received: 05/24/91	
<pre>% Moisture: not dec. <u>16</u> dec</pre>	Date Extracted: <u>05/29/91</u>	
Extraction: (SepF/Cont/Sonc) SONC	Date Analyzed: 06/13/91	
GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>	Dilution Factor: <u>1.0</u>	

COMPOUND

CAS NO.

L

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

	770	υ
108-95-2Phenol	770	U
111-44-4bis(2-Chloroethyl)Ether	770	U
95-57-82-Chlorophenol		U
541-73-11,3-Dichlorobenzene	770	U
106-46-71,4-Dichlorobenzene	770	U
100-51-6Benzyl Alcohol		บ บ
100-51-6Benzyl Alcohol 95-50-11,2-Dichlorobenzene	770	U U
95-48-72-Methylphenol 108-60-1bis(2-Chloroisopropyl)Ether	770	1 - 1
108-60-1bis(2-Chloroisopropyl)Ether	770	U
106-44-54-Methylphenol 621-64-7N-Nitroso-Di-n-Propylamine 67-72-1Hexachloroethane	020	
621-64-7N-Nitroso-Di-n-Propylamine	770	U
67-72-1Hexachloroethane	770	U
98-95-3Nitrobenzene	770	U
78-59-1Isophorone	770	U
88-75-52-Nitrophenol	770	U
105-67-92,4-Dimethylphenol	770	U
65-85-0Benzoic Acid	3700	U _
111-91-1bis(2-Chloroethoxy)Methane	770	U
120-83-22,4-Dichlorophenol	770	U
120-83-2-11,2,4-Trichlorobenzene	33	J
91-20-3Naphthalene	100	J
106-47-84-Chloroaniline	770	U
87-68-3Hexachlorobutadiene	770	U
59-50-74-Chloro-3-Methylphenol	770	U
91-57-62-Methylnaphthalene	110	J
77-47-4Hexachlorocyclopentadiene	770	U
88-06-22,4,6-Trichlorophenol	770	U
	3700	U
95-95-42,4,5-Trichlorophenol	770	U
91-58-72-Chloronaphthalene	-	10
88-74-42-Nitroaniline	-	U
131-11-3Dimethyl Phthalate	-	J
208-96-8Acenaphthylene 606-20-22,6-Dinitrotoluene	- 770	U
606-20-22,6-Dinitrotoiuene	-	
		• I

# SEMIVOLATILE ORGANICS ANALYSIS DATA SALLI

	1855C1
Lab Name: <u>RECRA ENVIRON</u> Contract: <u>CO02412</u>	I
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.: SDG	No.: <u>0524</u>
There is a set of the	<u>1855C1</u>
Sample wt/vol: <u>30.6</u> (g/mL) <u>G</u> Lab File ID:	7433X
Level: (low/med) LOW Date Received:	05/24/91
<pre>% Moisture: not dec dec Date Extracted</pre>	: 05/29/91
Extraction: (SepF/Cont/Sonc) SONC Date Analyzed:	06/13/91
GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Facto	r: <u>1.0</u>
CAS NO. COMPOUND CONCENTRATION UNITS: (ug/L or ug/Kg) UG/K	

- 1			
	99-09-23-Nitroaniline	3700	U
	83-32-9Acenaphthene	340	J
	51-28-52,4-Dinitrophenol	3700	U
	100-02-74-Nitrophenol	3700	U
	132-64-9Dibenzofuran	200	J
	121-14-22,4-Dinitrotoluene	770	U
	94-66-2Diethylphthalate	770	U
	7005-72-34-Chlorophenyl-phenylether	770	U
	86-73-7Fluorene	360	J
	100-01-64-Nitroaniline	3700	U
	534-52-14,6-Dinitro-2-Methylphenol	3700	U
	86-30-6N-Nitrosodiphenylamine (1)	770	U
	101-55-34-Bromophenyl-phenylether	770	U
	118-74-1Hexachlorobenzene	770	U
	87-86-5Pentachlorophenol	3700	U
	85-01-8Phenanthrene	4000	
	120-12-7Anthracene	630	J
	84-74-2Di-n-Butylphthalate	130	J
	206-44-0Fluoranthene	<b>590</b> 0	
	129-00-0 <b>Pyrene</b>	3800	
	85-68-7Butylbenzylphthalate	240	J.
	91-94-13,3'-Dichlorobenzidine	1500	U
	56-55-3Benzo(a) Anthracene	2100	
	56-55-3Belizo(a) Altchitacente	2100	
	218-01-9Chrysene 117-81-7Bis(2-Ethylhexyl)Phthalate	3000	
	117-84-0Di-n-Octyl Phthalate	510	J
	205-99-2Benzo(b)Fluoranthene	3200	
	207-08-9Benzo(k)Fluoranthene	1200	
	50-32-8Benzo(a) Pyrene	1700	
	193-39-5Indeno(1,2,3-cd) Pyrene	420	J
	53-70-3Dibenz (a, h) Anthracene	770	U
	191-24-2Benzo(g,h,i)Perylene	290	J
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(1) - Cannot be separated from Diphenylamine

FORM I SV-2

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### 1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENIATIVELY IDENTIFIED COMPOUNDS

Lab Name: RECRA ENVIRONMENIAL, INC. Lab Code: RECNY Case No: SH991 SAS No .: Matrix (Soil/Water): SOIL Sample wt/vol: 30.6 (g/ml): G Level (low/med): LOW \* Moisture not Dec: 16 Dec: Extraction: (SepF/Cont/Sonc/Sox): SONC GPC Cleanup: (Y/N): Y pH: 7.6 Number TICs Found: 20

EPA Sample No.: 1855C1 Contract: C002412 SDG No.: 0524 Lab Sample ID.: 1855Cl Lab File ID.: 7433X Date Received: 05/24/91 Date Extracted: 05/29/91 Date Analyzed: 06/13/91 Dilution Factor: 1.0

Concentration Units: (ug/L or ug/Kg)

CAS NUMBER		(ug/	Lorug/Kg) UG/	KG
	COMPOUND NAME	RT	EST. CONC.	Q
1 2 3 4 5 6 7 8 9 10 11 2 3 4 5 5 6 7 8 9 9 0 1 2 2 3 4 5 5 6 7 8 9 9 0 1 2 2 3 4 5 5 6 7 8 9 9 0 1 1 2 3 4 5 5 6 7 8 9 10 11 2 1 2 11 2 11 2 11 2 11 2 11 2	ALKYL SATURATED HYDROCARBON UNKNOWN ACID LONG CHAIN HYDROCARBON UNKNOWN UNKNOWN UNKNOWN ACID UNKNOWN LONG CHAIN HYDROCARBON UNKNOWN UNKNOWN LONG CHAIN HYDROCARBON UNKNOWN PAH DERIVATIVE LONG CHAIN HYDROCARBON LONG CHAIN HYDROCARBON LONG CHAIN HYDROCARBON UNKNOWN	24.68 25.67 25.98 27.22 27.77 27.90 28.07 28.77 29.55 30.67 30.80 32.77 33.82 34.13 34.83 35.20 35.47 39.95 38.38 38.68	1100 17000 1500 1200 7000 5500 1800 1500 2900 2300 6100 6800 6000 4500 4200 26000 7600 2100	<b>JJJJJJJJJJJJJJJJJJJJJ</b> JJJJJJJJJJJJJJJ

FORM I SV-TIC

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# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

1B

b Name: <u>RECRA ENVIRON</u> Contract:	<u>coo2412</u>	1855C2
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.:	: SDG 1	No.: <u>0524</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID:	1855C2
Sample wt/vol: <u>30.4</u> (g/mL) <u>G</u>	Lab File ID:	7445X
Level: (low/med) LOW	Date Received:	05/24/91
<pre>% Moisture: not dec dec</pre>	Date Extracted:	05/29/91
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Analyzed:	<u>06/14/91</u>
GPC Cleanup: (Y/N) Y pH: 7.4	Dilution Factor	: <u>1.0</u>

COMPOUND

CAS NO.

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

	720	U
108-95-2Phenol	720	υ
111-44-4bis(2-Chloroethyl)Ether	720	U
95-57-82-Chlorophenol	· - ·	U
541-73-11,3-Dichlorobenzene	720	-
106-46-71,4-Dichlorobenzene	720	U
100-51-6Benzyl Alcohol	720	U
95-50-11,2-Dichlorobenzene	720	U
95-48-72-Methylphenol	720	U
108-60-1bis(2-Chloroisopropyl)Ether	720	U
106-44-54-Methylphenol	81	J
521-64-7N-Nitroso-Di-n-Propylamine	720	U
57-72-1Hexachloroethane	720	U
98-95-3Nitrobenzene	720	U
78-59-1Isophorone	720	U
38-75-52-Nitrophenol	720	U
05-67-92,4-Dimethylphenol	720	U
	3500	U
111-91-1bis(2-Chloroethoxy)Methane	720	U
20-83-22,4-Dichlorophenol	720	U -
120-83-2-11,2,4-Trichlorobenzene	720	Ū
91-20-3Naphthalene	77	J
106-47-84-Chloroaniline	720	U
B7-68-3Hexachlorobutadiene	720	U
59-50-74-Chloro-3-Methylphenol	720	U
91-57-62-Methylnaphthalene	59	J
77-47-4Hexachlorocyclopentadiene	720	U
	720	U
88-06-22,4,6-Trichlorophenol	3500	UU
95-95-42,4,5-Trichlorophenol	720	
91-58-72-Chloronaphthalene	3500-	-
88-74-42-Nitroaniline		
131-11-3Dimethyl Phthalate	720	U
208-96-8Acenaphthylene	720	U
606-20-22,6-Dinitrotoluene	720	

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1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

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	1855C2
ab Name: <u>RECRA ENVIRON</u>	Contract: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u>	SAS NO.: SDG No.: 0524
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>1855C2</u>
Sample wt/vol: <u>30.4</u> (g/mL) G	G Lab File ID: 7445X
Level: (low/med) LOW	Date Received: 05/24/91
<pre>% Moisture: not dec10 dec</pre>	Date Extracted: 05/29/91
	SONC Date Analyzed: 06/14/91
GPC Cleanup: (Y/N) Y pH:	<u>7.4</u> Dilution Factor: <u>1.0</u>

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

CAS NO.	COMPOUND	(ug/L or	ug/Kg)		Q
99-09-2	3-Nitroaniline			3500	U
83-32-9	Acenaphthene			490	J
51-28-5	2,4-Dinitrophend	1		3500	U
100-02-7	4-Nitrophenol			3500	U
132-64-9	Dibenzofuran			280	J
121-14-2	2,4-Dinitrotolue	ne	1	720	U
04-66-2	Diethvlphthalate	2		720	U
7005-72-3	4-Chlorophenyl-	henylether		720	U
96-73-7	Fluorene	_		520	J
100-01-6	4-Nitroaniline			3500	U
524-52-1	4,6-Dinitro-2-Me	thylphenol		3500	U
554-52-1	N-Nitrosodiphen	vlamine (1)		720	U
101 55-2	4-Bromophenyl-pl	henvlether		720	U
101-55-5	Hexachlorobenze	ne		720	U
118-/4-1	Pentachlorophen			3500	U
8/-86-5	Phenanthrene			9700	
85-01-8				1000	
120-12-/	Anthracene Di-n-Butylphtha	late		150	J
84-74-2	Fluoranthene			16000	E
206-44-0				7800	
129-00-0	Fyrene	alate		320	J
85-68-7	Butylbenzylphth 3,3'-Dichlorobe	nzidine		1400	U
91-94-1	Benzo(a)Anthrac	ene		3300	1
A1A A1 A	Chrucada			4300	
218-01-9	Bis(2-Ethylhexy	1) Phthalate	2	14000	E
11/-81-/	Di-n-Octyl Phth	alate		550	J
117-84-0		thene		7900	
205-99-2	Benzo(b)Fluoran	thene		2800	
207-08-9	Benzo(k)Fluoran	LITEILE	<u> </u>	2900	
50-32-8	Benzo(a) Pyrene Indeno(1,2,3-cd	Durane	T	1200	
193-39-5	indeno(1,2,3-co	JEATENE		220	J
53-70-3	Dibenz(a,h)Anth Benzo(g,h,i)Per	racene	l	800	
		<u></u>		000	1

(1) - Cannot be separated from Diphenylamine

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### 1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENIATIVELY IDENTIFIED COMPOUNDS

Lab Name: RECRA ENVIRON	TENIAL, INC.
Lab Code: RECNY Cas	se No: SH991 SAS No.:
Matrix (Soil/Water): So	
Sample wt/vol: 30.4	(g/ml): G
Level (low/med): LOW	
& Moisture not Dec: 10	Dec:
Extraction: (SepF/Cont,	/Sanc/Sax): SONC
GPC Cleanup: (Y/N): Y	pH: 7.4

Number TICs Found: 20

EPA Sample No.: 1855C2 Contract: C002412 SDG No.: 0524 Lab Sample ID.: 1855C2 Lab File ID.: 7445X Date Received: 05/24/91 Date Extracted: 05/29/91 Date Analyzed: 06/14/91 Dilution Factor: 1.0 Concentration Units:

(ug/L or ug/Kg)

UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
L 2 3 4 5 5 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	UNKNOWN ACID UNKNOWN PAH DERIVATIVE UNKNOWN PAH DERIVATIVE PAH DERIVATIVE UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN PAH DERIVATIVE UNKNOWN	25.32 25.55 27.77 27.70 28.53 28.75 29.08 29.47 30.10 30.45 30.57 30.80 32.07 32.55 32.65 33.57 33.88 34.15 35.37 35.60	1800 1700 2000 2000 3800 1600 2000 3200 4900 4500 3100 2900 8700 5800 1600 3100 4500 3300 3200 6800	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

COMPOUND

CAS NO.

Contra	ct: <u>C002412</u>
b Name: <u>RECRA ENVIRON</u> Contra	
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS N	o.: SDG No.: <u>0524</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>1855C2DL</u>
Sample wt/vol: (g/mL) <u>G</u>	Lab File ID: 7471X
	Date Received: 05/24/91
Level: (low/med) LOW	
<pre>% Moisture: not dec dec</pre>	Date Extracted: 05/29/91
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Analyzed: 06/17/91
GPC Cleanup: $(Y/N) Y$ pH: <u>7.4</u>	Dilution Factor: <u>5.0</u>

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

		1
108-95-2Phenol	3600	U
108-95-2Phenol 111-44-4bis(2-Chloroethyl)Ether		U
of 57-8	3600	U
95-57-82-Chlorophenol 541-73-11,3-Dichlorobenzene	3600	U
106-46-71,4-Dichlorobenzene	3600	U
106-462/202000-1,4 Dichicrosomo	3600	U
100-51-6Benzyl Alcohol 95-50-11,2-Dichlorobenzene	3600	ט
95-50-1-0-0-1,2 Dickiclobelister	3600	U
95-48-72-Methylphenol 108-60-1bis(2-Chloroisopropyl)Ether_	3600	U
108-60-1	- 3600	U
106-44-54-Methylphenol 621-64-7N-Nitroso-Di-n-Propylamine	- 3600	U
621-64-/NILIOSO-DI-M HOppiumine	- 3600	U
67-72-1Hexachloroethane	- 3600	U
98-95-3Nitrobenzene	- 3600	U
78-59-1Isophorone 88-75-52-Nitrophenol 105-67-92,4-Dimethylphenol	- 3600	U
88-75-52-Nitrophenol	- 3600	Ū
105-67-92,4-Dimethylphenol	- 18000	Ū
65-85-0Benzoic Acid 111-91-1bis(2-Chloroethoxy)Methane	- 3600	U ·
111-91-1bis (2-Chloroetnoxy) Methane	- 3600	U
120-83-22,4-Dichlorophenol	- 3600	υ
120-82-11,2,4-Trichlorobenzene		Ŭ
91-20-3Naphthalene		U
106-47-84-Chloroaniline	—	U
87-68-3Hexachlorobutadiene		U
59-50-74-Chloro-3-Methylphenol	- 80	DJ
91-57-62-Methylnaphthalene		U
77-47-4Hexachlorocyclopentadiene	- 3600	U
91-57-6PethyInaphthalenc 77-47-4Hexachlorocyclopentadiene 88-06-22,4,6-Trichlorophenol 95-95-42,4,5-Trichlorophenol	- 3600	υ
95-95-42,4,5-Trichlorophenol	18000	U
91-58-72-Chloronaphthalene		· ·
88-74-42-Nitroaniline	18000	U
131-11-3Dimethyl Phthalate		U
208-96-8Acenaphthylene 606-20-22,6-Dinitrotoluene	3600	U
606-20-22.6-Dinitrotoluene	3600	U

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	1855C2DL
b Name: <u>RECRA ENVIRON</u> Contract: <u>COO24</u> ;	.2
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.:	SDG No.: 0524
Matrix: (soil/water) <u>SOIL</u> Lab San	ple ID: <u>1855C2DL</u>
Sample wt/vol: <u>30.4</u> (g/mL) <u>G</u> Lab Fil	e ID: <u>7471X</u>
	eceived: 05/24/91
<pre>% Moisture: not dec dec Date E:</pre>	ctracted: <u>05/29/91</u>
Extraction: (SepF/Cont/Sonc) SONC Date A	nalyzed: <u>06/17/91</u>
GPC Cleanup: (Y/N) Y pH: 7.4 Dilution	on Factor: <u>5.0</u>

COMPOUND

CAS NO.

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

	· · · · · · · · · · · · · · · · · · ·		
99-09-2	3-Nitroaniline	18000	U
02-22-0	lcenaphthene	670	DJ
51-28-5	2,4-Dinitrophenol	18000	U
100-02-7	4-Nitrophenol	18000	U
132-64-9	Dibenzofuran	340	DJ
121-14-2	2,4-Dinitrotoluene	3600	U
04-66-2	Diethvlphthalate	3600	U
7005-72-3	4-Chlorophenyl-phenylether	3600	U
7003-72 J	Fluorene	710	DJ
100-01-6	4-Nitroaniline	18000	U
524-52-1	4,6-Dinitro-2-Methylphenol	18000	U
534-52-1	N-Nitrosodiphenylamine (1)	3600	U
301 55 3	4-Bromophenyl-phenylether	3600	U
101-55-3	Hexachlorobenzene	3600	υ
118-74-1	Pentachlorophenol	18000	U
8/-86-5	Phenanthrene	9000	D
	Anthracene	1100	DJ
120-12-7	Di-n-Butylphthalate	3600	U
84-/4-2	Fluoranthene	8500	D
206-44-0		8400	D
129-00-0	Pyrene	430	DJ
85-68-/	3,3'-Dichlorobenzidine	7200	U
91-94-1	Benzo(a)Anthracene	3900	D
		5000	D
218-01-9	Bis (2-Ethylhexyl) Phthalate	13000	D
117-81-7	Di-n-Octyl Phthalate	350	DJ
117-84-0			D
205-99-2	Benzo(b)Fluoranthene	-	LDJ
207-08-9	Benzo(k)Fluoranthene	-	DJ
50-32-8	Benzo(a) Pyrene Indeno(1,2,3-cd) Pyrene	1300	DJ
193-39 <del>-5</del>	Indeno(1,2,3-ca) Pyrene	3600	U
53-70-3	Dibenz(a,h)Anthracene	- 930	DJ.
191-24-2	Benzo(g,h,i)Perylene	-	
-			

(1) - Cannot be separated from Diphenylamine

#### 1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Tab Name: RECRA ENVIRONMENTAL, INC.
Lab Code: RECINY Case No: SH991 SAS No.:
Matrix (Soil/Water): SOIL
Sample wt/vol: 30.4 (g/ml): G
Level (low/med): LOW
* Moisture not Dec: 10 Dec:
Extraction: (SepF/Cont/Sonc/Sox): SONC
GPC Cleanup: (Y/N): Y pH: 7.4
Number TICs Found: 1

EPA Sample No.: 1855C2DL

Contract: C002412

SDG No.: 0524

Lab Sample ID.: 1855C2DL

Lab File ID.: 7471X

Date Received: 05/24/91

Date Extracted: 05/29/91

Date Analyzed: 06/17/91

Dilution Factor: 5.0

## Concentration Units: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	PAH DERIVATIVE	34.93	15000	J
2				
3				
4				
5				
6		:		
7				
8				
9	-			
10				
11				
12				
13				
14				
15				
16				1
17				1
18				
19				1
20				
21				
22				
14 15 16 17 18 19 20 21 22 23 24 25 26				
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- 28				
29 30				
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# SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

1B

Lab Name: <u>RECRA ENVIRON</u> Contract	1855C2RE
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.	: SDG No.: <u>0524</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>1855C2RE</u>
Sample wt/vol: (g/mL) <u>G</u>	Lab File ID: 7469X
Level: (low/med) LOW	Date Received: 05/24/91
* Moisture: not dec. <u>10</u> dec	Date Extracted: 05/29/91
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Analyzed: 06/17/91
GPC Cleanup: (Y/N) Y pH: 7.4	Dilution Factor: <u>1.0</u>

CAS NO. COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u>

Q

108-95-2Phenol	720	υ
111-44-4bis (2-Chloroethyl) Ether	720	U
95-57-82-Chlorophenol	720	U
541-73-11,3-Dichlorobenzene	720	U
106-46-7	720	U
100-51-6Benzyl Alcohol	720	U
95-50-11,2-Dichlorobenzene	720	U
95-48-72-Methylphenol	720	U
108-60-1bis (2-Chloroisopropyl) Ether	720	U
108-80-1	170	J
621-64-7N-Nitroso-Di-n-Propylamine	720	U
67-72-1Hexachloroethane	720	U
98-95-3Nitrobenzene	720	U
78-59-1Isophorone	720	U
88-75-52-Nitrophenol	720	U
105-67-92,4-Dimethylphenol	720	U
65-85-0Benzoic Acid	160	ВJ
111-91-1bis(2-Chloroethoxy)Methane	720	U
120-83-22, 4-Dichlorophenol	720	Ū -
120-83-2-11,2,4-Trichlorobenzene	720	Ū
91-20-3Naphthalene	91	3
106-47-84-Chloroaniline	720	U
87-68-3Hexachlorobutadiene	720	U
59-50-74-Chloro-3-Methylphenol	720	U
91-57-62-Methylnaphthalene	67	J
77-47-4Hexachlorocyclopentadiene	720	U
88-06-22,4,6-Trichlorophenol	720	U
95-95-42,4,5-Trichlorophenol	3500	U
91-58-72-Chloronaphthalene	720	U
88-74-42-Nitroaniline	3500	U
131-11-3Dimethyl Phthalate	720	U
208-96-8Acenaphthylene	720	U
606-20-22,6-Dinitrotoluene	720	U
	1	
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## 1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

Lab Name: PECRA ENVIRON Contract: CO02412	1855C2RE
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.: SI	DG No.: <u>0524</u>
Matrix: (soil/water) <u>SOIL</u> Lab Sample I	D: <u>1855C2RE</u>
Sample wt/vol: <u>30.4</u> (g/mL) <u>G</u> Lab File ID:	<u>7469X</u>
Level: (low/med) LOW Date Received	d: <u>05/24/91</u>
* Moisture: not dec. <u>10</u> dec. <u>Date Extract</u>	ed: <u>05/29/91</u>
Extraction: (SepF/Cont/Sonc) <u>SONC</u> Date Analyze	d: <u>06/17/91</u>
GPC Cleanup: $(Y/N)$ Y pH: <u>7.4</u> Dilution Factor	tor: <u>1.0</u>

COMPOUND

CAS NO.

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u>

Q

	3500	U
99-09-23-Nitroaniline	- 480	J
83-32-9Acenaphthene	- 3500	U
51-28-52,4-Dinitrophenol	_1	υ
100-02-74-Nitrophenol	3500	_
132-64-9Dibenzofuran	270	J
121-14-22,4-Dinitrotoluene	720	U
84-66-2Diethylphthalate	720	U
7005-72-34-Chlorophenyl-phenylether	720	U
86-73-7Fluorene	560	J
100-01-64-Nitroaniline	3500	ט
534-52-14,6-Dinitro-2-Methylphenol	3500	U
86-30-6N-Nitrosodiphenylamine (1)	- 720	U
101-55-34-Bromophenyl-phenylether	720	U
118-74-1Hexachlorobenzene	720	U
87-86-5Pentachlorophenol	3500	U
85-01-8Phenanthrene	9900	
120-12-7Anthracene	1400	
84-74-2Di-n-Butylphthalate	230	J
206-44-0Fluoranthene	- 14000	E
129-00-0Pyrene	- 8200	
85-68-7Butylbenzylphthalate	- 720	U
91-94-13,3'-Dichlorobenzidine	- 1400	U
56-55-3Benzo(a) Anthracene	3500	
218-01-9Chrysene	4900	
117-81-7Bis(2-Ethylhexyl)Phthalate	20000	E
117-84-0Di-n-Octyl Phthalate	970	
	- 7309	
205-99-2Benzo(b)Fluoranthene	- 3000	
207-08-9Benzo(k)Fluoranthene	- 3900	
50-32-8Benzo(a) Pyrene	- 1000	1
193-39-5Indeno(1,2,3-cd) Pyrene	210	Ъ
53-70-3Dibenz(a,h)Anthracene	- 710	J
191-24-2Benzo(g,h,i)Perylene	-1 /10	10

(1) - Cannot be separated from Diphenylamine

#### 1F SEMIVOLATTLE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

ab Name: RECRA ENVIRONMENIAL, INC.
Lab Code: RECNY Case No: SH991 SAS No.:
Matrix (Soil/Water): SOIL
Sample wt/vol: 30.4 (g/ml): G
Level (low/med): LOW
* Moisture not Dec: 10 Dec:
Extraction: (SepF/Cont/Sonc/Sox): SONC
GPC Cleanup: (Y/N): Y pH: 7.4

# Number TICs Found: 20

EPA Sample No.: 1855CRE

Contract: C002412

SDG No.: 0524

Lab Sample ID.: 1855C2RE

Lab File ID.: 7469X

Date Received: 05/24/91

Date Extracted: 05/29/91

Date Analyzed: 06/17/91

Dilution Factor: 1.0

Concentration Units: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1	OXYGENATED COMPOUND	5.18	25000	J
2	UNKNOWN ACID	25.17	3300	J
3	UNKNOWN	27.42	1800	J
4	UNKNOWN ACID	27.62	2900	J
5	UNKNOWN	27.73	1900	J
6	UNKNOWN	28.03	1800	J
7	PAH DERIVATIVE	28.37	3800	J
8	UNKNOWN	29.02	2500	J
9	LINKNOWN	29.90	5100	J
10	LINKNOWN	30.38	3700	J
11	UNKNOWN	30.50	3200	J
12	LINKNOWN	30.62	1900	J
13	LINKNOWN	31.92	14000	J
14	LONG CHAIN HYDROCARBON	32.38	10000	J
15	LONG CHAIN HYDROCARBON	33.42	8200	J
16	LONG CHAIN HYDROCARBON	33.73	6800	J
17	LINKNOWN	34.42	7100	J
18	LINKNOWN	34.52	4200	J
19	UNKNOWN	35.03	7300	J
20	LONG CHAIN HYDROCARBON	35.43	16000	J
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1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

COMPOUND

CAS NO.

	: <u>CO02412</u>	1855C3
ab Name: <u>RECRA ENVIRON</u> Contract		
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.	: SDG 1	No.: <u>0524</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID:	<u>1855C3</u>
Sample wt/vol: <u>30.6</u> (g/mL) <u>G</u>	Lab File ID:	7446X
Level: (low/med) LOW	Date Received:	05/24/91
<pre>% Moisture: not dec dec</pre>	Date Extracted:	05/29/91
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Analyzed:	06/14/91
GPC Cleanup: (Y/N) <u>Y</u> pH: <u>8.1</u>	Dilution Factor	: <u>1.0</u>

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

	840	U
108-95-2Phenol		U
111-44-4bis(2-Chloroethyl)Ether	•••	U
95-57-82-Chlorophenol		U
541-73-11,3-Dichlorobenzene	1	U
106-46-71,4-Dichlorobenzene		U U
100-51-6Benzyl Alcohol		
95-50-11,2-Dichlorobenzene		U
95-48-72-Methylphenol	÷ • •	U
108-60-1bis(2-Chloroisopropyl)Ether	•••	U
	150	J
106-44-54-Methylphenol 621-64-7N-Nitroso-Di-n-Propylamine	840	U
67-72-1Hexachloroethane	840	U
98-95-3Nitrobenzene	840	U
78-59-1Isophorone	840	U
88-75-52-Nitrophenol	840	U
105-67-92,4-Dimethylphenol	840	U
65-85-0Benzoic Acid	4100	U
111-91-1bis(2-Chloroethoxy)Methane	840	U -
111-91-1	840	U
120-83-2	840	υ
	840	U
91-20-3Naphthalene	840	U
106-47-84-Chloroaniline	840	Ū
87-68-3Hexachlorobutadiene	840	Ū
59-50-74-Chloro-3-Methylphenol	64	J
91-57-62-Methylnaphthalene	840	U
77-47-4Hexachlorocyclopentadiene	840	U
88-06-22,4,6-Trichlorophenol	4100	U
95-95-42,4,5-Trichlorophenol		U
91-58-72-Chloronaphthalene	840	Ū
88-74-42-Nitroani <del>li</del> ne	4100	-
131-11-3Dimethyl Phthalate	840	U
208-96-8Acenaphthylene	840	U
606-20-22,6-Dinitrotoluene	840	U
	1	1

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SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

COMPOUND

CAS NO.

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1855C3 ab Name: RECRA ENVIRON Contract: CO02412 Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.: \_\_\_\_\_ SDG No.: <u>0524</u> Lab Sample ID: <u>1855C3</u> Matrix: (soil/water) SOIL Lab File ID: 7446X Sample wt/vol: <u>30.6</u> (g/mL) <u>G</u>\_\_\_\_ Date Received: 05/24/91 Level: (low/med) LOW Date Extracted: <u>05/29/91</u> % Moisture: not dec. \_\_\_\_ dec. \_\_\_\_ Date Analyzed: 06/14/91 Extraction: (SepF/Cont/Sonc) <u>SONC</u> Dilution Factor: 1.0 GPC Cleanup: (Y/N) Y pH: <u>8.1</u>

> CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

	4100	U
99-09-23-Nitroaniline	840	U
83-32-9Acenaphthene 51-28-52,4-Dinitrophenol	4100	U
51-28-52,4-Diniciophenoi	4100	U
100-02-74-Nitrophenol	78	J
132-64-9Dibenzofuran	840	U
121-14-22,4-Dinitrotoluene	840	U
84-66-2Diethylphthalate	840	U
7005-72-34-Chlorophenyl-phenylether	140	J
86-73-7Fluorene		U
100-01-64-Nitroaniline	4100	υ
534-52-14,6-Dinitro-2-Methylphenol	4100	•
86-30-6N-Nitrosodiphenylamine (1)	840	U
101-55-34-Bromophenyl-phenylether	840	U
118-74-1Hexachlorobenzene	840	U
87-86-5Pentachlorophenol	4100	U
85-01-8Phenanthrene	1600	
120-12-7Anthracene	640	J
84-74-2Di-n-Butylphthalate	840	ע -
206-44-0Fluoranthene	3200	1
129-00-0Pyrene	1800	
85-68-7Butylbenzylphthalate	220	J
91-94-1	1700	U
56-55-3Benzo(a) Anthracene	1100	
218-01-9Chrysene	1400	
117-81-7Bis (2-Ethylhexyl) Phthalate	3600	
117-84-0Di-n-Octyl Phthalate	410	J
	2300	
205-99-2Benzo(b)Fluoranthene	680	JJ
207-08-9Benzo(k)Fluoranthene	930	-
50-32-8Benzo(a) Pyrene	370	- J
193-39-5Indeno(1,2,3-cd)Pyrene	840	U
53-70-3Dibenz(a,h)Anthracene	240	J
191-24-2Benzo(g,h,i)Perylene	. 240	
		_ 1

(1) - Cannot be separated from Diphenylamine

#### 1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

b Name: RECRA ENVIRONMENIAL, INC.
Lab Code: RECNY Case No: SH991 SAS No.:
Matrix (Soil/Water): SOIL
Sample wt/vol: 30.6 (g/ml): G
Level (low/med): LOW
* Moisture not Dec: 23 Dec:
Extraction: (SepF/Cont/Sonc/Sox): SONC
GPC Cleanup: (Y/N): Y pH: 8.1

Number TICs Found: 18

EPA Sample No.: 1855C3 Contract: C002412 SDG No.: 0524 Lab Sample ID.: 1855C3 Lab File ID.: 7446X Date Received: 05/24/91 Date Extracted: 05/29/91 Date Analyzed: 06/14/91

Dilution Factor: 1.0

# Concentration Units: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
$ \begin{array}{c} 1\\ 2\\ 3\\ 4\\ 5\\ 6\\ 7\\ 8\\ 9\\ 10\\ 11\\ 12\\ 13\\ 14\\ 15\\ 16\\ 17\\ 18\\ 19\\ 20\\ 21\\ 22\\ 23\\ 24\\ 25\\ 26\\ 27\\ 28\\\\ 29\\ 30\\ \end{array} $	ALKYL SATURATED HYDROCARBON ALKYL SATURATED HYDROCARBON UNKNOWN ACID ALKYL SATURATED HYDROCARBON UNKNOWN ACID UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN	18.65 20.27 25.40 25.78 27.02 27.85 28.15 28.62 29.35 30.45 31.52 32.05 32.55 33.57 34.13 34.93 35.33 35.67	470 730 4900 890 1200 6200 4400 550 1100 3100 6600 4800 3900 2500 1700 2100 1300 1800	<b>J J J J J J J J J J J J J J J J J J J </b>

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# 1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

	1855C4
ab Name: <u>RECRA ENVIRON</u> Contract: <u>CO02412</u>	<del></del>
	No.: <u>0524</u>
Matrix: (soil/water) SOIL Lab Sample ID:	1855C4
Sample wt/vol: <u>30.9</u> (g/mL) <u>G</u> Lab File ID:	<u>7447X</u>
Level: (low/med) LOW Date Received:	05/24/91
<pre>% Moisture: not dec dec Date Extracted:</pre>	05/29/91
Extraction: (SepF/Cont/Sonc) <u>SONC</u> Date Analyzed:	06/14/91
GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor	: <u>1.0</u>

COMPOUND

CAS NO.

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

	780	υ
108-95-2Phenol	780	U
111-44-4bis(2-Chloroethyl)Ether	780	U
95-57-82-Chlorophenol	780	U
541-73-11.3-Dichlorobenzene	780	υ
106-46-71,4-Dichlorobenzene	780	U U
100-51-6Benzyl Alcohol		υ
95-50-11,2-Dichlorobenzene	780	υ
os_/g_72-Methvlphenol	780	
108-60-1bis(2-Chloroisopropyl)Ether	780	U
106-44-5	42	J
621-64-7N-Nitroso-Di-n-Propylamine	780	U
67-72-1Hexachloroethane	780	U
98-95-3Nitrobenzene	780	ט
78-59-1Isophorone	780	U
88-75-52-Nitrophenol	780	U
105-67-92,4-Dimethylphenol	780	U
65-85-0Benzoic Acid	3800	U
111-91-1bis(2-Chloroethoxy)Methane	780	υ.
120-83-22,4-Dichlorophenol	780	U
120-83-2-1	780	U
91-20-3Naphthalene	780	U
106-47-84-Chloroaniline	780	U
87-68-3Hexachlorobutadiene	780	U
59-50-74-Chloro-3-Methylphenol	780	U
91-57-62-Methylnaphthalene	780	U
77-47-4Hexachlorocyclopentadiene	780	U
77-47-4	780	U
88-06-22,4,6-Trichlorophenol	3800	U
95-95-42,4,5-Trichlorophenol	780	U
91-58-72-Chloronaphthalene	- 3800	U
88-74-42-Nitroaniline	780	Ū
131-11-3Dimethyl Phthalate	780	U
208-96-8Acenaphthylene	780	U .
606-20-22,6-Dinitrotoluene	-	1
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FORM I SV-1

1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

1855C4 Lab Name: RECRA ENVIRON Contract: CO02412 Lab Code: RECNY Case No.: SH991 SAS No.: \_\_\_\_\_ SDG No.: 0524\_\_\_ Lab Sample ID: 1855C4 Matrix: (soil/water) SOIL Sample wt/vol: 30.9 (g/mL) G Lab File ID: 7447X Date Received: 05/24/91 Level: (low/med) LOW Date Extracted: 05/29/91 \* Moisture: not dec. <u>18</u> dec. \_\_\_\_

Extraction: (SepF/Cont/Sonc) <u>SONC</u> Date Analyzed: <u>06/14/91</u> GPC Cleanup: (Y/N) Y pH: 7.6 Dilution Factor: 1.0

> CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

CAS NO.	COMPOUND (ug/L or ug	/Kg) <u>UG/KG</u>	Q
99-09-2	3-Nitroaniline	3800 U	
93-33-9	Acenaphthene	140 J	
51-28-5	2,4-Dinitrophenol	3800 U	
31-28-5-	4-Nitrophenol	3800 1	
137-64-9	Dibenzofuran	86 J	
121-14-2	2,4-Dinitrotoluene	780 0	
04-66-2	Diethvlohthalate	780 1	
7005-72-3	4-Chlorophenyl-phenylether	780 0	
96-73-7	Fluorene	780 U	
100-01-6	4-Nitroaniline	3800 [	
534-52-1	4,6-Dinitro-2-Methylphenol	<b>3800 T</b>	
96-30-6	N-Nitrosodiphenylamine (1)	/80 [0	
101-55-3	4-Bromophenyl-phenylether	/00 1	J
118-74-1	Hexachlorobenzene	1	IJ
	Pentachlorophenol	- 3800 T	U
8/-80-9	Phenanthrene	1700	
85-01-8	Anthracene	- 780 1	U
	Di-n-Butylphthalate	130	ງ
306-44-0	Fluoranthene	3700	
	Pyrene	2000	
129-00-0	Butylbenzylphthalate	480	J
85-88-7	3,3'-Dichlorobenzidine	1600	U
54-55-3	Benzo(a)Anthracene	1000	
218-01-8		1200	
	Bis (2-Ethylhexyl) Phthalate	7700	
	Di-n-Octyl Phthalate		J
205-99-2	Benzo(b)Fluoranthene	2200	
203-33-2	Benzo(k)Fluoranthene	860	
207-00-9	Benzo(a) Pyrene	- 940	
	Benzo(a)Pyrene Indeno(1,2,3-cd)Pyrene	- 780	U
133-33-3	Dibenz(a,h)Anthracene	780	U
	Benzo(g,h,i)Perylene	- 780	U
171-24-2		-	

(1) - Cannot be separated from Diphenylamine

ab Name: RECRA ENVIRONMENIAL, INC.

Lab Code: RECNY Case No: SH991 SAS No.: Matrix (Soil/Water): SOIL Sample wt/vol: 30.9 (g/ml): G Level (low/med): LOW % Moisture not Dec: 18 Dec: Extraction: (SepF/Cont/Sonc/Sox): SONC

GPC Cleanup: (Y/N): Y pH: 7.6

Number TICs Found: 20

Concentration Units: (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ALKYL SATURATED HYDROCARBON ALKYL SATURATED HYDROCARBON ALKYL SATURATED HYDROCARBON ALKYL SATURATED HYDROCARBON UNKNOWN ACTD UNKNOWN ACTD UNKNOWN ALKYL SATURATED HYDROCARBON UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN UNKNOWN LONG CHAIN HYDROCARBON UNKNOWN HYDROCARBON PAH DERIVATIVE	20.20 20.87 21.75 23.20 24.32 25.28 25.55 25.77 26.65 27.77 27.90 28.20 28.55 29.35 30.45 31.52 32.08 32.55 33.57 35.33	930 730 2000 1600 770 1600 1200 1200 1300 2600 1600 1900 3900 1900 5600 15000 6200 7100 6000 1000	<b>ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ ひ </b>

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TDA	Sample	No ·	1855C4
BFA	SOULCE		TODDCT

Contract: C002412

SDG No.: 0524

Lab Sample ID.: 1855C4

Lab File ID.: 7447X

Date Received: 05/24/91

Date Extracted: 05/29/91

Date Analyzed: 06/14/91

Dilution Factor: 1.0

# EPA SAMPLE NO. 38

	1D ORGANICS ANALYSIS DATA SHE	EFA SAN	
		C1	
Name: RECRA ENVIR	ON Contract:		
Code: <u>RECNY</u> C	ase No.: <u>SH991</u> SAS No.:	SDG No.: 052	.4
rix: (soil/water)		Lab Sample ID: <u>SS4171</u>	
	<u>30.6</u> (g/mL) <u>G</u>	Lab File ID:	
vel: (low/med)	LOW	Date Received: 05/24/9	
	<u>16</u> dec	Date Extracted: 05/29/9	
		Date Analyzed: 06/19/9	
Cleanup: (Y/N)		Dilution Factor: <u>1.00</u>	<u>0</u>
CAS NO.	CONCEN	NTRATION UNITS: or ug/Kg) <u>UG/KG</u> (	Q
319-85-7 319-86-8 58-89-9 76-44-8 309-00-2 1024-57-3 959-98-8 959-98-8 72-55-9 72-55-9 72-54-8 3213-65-9 72-54-8 50-29-3 50-29-3 5103-71-9 5103-74-2 8001-35-2 12674-11-2	Endosulfan II 4,4'-DDD Endosulfan sulfate	19       U         37       U         190       U	-
11141-16-5	Aroclor-1232 Aroclor-1242 Aroclor-1248		



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#### 39 EPA SAMPLE NO.

	GANICS ANALYSIS DAT.	a sheet	
PESTICIDE OR			C2
Name: <u>RECRA ENVIRON</u>		ract:	
Lab Code: <u>RECNY</u> Cas	e No.: <u>Sh991</u> SAS	No.: SDG I	No.: <u>0524</u>
Matrix: (soil/water) <u>SO</u>		Lab Sample ID:	<u>SS4174</u>
Sample wt/vol: _3		Lab File ID:	
Level: (low/med) LO		Date Received:	05/24/91
% Moisture: not dec. <u>10</u>		Date Extracted:	<u>05/29/91</u>
Extraction: (SepF/Con	t/Sonc) <u>SONC</u>	Date Analyzed:	<u>06/19/91</u>
GPC Cleanup: (Y/N) <u>Y</u>		Dilution Factor	:
	C	CONCENTRATION UNITS: ug/L or ug/Kg) <u>UG/KG</u>	Q
		· .	25

1D

319-84-6alpha-BHC	25	
319-85-7beta-BHC	210	
$a_1 a_2 a_4 = a_$	18	U
58-89-9gamma-BHC(Lindane)	18	U
76-44-8Heptachlor	10	U
309-00-2Aldrin 1024-57-3Heptachlor epoxide	18	U
959-98-8Endosulfan I	18	U
60-57-1Dieldrin	35	U
60-5/-1Dieldrin		U
72-55-9	35	U
72-20-8Endrin 33213-65-9Endosulfan II	35	U
	35	U
72-54-84,4'-DDD 1031-07-8Endosulfan sulfate	35	U
1031-07-8Endosullan sullace	35	U
50-29-34,4'-DDT	180	U
72-43-5Methoxychlor		U
53494-70-5Endrin ketone		Ū
5103-71-9alpha-chlordane		U
5103-74-2gamma-chlordane		U
8001-35-2Toxaphene		U
12674-11-2Aroclor-1016	180	U
11104-28-2Aroclor-1221		U
11141-16-5Aroclor-1232	180	U
53469-21-9Aroclor-1242	180	U
12672-29-6Aroclor-1248	350	U
11097-69-1Aroclor-1254	350	U
11096-82-5Aroclor-1260		
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#### 40 CAMPLE NO.

1D	EPA SAMPLE N
PESTICIDE ORGANICS ANALYSIS DATA SHEET	
	C3
Contract:	

b Name: <u>RECRA ENVIRON</u> C	ontract:
	SAS No.: SDG No.: 0524
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>SS4175</u>
Sample wt/vol: <u>30.6</u> (g/mL) <u>G</u>	Lab File ID:
Level: (low/med) LOW	Date Received: 05/24/91
* Moisture: not dec. 23 dec	Date Extracted: 05/29/91
Extraction: (SepF/Cont/Sonc) SONC	Date Analyzed: 06/19/91
GPC Cleanup: (Y/N) Y pH: 8.1	Dilution Factor: <u>1.00</u>
••••	CONCENTRATION INTES.

COMPOUND

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

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319-84-6alpha-BHC	340	
319-85-7beta-BHC	21	
319-86-8delta-BHC	20	U
58-89-9gamma-BHC(Lindane)	20	U
76-44-8Heptachlor	20	U
	20	U
309-00-2Aldrin 1024-57-3Heptachlor epoxide	20	U
1024-57-3Heptachior epoxide	20	U
959-98-8Endosulfan I	41	Ū
60-57-1Dieldrin	41	U
72-55-94,4'-DDE	41	U
72-20-8Endrin	41	υ
33213-65-9Endosulfan II		1 -
72-54-84,4'-DDD	41	U
72-54-84,4'-DDD 1031-07-8Endosulfan sulfate	41	U
50-29-34,4'-DDT	41	U
72-43-5Methoxychlor	200	U
53494-70-5Endrin ketone	41	U
5103-71-9alpha-chlordane	200	U.
5103-74-2gamma-chlordane	200	U
8001-35-2Toxaphene	410	U
12674-11-2Aroclor-1016	200	U
126/4-11-2Aroclor-1010	200	U
11104-28-2Arocior-1221	200	U
11141-16-5Aroclor-1232	200	υ
53469-21-9Aroclor-1242	200	U
12672-29-6Aroclor-1248	410	U
11097-69-1Aroclor-1254	410	U
11096-82-5Aroclor-1260	-	Ĭ
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CAS NO.

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#### EPA SAMPLE NO.

1D PESTICIDE ORGANICS ANALYSIS DATA SHEET		A SAMPLE NO.
		:4
ر Name: <u>RECRA ENVIRON</u> Contract:		
Lab Code: <u>RECNY</u> Case No.: <u>SH991</u> SAS No.:	SDG NO.	: <u>0524-</u>
Matrix: (Soll/Water) <u>Solp</u>	Sample ID: <u>SS</u>	
Sample wt/vol: <u>30.9</u> (9/mb/ <u>-</u>	File ID:	
Level: (low/med) Low	Received: 05	
& Moisture: not dec. <u>To</u>	Extracted: 0	
Extraction: (SepF/Cont/Sonc) SONC Date	Analyzed: 00	2 00
GPC Cleanup: (Y/N) Y pH: 7.5 Dilu	tion Factor:	
CAS NO. COMPOUND (ug/L or u	ION UNITS: g/Kg) <u>UG/KG</u>	Q
319-84-6alpha-BHC	- 10 42	
319-85-7beta-BHC	- 19	1 1
319-86-8delta-BHC 58-89-9gamma-BHC(Lindane)	- 19	υ
58-89-9	- 19	U
309-00-2Aldrin		I I
1024-57-3Heptachlor epoxide	19	
959-98-8Endosulfan I	1 1	
60-57-1Dieldrin	1 50	
72-55-94,4'-DDE	1 50	
72-20-8Endrin	- 38	
72-20-8Endrin	38	1 1
	38	
72-54-84,4*-DDD 1031-07-8Endosulfan sulfate	38	
50-29-34,4'-DDT	- 38	
72-43-5Methoxychlor	190	
53494-70-5Endrin ketone	- 38	
5103-71-9alpha-chlordane	190	
5103-74-2gamma-chlordane		1 1
8001-35-2Toxaphene		
12674-11-2Aroclor-1016	190	
11104-28-2Aroclor-1221		
11141-16-5Aroclor-1232	190	
53469-21-9Aroclor-1242	190	
12672-29-6Aroclor-1248	190	1
11097-69-1Aroclor-1254	380	1 1
11096-82-5Aroclor-1260	380	ט ט
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## COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

b Name:	RECRA_ENV	IRONMENTAL_	INC	Contract:	C002412	-
Lab Code:	RECNY_	Case No.:	SH991	SAS No.:		SDG No.:0524
SOW No.:	7/88					

	EPA Sample No.         1855C1         1855C1_S         1855C2         1855C3         1855C4	Lab Sample ID 			-
re	ICP interelement corrections appli	led ?	Yes/No	YES	
	TCP background corrections applied	1 ?	Yes/No	YES	
	If yes - were raw data generated h application of background correcti	Delore	Yes/No	NO_	

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on floppy diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:	Aleborat of Kinecki	Name:	DEBORAH J. KINECKI	-
Date:	6/24/91	Title:	VICE PRESIDENT NEW YORK TESTING OPERATIONS	ENV.
	7	COVER PAG		3/90

INORGANIC ANALYSES DATA SHEET

Lab Name: RECRA\_ENVIRONMENTAL\_INC.\_Contract: C002412\_\_\_\_\_1855C1Lab Code: RECNY\_Case No.: SH991SAS No.: \_\_\_\_\_SDG No.: 0524\_\_\_Matrix (soil/water): SOIL\_Lab Sample ID: 7103,6729\_Level (low/med):LOW\_\_\_\_Date Received: 05/24/91% Solids:\_\_\_\_\_\_84.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Concentration C Μ Analyte 0 CAS No. P 7429-90-5 Aluminum\_ 7440-36-0 Antimony\_ 3290 Ε \_1.2 B NW F Antimony\_ F 5.3 N -7440-38-2 Arsenic\_\_\_ P<sup>-</sup> <u>EN</u>\* 7440-39-3 Barium P 1.2 0 Beryllium N 7440-41-7 P P 1.2 U N Cadmium 7440-43-9 130000 Ē 7440-70-2 Calcium P<sup>-</sup> Chromium 87.6 N 7440-47-3 11.7 0 A\_\_ "N 7440-48-4 Cobalt P<sup>-</sup> 61.6 EN 7440-50-8 Copper\_ P<sup>-</sup> 31200 E 7439-89-6 Iron P 7439-92-1 470 EN\* Lead P 59300 Ε 7439-95-4 Magnesium P Ē 7439-96-5 918 Manganese CV 7439-97-6 2.2 Mercury\_ P\_\_\_\_\_\_A\_\_\_\_ 47.2 N\* Nickel 7440-02-0 680 B 7440-09-7 Potassium 1.2 U F N 7782-49-2 Selenium A 4.0 N 7440-22-4 Silver 1150 B **P**\_ 7440-23-5 Sodium F NW Thallium 1.2 U 7440-28-0 14.9 N\* P Vanadium 7440-62-2 317 1.79 EN\* P 7440-66-6 Zinc Cyanide\_ C MEDIUM Color Before: BLACK Clarity Before: \_\_\_\_\_ Texture: Artifacts: Color After: YELLOW Clarity After: CLEAR Comments:

EPA SAMPLE NO.

3/90 \_

FORM I - IN

1 INORGANIC ANALYSES DATA SHEET EPA SAMPLE NO.

Lab Name: RECRA_ENVI	RONMENTIAL INC. CO	ntract: C002412	1855C2
	_ <b>_</b> .		SDG No.: 0524
Lab Code: RECNY_	Case No.: SH991	SAS No.:	
Matrix (soil/water):	SOIL_	Lab Samp	le ID: 7106
Level (low/med):	LOW	Date Rec	eived: 05/24/91
<pre>% Solids:</pre>	_90.0		

Concentration Units (ug/L or mg/kg dry weight): MG/KG

					I	
	CAS No.	Analyte	Concentration	C Q	M	
	7429 - 90 - 5 7440 - 36 - 0 7440 - 38 - 2 7440 - 39 - 3 7440 - 41 - 7 7440 - 43 - 9 7440 - 47 - 3 7440 - 48 - 4 7440 - 48 - 4 7440 - 48 - 4 7440 - 50 - 8 7439 - 92 - 1 7439 - 95 - 4 7439 - 95 - 4 7439 - 95 - 4 7439 - 95 - 4 7439 - 96 - 5 7439 - 97 - 6 7440 - 02 - 0 7440 - 09 - 7 7782 - 49 - 2 7440 - 23 - 5 7440 - 28 - 0 7440 - 66 - 6	Aluminum Antimony_ Arsenic_ Barium Beryllium Cadmium_ Cadmium_ Cadmium_ Cadmium_ Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Sodium Thallium Vanadium Zinc Cyanide		E       N         W       W         EN*       N         V       N         V       N         V       N         V       N         V       N         EN*       N         EN*       N         EN*       EN*         EN*       EN*         N*       E         N*       N         NW       N*         NW       N*         N*       EN*         NW       N*         EN*       -		
Color Before:	BLACK	Clari	ty Before:		Texture:	MEDIUM
COTOL PETOLE:						
Color After:	YELLOW	Clari	ty After: CLE	AR_	Artifacts:	. <u> </u>
Comments:						

FORM I - IN

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3/90

#### U.S. EPA - CLP

1 INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

1855C3 Hab Name: RECRA\_ENVIRONMENTAL\_INC.\_ Contract: C002412\_ Lab Code: RECNY\_ Case No.: SH991 SAS No.: \_\_\_\_ SDG No.: 0524\_\_ Lab Sample ID: 7107\_\_\_\_\_ Matrix (soil/water): SOIL\_ Date Received: 05/24/91 Level (low/med): LOW \_77.0 % Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

	CAS No.	Analyte	Concentration	с	Q	м	
	$\begin{array}{r} 7429 - 90 - 5 \\ 7440 - 36 - 0 \\ 7440 - 38 - 2 \\ 7440 - 39 - 3 \\ 7440 - 41 - 7 \\ 7440 - 43 - 9 \\ 7440 - 47 - 3 \\ 7440 - 47 - 3 \\ 7440 - 48 - 4 \\ 7440 - 50 - 8 \\ 7439 - 92 - 1 \\ 7439 - 95 - 4 \\ 7439 - 95 - 4 \\ 7439 - 95 - 4 \\ 7439 - 95 - 4 \\ 7439 - 96 - 5 \\ 7439 - 97 - 6 \\ 7440 - 02 - 0 \\ 7440 - 09 - 7 \\ 7782 - 49 - 2 \\ 7440 - 23 - 5 \\ 7440 - 28 - 0 \\ 7440 - 66 - 6 \\ \hline \end{array}$	Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium Vanadium Zinc Cyanide	$ \begin{array}{c} 3170 \\ 1.3 \\ 4.8 \\ 520 \\ 1.3 \\ 1.3 \\ 97.1 \\ 97.1 \\ 13.0 \\ 97.1 \\ 13.0 \\ 160 \\ 741 \\ 67400 \\ 741 \\ 67400 \\ 741 \\ 67400 \\ 1700 \\ 0.71 \\ 85.1 \\ 649 \\ 1.3 \\ 2.6 \\ 1030 \\ 1.3 \\ 21.3 \\ 21.3 \\ 282 \\ 1.69 \\ 1.69 \\ \end{array} $		E NW N EN* N EN* N EN* EN* EN* EN*		
Color Before:	BLACK	Clari	ty Before:	1		Texture:	MEDIUM
Color After:	YELLOW	Clari	ty After: CLE	AR_	_	Artifacts:	
COIDI ALCCI.							

FORM I - IN

3/90

#### U.S. EPA - CLP

EPA SAMPLE NO.

1 INORGANIC ANALYSES DATA SHEET

1855C4

 Lab Name: RECRA\_ENVIRONMENTAL\_INC.\_
 Contract: C002412\_\_\_\_\_\_

 Lab Code: RECNY\_
 Case No.: SH991
 SAS No.: \_\_\_\_\_\_ SDG No.: 0524\_\_\_

 Matrix (soil/water): SOIL\_
 Lab Sample ID: 7108\_\_\_\_\_

 Level (low/med):
 LOW\_\_\_\_\_\_
 Date Received: 05/24/91

 % Solids:
 \_\_\_\_\_\_82.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

5Aluminum O Antimony 2 Arsenic 3 Barium 7 9 Cadmium 9 2 Cadmium 9 2 Cadmium 9 2 Cadmium 3 2 Chromium 4 4 Cobalt 8 Copper 1 4 8 Copper 1 1 4 8 Copper 1 1 4 8 6 1 7 9 1 1 1 4 4 1 1 1 4 1 1 1 1 4 1 1 1 1 1 1 2 1 	$ \begin{array}{c}     1.1 \\     134000 \\     71.1 \\     12.1 \\     70.1 \\     12.1 \\     70.1 \\     12.1 \\     70.1 \\     12.1 \\     12.1 \\     70.1 \\     12.1 \\     70.1 \\     12.1 \\   $	U     U <th>N</th> <th>PFFPP PPPPP PPPPP PPPPP PPPPP PPPP PPP</th> <th></th>	N	PFFPP PPPPP PPPPP PPPPP PPPPP PPPP PPP	
0Antimony_22Arsenic	$ \begin{array}{c}                                     $	U     U <td>N N EN* N E N E N E E E N E N E N E N E N E N N E N N E N N E N N N N N N N N N N N N N</td> <td>F P P P P P P P P P P P P P</td> <td></td>	N N EN* N E N E N E E E N E N E N E N E N E N N E N N E N N E N N N N N N N N N N N N N	F P P P P P P P P P P P P P	
2Arsenic3Barium7Beryllium9Cadmium2Calcium3Chromium4Cobalt8Copper6Iron1Lead4Magnesium5Manganese6Mercury0Nickel7Potassium2Selenium4Silver5Sodium0Thallium	$ \begin{array}{c}                                     $	1 - UU - UU - UU	N EN* N E N E E N E E N E E N E N E N E	F P P P P P P P P P P P P P	
3Barium7Beryllium9Cadmium2Calcium2Calcium3Chromium4Cobalt8Copper6Iron1Lead4Magnesium5Manganese6Mercury0Nickel7Potassium2Selenium4Silver5Sodium0Thallium	$ \begin{array}{c}                                     $		N N N E N E N E N E N E N N N N N N N N N N N N N	P P P P P P P P P P P P P P	
7 Beryllium 9 Cadmium 2 Calcium 3 Chromium 4 Cobalt 8 Copper 6 Iron 1 Lead 4 Magnesium 5 Manganese 6 Mercury 0 Nickel 7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium	$ \begin{array}{c}     1 \\     1 $		N E N E E N E E N E N N N N	P P P A P P P P P C P C P A F - - - - - - - - - - - - -	
9 Cadmium 2 Calcium 3 Chromium 4 Cobalt 8 Copper 6 Iron 1 Lead 4 Magnesium 5 Manganese 6 Mercury 0 Nickel 7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium	$ \begin{array}{c}                                     $		E N EN EN E E E E E N E N N N	P - - - - - - - - - - - - -	
2 Calcium 3 Chromium 4 Cobalt 8 Copper 6 Iron 1 Lead 4 Magnesium 5 Manganese 6 Mercury 0 Nickel 7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium	$ \begin{array}{c}    $		N N E N E E E - E - E - - - - - - - - - - - - -	P A P P P P P C V P A F A F - P - - - - - - - - - - - - -	
3Chromium4Cobalt8Copper6Iron1Lead4Magnesium5Manganese6Mercury0Nickel7Potassium2Selenium4Silver5Sodium0Thallium	$ \begin{array}{c}    $		N E E E E E E  N N	A P P P P P C P A F A F A F - P - - - - - - - - - - - - -	
<pre>8 Copper6 Iron1 1 Lead4 Magnesium 5 Manganese 6 Mercury0 0 Nickel 7 Potassium 2 Selenium 4 Silver5 Sodium0 0 Thallium0</pre>	$ \begin{array}{c}    $		EN E E E E N* N N N	- CV - A - F - A - P - P - F	
6 Iron 1 Lead 4 Magnesium 5 Manganese 6 Mercury 0 Nickel 7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium	$ \begin{array}{c}                                     $		E E E N*	- CV - A - F - A - P    	
6 Iron 1 Lead 4 Magnesium 5 Manganese 6 Mercury 0 Nickel 7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium	$ \begin{array}{c}                                     $		E E N* N	- CV - A - F - A - P    	
4 Magnesium 5 Manganese 6 Mercury0 0 Nickel 7 Potassium 2 Selenium 4 Silver5 5 Sodium0 0 Thallium0	$ \begin{array}{c}                                     $		E E N*	- CV - A - F - A - P    	
5 Manganese 6 Mercury_ 0 Nickel 7 Potassium 2 Selenium 4 Silver_ 5 Sodium_ 0 Thallium	$ \begin{array}{c}                                     $		E 	- CV - A - F - A - P    	
6 Mercury_ 0 Nickel 7 Potassium 2 Selenium 4 Silver_ 5 Sodium_ 0 Thallium	$ \begin{array}{c}                                     $	4 - B 6 B 2 U 8 B		- CV - A - F - A - P    	
0 Nickel 7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium	$ \begin{array}{c}    $	5 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	N	P F A P F	
7 Potassium 2 Selenium 4 Silver 5 Sodium 0 Thallium		6   B 2   U 4   0   B	N		
2 Selenium 4 Silver 5 Sodium 0 Thallium	1.1 3. 60 1.	2 U 4 0 B	N		
4 Silver 5 Sodium 0 Thallium_	60	0   B	N		
5 Sodium 0 Thallium	60	0   B			
0 Thallium	1.	2 0	NW		
		26 I U	1 1444	-1*-1	
	25.	<b>-</b>   -	N*		
2 Vanadium 6 Zinc	-		EN*		
Cyanide	- 2.4		·		
- Cyanide_	-	- -	•		-
		- ' -			
Clar:	ity Before:			Texture:	MEDIUM
Clar:	ity After: CL	EAR		Artifacts	l:
			·		
		Clarity Before: Clarity After: CL			

FORM I - IN

3/90 -

## **APPENDIX C**

### NYSDEC ANALYTICAL DATA FOR NOVEMBER 1990 OUTFALL SEDIMENT SAMPLES

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-	1	de la
PARAMETER UNITS	Outfall #1 ug/kg	Outfall #3 ´ ug/kg
METALS		
Chromium		
Lead		296000
Mercury		6000
BNA		
1,4-Dichlorobenzene	680	
Acenaphthene		650
Fluorene		
Hexachlorobenzene		
Phenanthrene	1700	7400
Anthracene	460	1600
Fluoranthene	4000	11000
Pyrene	4000	12000
Butylbenzylphthalate		900
Benzo(a)anthracene	3300	6200
Chrysene	3300	7100
bis(2-Ethlhexyl)phthalate		1300
Benzo(b)fluoranthene	5200	6700
Benzo(k)fluoranthene	4300	6000
Benzo(a)pyrene	3300	6800
Indeno(1,2,3-cd)pyrene	1000	2500
Dibenz(a,h)anthracene		640
Benzo(g,h,i)perylene	800	2300

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PARAMETER UNITS	Outfall ug/kg	#1	Outfall ug/kg	#3
Pesticide/PCB				
alpha-BHC		510		220
beta-BHC delta-BHC		140 500		120 640
Lindane				<u></u>
Dieldrin 4,4'-DDE				
Endrin				<u> </u>
Endosulfan II 4,4'-DDD				
4,4'-DDT	<u> </u>			
Methoxychlor Aroclor-1242				800
VOA				
Methylene chloride				3
Acetone Carbon Disulfide		17		33 9
2-Butanone				7
Benzene Chlorobenzene		7 130		440

PARAMETER	Outfall #5
JNITS	ug/kg
1ETALS	
Chromium	
Lead	260000
fercury	3400
BNA	
l,4-Dichlorobenzene	
Acenaphthene	510
Fluorene	
lexachlorobenzene	
Phenanthrene	4400
Anthracene	760
Fluoranthene	7000
Pyrene	8100
Butylbenzylphthalate	
Benzo(a)anthracene	3300
Chrysene	3700
bis(2-Ethlhexyl)phthalate	e 1500
Benzo(b)fluoranthene	4500
Benzo(k)fluoranthene	3900
Benzo(a)pyrene	3400
Indeno(1,2,3-cd)pyrene	2100
Dibenz(a,h)anthracene	
Benzo(g,h,i)p <b>erylene</b>	1600

PARAMETER UNITS	Outfall #5 ug/kg	
Pesticide/PCB		
alpha-BHC	77	
beta-BHC	78	
delta-BHC	67	
Lindane		<u>, , , , , , , , , , , , , , , , , , , </u>
Dieldrin		
4,4'-DDE		
Endrin	<u></u>	
Endosulfan II		
4,4'-DDD		
4,4'-DDT	an a an	
Methoxychlor		
Aroclor-1242		
VOA		-
Methylene chloride		
Acetone	19	
Carbon Disulfide		
2-Butanone		-
Benzene	4	
Chlorobenzene	14	

.

## APPENDIX D

## OLIN (IT) AND NYSDEC (VERSAR) ANALYTICAL DATA FOR NOVEMBER 1990 GILL CREEK SEDIMENT SAMPLES

PANEL : Volatile Organics Analyses MATRIX: Soil	nalyses		$\chi_{c_1}$						Results of Sp		Analyses	lit Sample Analyses Control of Analyses	<u></u>		• •				N 	2	29-Jan-93	
SAMPLE LOCATION COMPANY	STAIC	STAIC VERSAR		STA2DS VERSAR			STA2C IT	STA2C VERSAR	STA3C IT		STA4D IT	STA4DS VERSAR	STA4SS	STA4SS VERSAR	STA4C IT		STA5DS IT	STA5DS VERSAR	STA5SS IT	STA5SS VERSAR	STASC IT	STA5C VERSAR
UNLIS OF MEASURE SAMPLE NUMBER COMPOUND	ug/Kg PP2694	ug/Kg 185511	ug/Kg PP2695	ug/Kg 185523	ug/Kg PP2698	ug/Kg 185521	ug/Kg PP2699	ug/Kg 185522	ug/Kg PP2700	ug/Kg 185531	ug/Kg PP2701	ug/Kg 185543	ug/Kg PP2702	ug/Kg 185541	ug/Kg PP2703	ug/Kg 185542	ug/Kg PP2704	ug/Kg 185553	.≈ S		æ 8	ug/Kg 185552
Chloromethane	33U	45U	13U	18U	17U	27U	24U	29U	23U	26U	240	20U	18U	250	23U	27U	30U	220	11161	301	1156	1166
Bromomethane	33U	151	13U	18U	17U	27U	24U	29U	23U	26U	24U	20U	181	125U	U£2	27U	30U	022	11161	ĨO	1150	100
Vinv) Chloride	33U	15U	13U	18U	17U	27U	24U	19U	23U	26U	34U	30U	18U	25U	330	<i>U12</i>	30U	22U	IU101	30U	250	291
Chloroethane	33U	45U	13U	180	17U	27U	24U	29U	230	36U	24 U	20U	18U	25U	23U	27U	30U	22U	LU61	30U	250	19U
Methylene Chloride	130	23U	5	6	2	17	133	117	19	8]	101	۲J	51	120	12U	Ξ	15U	15	21J	71	13U	12
Acetone	1201	45U	8	37	29	81	95	9 <del>1</del>	07	41	40	61	18U	3	31	45	60	8	23J	45	35	8
Carbon Disulfide	170	230	5	06	16	14U	120	15U	110	13U	120	10U	U6	120	12U	14U	15U	UH	1001	15U	13U	150
1,1-Dichloroethene	17U	23U	5	90	90	14U	12U	15U	1IC	13U	120	101	U6	120	120	14U	150	110	IUOI	15U	130	15U
1.1-Dichloroethane	17U	23U	Νĭ	06	116	140	12U	15U	חנו	13U	12U	101	9U	120	12U	14U	15U	110	1001	15U	13U	15U
1.2-Dichlorothene (total)	170	23U	5	116	50	140	130	15U	UU I	13U	12U	100	90	120	120	14U	15U	110	1001	15U	13U	15U
Chloroform	17U	23U	5	90	90	140	131	150	11U	13U	12U	10N	16	120	12U	14U	15U	011	IUUI	15U	13U	15U
1.2-Dichlorcethane	17U	23U	5	116	6	14U	130	15U	ПÜ	13U	12U	101	90	120	12U	14U	15U	110	1001	150	13U	15U
2-Butanone	33UJ	45U	130	18U	071	15J	24U	192	23U	26U	24U	21	18U	25U	23U	27U	30U	201	LU91	30U	25U	32
1.1.1 Trichloroethane	17U	23U	12	<u>16</u>	36	140	3	15U	1 U	13U	12U	10I	90	121	12U	14U	15U	UII	1001	15U	13U	15U
Carbon Tetrachloride	170	23U	2	106	J)6	14U	13(	15U	UII	13U	120	10U	J)6	120	120	14U	15U	110	1001	150	13U	15U
Vinvl Acetate	33U	45U	J.U	180	170	27U	24U	29U	23U	26U	24U	20U	18U	25U	23U	<i>21</i> U	30U	22U	1901	30U	250	29U
Bromodichloromethane	170	23U	70	90	91:	140	130	15U	- II	13U	12U	U01	06	120	<u>12</u> 1	14U	15U	110	1001	15U	13U	15U
1.2-Dichloropropauc	170	182	2	<b>N</b> 6	5	140	12U	15U	nıı	13U	12U	10L	iJ6	121	120	14U	15U	110	1001	15U	130	15U
cis-1,3-Dichloropropene	170	23U	10	1)6	i)(	140	12U	15U	110	13U	12U	101	90	120	120	14U	150	110	1001	15U	130	15U
Trichloroethene	171	23U	70	<b>N6</b>	<u>16</u>	14U	12U	15U	110	13U	12U	10U	06	121	12U	14U	15U	Ш	1001	15U	13U	15U
Dibromochloromethane	U71	23U	5	90	36	14U	120	15U	nii	13U	12U	101	90	12U	UEI	14U	15U	110	1001	15U	13U	15U
1,1,2-Trichloroethane	170	23U	5	J0	9	14U	120	15U	DII	13U	12	101	<u> 16</u>	120	120	14U	15U	011	1001	15U	13U	15U
Benzeik	6	£	22	<u>9</u>	1)6	14U	12U	15U	2	13U	12U	101	90	120	12U	14U	4]	110	10UJ	15U	13U	15U
Trans-1,3-Dichloropropene	17U	23U	5	06	06	14U	120	15U	011	13U	12U	101	06	120	12U	14U	150	UII	1001	15U	13U	15U
Broinotorin	D21	130	2	06	90	14U	120	15U	110	13U	12U	101	90	121	12U	14U	15U	лп Л	10UJ	15U	13U	15U
4-Methyl-2-Pentanone	33U	45U	130	180	121	27U	240	29U	23U	26U	24U	30N	4	250	23U	<i>27</i> U	30U	22U	1061	30U	250	29U
2-Hexanone	330	450	130	180	170	27U	24U	29U	<b>3</b> 30	26U	24U	20U	181	25U	<b>23U</b>	27U	30U	22U	1061	30U	25U	29U
Tetrachloroethene	170	23U	5	106	116	14U	121	15U	<u>11</u>	13U	12U	101	90	12U	13U	14U	15U	ULI	10UJ	15U	13U	15U
1.1.2.2-Tetrachloroethane	170	30	5	90	16	14U	12U	15U	<u>n</u>	13U	12U	100	<b>U6</b>	12U	12U	14U	15U	110	10UJ	15U	13U	151
1 Olucik	170	230	70	116	90	140	120	15U	ΠŪ	13U	12U	100	90	12N	12U	14U	З	110	1001	15U	13U	15U
Chlorobenzene	4	130	5	116	31	\$	54	76	33	70	58	56	59	011	31	<u>100</u>	35	76	21J	56	35	65
Ethylhenzene	17U	23U	JT D	106	<u> 16</u>	14U	12U	15U	nn	13U	12U	10U	90	1211	12U	14U	150	חוו	1001	150	13U	1SU
Styrene	17U	23U	5	116	3	14U	12U	150	лн	13U	12U	101	<u>1</u> 6	12U	12U	14U	15U	лп	1001	15U	13U	15U
Xylenes (total)	17U	23U	70	100	90	140	120	15U	110	13U	12U	100	9U	120	12U	14U	15U	110	IUUI	15U	13U	150
STA - Station				-	B - Com	Legend for Qualifiers: B - Compound found in	, m p	method blank.														

STA - Station STA1 through STA5 - Station number C - Center of creek SS-Shallow Sediment

B - Compound found in method blank.
J - Compound detected but below contract required detection limits. Value provided is an estimate.
S spiked compound.
U - Compound was analyzed for but not detected. The number is the detection limit for the sample.

PANEL : Semi-volatile Organics Analyses MATRIX: Soil

Results of Split Sample Aualyses OLIN - GILL CREEK SAMPLING/NIAGARA FALLS

SAMPLE LOCATION COMPANY UNITS of MEASURE SAMPLE NUMBER COMPOLIND	STAIC IT ug/kg PP2719	STAIC VERSAR ug/kg 185511	STA2D IT ug/kg PP2720	STA2DS VERSAR ug/kg 185523	STA2SS IT ug/kg PP2723	STA2SS VERSAR ug/kg 185521	STA2C IT ugÅg pp2724	STA2C VERSAR ug/kg 185522	STA3C S IT V ug/kg PP2725	STA3C S VERSAR ug/kg 185531 P	STA4D S IT V ug/kg PP2726	STA4DS ST VERSAR ug/kg u 185543 PF	STA4SS S IT V ug/kg PP2/27 1	STA4SS S VERSAR ug/kg 185541 F	STA4C S IT VI ug/kg 18 PP2728 18	STA4C S VERSAR ug/kg 185542 P	STA5D S IT V ug/kg PP2729 1	STA5DS VERSAR ug/kg 185553	STA5SS IT ug/kg PP2730	STA5SS VERSAR ug/kg 185551	STA5C IT ug/kg PP2731	STASC VERSAR ug/kg 185552
Phenol	4400U	0096	880U	1055	2300U	16001	1000-5	61011		6 1109	16001	11022	14001	1 1000	1 5001	110021	10000		1.000.			
bis(2-Chloroethyl)Ether	4400U	0096	880U	530U	2300U	16001	3200U	610U	~	-	10091		10072	-		<b>_</b>	1000-	0000		10001		14000
2-Chlorophenol	4400U	0096	880U	530U	2300U	1600U	3200U	610U	я	<b> </b>	1600U	<b> </b>	2400U	<u> </u>	L	+	20001	1095	130021	10001	110001	14001
1.3-Dichlorobenzene	1400U	960U	880U	530U	2300U	1600U	3200U	6101)	Я		1600U	770U 2	2400U	-		+	20001	260U	13001	10001	10091	14001
1.4-Dichlorobenzene	1100U	0096	880U	530U	2300U	1600U	3200U	5107	к	690U	6801	770U 2	2400U	_	350J		3103	560U	1300U	1000U	3001	1400U
Benzyl Alcohol	4400U	960U	880U	530U	2300U	1600U	3200U	610U	R	1069	1600U	2 U077	2400U	820U 1	1 500U	1600U 2	2000U	2601	13001	10001	110001	14001
1.2-Dichlorobenzene	4400U	960U	880U	530U	2300U	1600U	3200U	610U	R		1600U		2400U	-	ļ		2000U	260U	1300U	580JX	10091	14001
2-Methylphenol	4400U	0096	880U	530U	2300U	1600U	3200U	610U	R	1069	1600U	2 U077	2400U	820U 1	1500U	1600U 2	20001)	2601	13001	10001	IVOUI	140011
bis(2-Chloroisopropyl)Ether	4400U	0096	880U	530U	2300U	1600U	3200U	610U	~	1 U069	1600U	770U 2	2400U	-		+	2000U	260U	1300U	10001	0091	1400U
4-Methylptenol	4400U	960U	880U	530U	2300U	1600U	3200U	610U	Я	690U 1	1600U	2 U077	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
N-Nitroso-Di-n-Propylamine	4400U	0096	880U	530U	2300U	1600U	3200U	610U	R	690U	1600U	770U 2	2400U	-	ļ		20001	1095	13001	10001	10091	1400FT
Hexachloroethaue	4400U	0096	880U	530U	2300U	1600U	3200U	610U	Я	690U	1600U	770U 2	2400U	820U 1	1500U	<u> </u>	2000U	560U	1300U	10001	16001	14001
Nitrobenzene	4400U	0096	880U	530U	2300U	1600U	3200U	610U	×	690U 1	1600U	770U 2	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
Isophorone	4400U	0096	880U	530U	2300U	1600U	3200U	610U	ж	690U 1	1600U	770U 2	2400U	820U	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
2-Nitrophenol	4400U	1096	880U	530U	2300U	1600U	3200U	610U	~	1 0069	1600U	770U 2.	2400U	820U	1500U	1600U 2	2000U	560U	1300U	10001	16001	14000
2.4-Dunethylphenol	4400U	1096	880U	530U	2300U	1600U	3200U	010	×	1 0069	1600U	770U 2	2400U	820U 1	15000	1600U 2	2000U	56AU	1300U	10001	1600U	1400U
-	21000U	1700U	4200U	2500U	11000U	7600U	15000L	:J0062	۲	3300U 7	7800U	3700U 12	10001	4000U 7	7400U	7900U 9	9600U	2700U	6100U	4900U	1900	6700U
bis(2-Chloroethoxy)Methane	4400U	U096	880U	530U	2300U	1600U	3200U	010	×	1 1069	1600U	770U 2	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	1000U	1600U	1400U
2.4-Dichloropheriol	4400U	960U	880U	530U	2300U	1600U	3200U	61013	~	1 1069	1600U	770U 2	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
1,2,4-Trichlorobenzene	4400U	D096	880U	530U	2300U	1600U	3200U	01019	×	1069	1600U	770U 2	2400U	820U 1	1500U	1600U 2	2000U	SGOU	1300U	1000U	1600U	1400U
Naphthalene	4400U	960U	880U	530U	2300U	1600U	3200U	0019	м	I 0069	1009 I	770U 2	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	1000U	1600U	1400U
4-Chloroaniline	4400U	1096	880U	530U	2300U	1600U	3200U	010L	×	1 0069	1600U	770U 2	2400U	820U 1	1500U	1600U 2	200U	560U	1300U	10001	1600U	1400U
Hexachlorobutadiene	10017	960U	880U	530U	2300U	1600U	3200U	610U	~	1 0069	1600U	770U 2	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
4-Chloro-3-Methylphenol	4400U	11096	880U	530U	2300U	1600U	3200U	610U	×	1 1069	1600U	770U 2-	2400U	820U 1	1500U	1600U 2	20001	560U	1300U	10001	1600U	1400U
	4400U	00%	880U	530U	2300U	1600U	3200U	610U	ч	0069	450J	770U 2	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	1000U	1600U	1400U
diene	4400UJ	0096	880UJ	530U	2300UJ	1600U	3200UJ	610U	×	690U 16	16001	770U 24	2400UJ	820U 15	1500UJ	1600U 20	2000UJ	560U	1300UJ	1000U	1600UJ	1400U
	4400U	1096	880U	530U	2300U	1600U	3200U	610L	*	690U	1600U	770U 2-	2400U	820U	1500U	1600U 2	2000U	560U	1300U	1000U	1600U	1400U
_	21000U	4700U	4200U	2500U	1000L	7600U	15000U	2900U		3300U 7	7800U	3700U 120	12000U	400001 7	1400U	7900U 9	9600U	2700U	6100U	4900U	7900U	6700U
halene	4400U	960U	880U	530U	2300U	1600U	3200U	610U	~	1 1069	1600U	770U 2-	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	1000U	1600U	1400U
	21000U	100/1	4200U	2500U	11000U	7600U 1	1500U	2900U	~	3300U 7	7800U	3700U 120	12000U	4000U 7	7400U	7900U 9	9600U	2700U	6100U	4900U	7900U	6700U
Dimethyl Phihalate	4400U	960U	880U	530U	2300U	1600U	3200U	610U	×	690U I	1600U	770U 2-	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
Accuaphthylene	4400U	960U	880U	530U	2300U	1600U	3200U	01019	×	690U	1703	770U 2-	2400U	820U 1	1.500U	1600U 2	2000U	560U	1507	1000U	1600U	1400U
2.6-Dimitrotoluene	4400U	960U	880U	530U	2300U	1600U	3200U	610U	×	690U 1	1600U	770U 24	2400U	820U 1	1500U	1600U 2	2000U	560U	1300U	10001	1600U	1400U
	21000U	4700U	4200U	2500U	11000U	7600U 1	1500U	2900U	ч	3300U 7	7800U	3700U 120	12000U	4000U 7	7400U	7900U 9	J0096	2700U	6100U	4900U	1900U	6700U
	4400U		880U	530U	2300U	160NU	3200U	610U	×	690U	1600J	770U 24	2400U	820U 1	1500U	860J 2	2000U	560U	1300U	10001	1600U	1400U
2,4-Dinitrophenol	21000UJ	4700U	4200UJ	2500U	1100011	7600U 1	50001	2900U	ч	3300U 78	7800UJ	3700U 120	12000U	4000U 74	7400UJ	7900U 96	9600UJ	2700U	61 00 U I	4900U	100062	6700U
	21000U	4700U	4200U		100011	7600U	5000U	2900U	×	3300U 7	7800U	3700U 120	12000U	4000U 7	7400U	7900U 9	9600U	2700U	6100U	4900U	7900U	6700U
Dibenzofuran	4400U	960U	880U	530U	2300U	1600U	3200U	610U	æ	690U	8501	770U 22	2400U	820U	1500U	1600U 2	2000U	260U	1300U	10001	1600U	1400U

PANEL : Semi-volatile Organics Analyses MATRIX: Soil

Results of Split Sample Analyses OLIN - GILL CREEK SAMPLING/NIAGARA FALLS

SAMPLE LOCATION	STAIC	STAIC	L CTADH	STADDS	CT A JCC	6T. A 166	CT A TO	CT.A.3.		- H		- H	_ L	ŀ	L	ł	- F					
COMPANY	E	VERSAR	_	VERSAR		VERSAR	LI LI	VERSAR		VERSAR		VFRSAR		VFPSAP	SIA4C	VEDSAD		STA5DS	STA5SS	STA5SS	STASC	STA5C
UNITS of MEASURE SAMPLE NUMBER	ug/kg pp2719	ug/kg 185511	ug/kg PP7720	ug/kg 185573	ug/kg pp////	ug/kg 185571	ug/kg DD77.4	ug/kg 105537			9		00					ug/kg	ug/kg	ug/kg	ug/kg	vekoak ug⁄kg
COMPOUND									1001411			-	17171	-	127/721	1 7 44 ( 2)	671744	180003	PP2730 1	182551	PP2731	185552
2,4-Dinitrotoluene	4400U	0096	880U	530U	2300U	1600U	3200U	610U	×	690U	1600U	170U	2400U	820U	1500U	16000	2000U	560U	1300U	10001	1600U	14001
Diethylphthalate	4400U	960U	880U	530U	2300U	1600U	3200U	610U	R	690U	1600U	770U	2400U	820U	1500U		2000U	560U	1300U	10001	16001	10011
4-Chlorophenyl-phenylether	4400U	960U	880U	530U	2300U	1600U	3200U	019	×	690U	1600U	770U	2400U	820U	1 500U		2000U	560U	1300U	10001	16001	14001
Fluorence	400U	1096	880U	530U	2300U	1600U	3200U	610U	R	690U	13001	170U	2400U	820U	1500U	I	2000U	5601	11006.1	10001	10091	14001
4-Nitroanilute	21000U	4700U	4200U	2500U	11000U	7600U	150001	2900U	R	3300U	7800U	3700U 1	12000U		7400U	_	00096	2700U	610013	49001	10001	67001
4.6-Dinitro-2-Methylphenol	21000U	4700U	4200U	2500U	11000U	76000	150001	2900U	R	3300U	7800U	3700U 1	12000U	4000U	7400U	1900U	9600U	2700U	610001	14001	10001	67001
N-Nitrosodiphenvlamure (1)	4400U	960U	880U	530U	2300U	1600U	3200U	610U	×	690U	1600U	770U	2400U		1500U		2000U	560U	1300U	10001	16001	14001
4-Bromophenvl-phenvlether	4400U	960U	880U	530U	2300U	1600U	3200U	610U	R	690U	1600U	770U	2400U	820U	1500U		20001	1095	130011	10001	16001	14001
Hexachlorobenzene	4400U	0096	880U	530U	2300U	1600U	3200U	610U	R	690U	1600U	770U	2400U	820U	1500U	1600U	3101	, to se	13001	102.5	10091	1005
Pentachlorophenol	21000U	4700U	4200U	2500U	1900S	76001	15000U	2900U	R	3300U	7800U	3700U 1	2000U	<u> </u>	74000		9600U	2700U	6100U	49001	10062	67001
Phenanthrene	650J	1600	2001	530U	6401	16001	3200U	4601	2201	700	10000	170U	1001	870	780J		1 5001	4301	8101	IOCOL	IUE8	1100
Antiuracene	4400U	4501	880U	530U	2300U	1600U	32001	610U	R	0069	3000	170U	410J	820U	2201	0061	4201	1095	2801	10001	IUSC	2005
Di-n-Butylphthalate	10014	960U	880U	530U	2300U	16001	3200U	610U	R	690U	1600U	170U	2400U	820U	1500(1		2000U	260U	1300(1	10001	10091	140011
Fluoranthete	1400]	2200	380J	530U	10001	1100JX	1065	1100	5001	1 500	0066	770U	2700	3000	1600		2400	880	0061	2700	16001	4800
Pyretic	1400]	3100	3801	230)	1079	15003	1065	1400	1801	2200	10000	770U	2900	2200X	1600	14000	2300	830	1800	X007c	15001	4600Y
Butylbenzylphthalate	4400U	960U	880U	530U	2300U	16001	3200U	610U	R	690U	1600U	770U	2400U	820U	1 SOOU		2000U	560U	1001	10001		14001
3.3'-Dichlorobenzidine	8700U	10061	1800U	110011	4500U	310015	6400U	1200U	×	- 1400U	3200U	1500U	4800U	1600U	31000	ł	1006E	1100U	2500U	2000U	3300U	28001
Benzo(a)Andracere	1011	1400	260J	530U	2401	6901	3200U	710	250J	010	6200	70U	18001	1100	£008	6200	1400	470J	10001	1300	8901	3600
Chrysene	1001	1700	1062	530U	f069	101-6	3200U	890	3301	1200	6200	770U	20001	1300	11001	6600	1600J	5107	12001	0091	11001	2700
bis(2-Ethyliwxyl)Phthalate	1400U	1700	880U	530U	2300U	1026	3200U	770	660]	030	1600U	770U	2400U	1300	18000	9201	2000U	560U	1300U	0011	3800	1080
Di-n-Octvl Phthalate	4400U	960U	880U	530U	2300U	1600U	3200U	610U	×	1069	1600U	770U	2400U	820U 1	1500U		2000	560U	1300U	10001	16001	140011
Benzo(b)Fluoranthene	660)	1900	140J	530U	1004	11001	3200U	068	160J	1400	4000	770U	16001	1500	1006	6600	13001	630	950J	2000	1068	3100
Benzo(k)Fluoranthene	10001	1800	2601	530U	720J	11001	3200U	1200	2201	1200	7200	770U	18001	1300	13001	8400	17005	5501	12001	2100	13001	31.00
Benzo(a)Pyrene	870J	1500	2301	530U	5703	7201	3200U	760	2501	1000	5900	770U	15001	1200	1056	0099	14001	450I	9201	w l	IUNO	No.
Indeno(1.2.3-cd)Pyrene	4400U	970X	1001	530U	2701	1600U	3200U	530J	æ	690	1700	770U	7003	750J	350J	3600	530J	2701	3801	901	1012	AU03
Dibenz(a,h)Anthracene	4400U	960U	880U	530U	2300U	1600U	3200U	610U	Я	690U	780J	770U	3107	820U 1	1500U	1600U	2201	S60U	1501	(10001	110091	14001
Benzo(g.h.i)Pervlene	4400U	7201	1403	530U	350J	1600U	3200U	410J	×	540J	1600J	770U	740J	6501	[00†	3600	290J	560U	4201	1008	1085	13001
Legend for sample locations: STA - Station			Legend fo A - Susp	Legend for Qualifiers: A - Suspected aldol	condensati	gend for Qualifiers: A - Suspected aldol condensation product.															-	

STA - Station STA I through STA5 - Station number C - Centre of creek SS- Shallow Sectment DS - Deeper Sectment

A - Suspected aldol condensation product.
B - Compound was found in method blank.
C - Analyte presence was confirmed on a secondary column.
C - Compound detected but below CRDL; value given is an estimate.
S - Spike
U - Compound was attalyzed for but not detected. The number is the detection limit for the sample.
X - Matrix interference present, result may be inflated.

					O IN IO		L IOM S	SAMBI INCATACABA FALL	9 1 1 2 1 1 6													
SAMPLE LOCATION	STAIC	STAIC	STA2D	STA2DS	<u> </u>	STA2SS	STA2C	STA2C	STA3C	STA3C	STA4D	STA4DS S	STA4SS S	STA4SS	STA4C S	STA4C	STASD S	STASDS	STA5S9	STA5SS	STASC	STASC
COMPANY	Ħ	VERSAR	Ħ	VERSAR	E	VERSAR	E	VERSAR	ц	VERSAR	÷	VERSAR	ь г	VERSAR		VERSAR	E	VERSAR	Ŀ		E	VERSAR
UNITS of MEASURE	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug∕kg	ug/kg	ug/kg	ugAig	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
SAMPLE NUMBER	PP2719	185511	PP2720	185523	PP2723	185521	PP2724	185522	PP2725	185531	PP2726	185543 P	PP2727	185541	PP2728	185542   F	PP2729		PP2730	185551	PP2731	185557
COMPOUND																1		-				10001
a-BHC	210C	1200	90	61U	110C	140	24C	210	54C	240	120C	06.8	2C	290	64C	470	-19C	6.50	20	140	1000	190
B-BHC	120C	550	15U NC	61 U	110C	45	3U	86	15U*	U61	1500	06.8	15C		100U N	120 8	80U NC	+	211J NC		UN NO	140
y-BHC	14U NC	460	10	61 U	15U NC	190	4U NC	370	17U NC	270	32	~	5		9U NC		17U NC		E		25U NC	086
g-BHC	110C	110U	30C	61 U	130C	38	39C	35	96C	19U	360C	8.9U 6	6U NC		120C	<b>_</b>	89C		7U NC		1200	2
Heptachlor	+011	110U	2C	61 U	SU+	0.0U	51U+	7.0U	110U+	79U	35U+	06.8	2U+	9.4U	36U+	9.3U	+0 11	6.5U	4U+	12U	30U+	16U
Aldrin	76U*	110U	10	61 U	34U+	9.0U	94U NC	1.0U	N D061	U67	*0011	iJ6.8	30*	9.4U	+067	9.3U	4511*	6.511	• 101	171	+1442	IVI
Heptachlor Epoxide	31U NC	110U	30U	61U	30U	00.6	S6U NC	1.00.7	180U N	- 19U	47U NC	N6.8	30C	9.4U	+189	9.3U	30C	6.5U	30Li		S3U NC	1611
Edosulfan I	IJ۲	110U	7U	61 U	7U	J0.6	+06	7.0U	14U+	U67	•111	06.8	υr	9.4U	70	9.3U	5	6.5U	70	_	11/	161
Dieldrin	15U NC	220U	0.7U	120U	+U8	60	41U NC	14U	76U NC	1001	25U NC	180	0.7U	56 3	35U NC	57 1	4U NC	13U	2.4U NG		31U NC	65
4.4'-IDDE	19U NC	220U	2U NC	1001	+11(+	180	25U NC	14U	30U NC	160U	100+	180	2U+	47 13	18U NC	53	ţ,	+	51)*	-	201 NC	1165
Endrin	12U+	220U	14U*	13001	29U+	35	82U+	26	40U+	160U	26U+	180	13U+	37	23U+	38	16U+	13U	4[]+		24114	30
Endosulfan II	14U NC	220U	JU NC	120U	11U NC	18U	23U NC	140	47U NC	160U	22U NC	18U	2U+	1911 20	26U NC		12U NC		2U NC		23U NC	140
4.4 - DDD	8U NC	220U	5U*	120U	SU NC	4	6U NC	21	I ILI NC	380	9U NC	181	4U	39 8	8U NC	36	<u>1</u> 4	13U	40		8U NC	3211
Endosulfan Sulfate	201	220U	27U NC	120U	31U NC	18U	20U	14U	10C	160U 4	42U NC	181 24	24U NC	19U	20U	-	24U NC	13U	200	+	21U+	3211
4.4'-DDT	23U+	220U	4U	120U	24U+	18U	31U+	52	47U+	160U	4U	18U	40	1911	24U+	U01	4U	13U	4U	24U	2911+	1165
Methoxychlor	90U	1100U	60U	610U	71U*	106 1	60U	70U	90U	790U	60U	89U	60U	94U	60U	93U	60U	65U	60U	120U	60U	200
Endrin Ketone	90S	20U	009	120U	60U	18U	60U	14U	60U	160U	60U	18U	60U	19U	60U	19U	108	13U	009	24U	60U	3211
Chlordare	+U001	1100U	61*	610U	40U NC	U06	170U+	70U	530U+	790U	96NC*	89U	280+	94U 3	380U+	93U	*U88	65U	171	120U	*U062	160U
Toxaphene	80U	2200U	80U	1200U	110/1+	180U	80U	140U	80U	1600U	80U	180U	80U	100U	80U	1900	80U	130U	80U	240U	108	32011
PCB-(Aroclor)-1016	200U+	1100U	20U	610U	40U+	006	200U+	70U	200U+	790U	200U+	068	74U*	94U 2	200U+	93U 3	200U+	65U	40U+	120U	2001+	1091
PCB-(Aroclor)-1221	200U+	10011	220*	610U	460U*	00f	450U*	70U	490U*	190U	490U+	89U	20U	940 9	+0096	93U 4	430U*	65U	180U+		480U*	1601
PCB-(Aroclor)-1232	2000+	1100U	20U	610U	40U+	00	2000+	70U	2000+	790U	200U+	168	74U*	94U 2	200U+	93U	200U+	65U	40U+	<u> </u>	200U+	160U
PCB-(Aroclor)-1242	200U+	1100U	20U	610U	+00+	3700	200U+	700Y	2000+	8900	200U+	0.68	74U+	61 00X 2	200U+	6800	2001+	651	401)+	-	-11002	AXUUSS
PCB-(Aroclor)-1248	600C++	1100U	20U	610U	610U 540C++	90U	1900C+	70U	3900C*	790U	1 200C*	0.68	74U*	94 0 19	1900C*	<b></b>	1600C*	-	30C**	<u>+</u>	1 300**	11091
PCB-(Aroclor)-1254	400U+	2200U	48U*	1200U	+000£	180U	400U+	140U	+0089	1600U	400U+	180U	80U	190U 4	400U+		400U+		80U+	÷ –	400U+	1021
PCB-(Aroclor)-1260	400U+	2200U	40U	1200U	230C**	180U	400U+	140U	+000+	1600U	400U+	180U	80U	190U 4	400U+	L	40011+	1301	+1108	1040	40011-	1002
Legend for sample location:			Legend fo	Legend for Qualifiers:						ĺ				4		-		-		2222	1.000	7475

ST - Station ST - Station STA1 through STA5 - Station number C - Center of creek SS - Shallow Sedurent DS - Deeper & durent

C. Atalyte presence was confirmed on a secondary column.
C. Atalyte presence was confirmed on a secondary column.
U. - Compound was analyzed for but not detected. The number is the detection limit for the sample.
Elevated due to presence of an Aroclor.
Elevated due to presence of an Aroclor.
Elevated detection limit due to matrix interference.
Altered Aroclor pattern.
Y. Qualitative Verification
X. Matrix interference present, result therefore, elevated detection limits were reported.
X. Matrix interference present, result may be inflated.

27-Jan-93

Results of Split Sample Analyses

PANEL : Pesticides and PCBs Analyses

MATRLX: Soil

PANEL : Inorganics Analyses MATRIX: Soil Results of Split Sample Analyses OLIN - GILL CREEK SAMPLING NIAGARA FALLS

SAMPLE LOCATION	STAIC	STAIC	STA7D	STATINS	STATS STATES		STA1C	CT A 30	CTA 2C	CT A 3C	CT. 4.100		CT . 100	CT . 100								Γ
					00000			2010				CUPALIC	CC+F-IC	51A455	SIA4C	SIA4C	SUCAIS	STASDS	STA5SS STA5SS	STA5SS	STA5C	STA5C
COMPANY	5	VERSAR	E	VERSAR	1	VERSAR	E	VERSAR	н	VERSAR	Ľ	VERSAR	E	VERSAR	L	VERSAR	TI	VERSAR	E	VERSAR	н	VERSA
UNIT of MEASURE	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	ng/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	те/Ке	me/Ke	me/Ke	me/Ke
SAMPLE NUMBER	PP2719	185511	PP2707	185523	PP2710	185521	PP2711	185522	PP2712	185531	PP2713	185543	PP2714	_		185542	PP2716	185553	pp717	_		185553
COMPOUND																						40000
Alumum		13700		16400		11400		5570		11600		12500		100901		12500		16100		10900		00811
Antunony		22.8B		U1.1		11.6U		15.4B		11.20		8.6U		11.2U		13.7B		9.50		13.20		12.5U
Arsenic		5.2B		2.1B		6.3		8.1		6.1		3.0B		5.2		8.6		32.2		469		14.6
Barium		190		120		120		74.5B		132		96.5		132		147		961		2	T	2
Beryllium		U68.0		1.8		3,4				4.3		3.1		4.0		4.2		3.3		4.8	ſ	1 2
Cadmium		4.SU		1.7U		2.SU		U6.I		2.4U		1.9U		2.4U		2.5U		4.6		2.9U		2.7U
Calcium		44500		8070		54300		14 300		63800		8820		60800		46500		15500		50600		29600
Chromiun		72.8		18.2		5.At		87.3		47.6		15.2		63.7		92.0		98.4		78.4		322
Cobalt		10.2B		12.8B		9.1B		5.9B		9.7B		11.8B		10.8B		12.8B		13.8B		10.5B		10.2B
Copper	Í	49.5		17.6		31.6		23.9		45.8		18.7		63.9		121		56		59.1		75.7
Iron		00672	1	21500		18600		10200		19600		18800		18600		23900		39200		18100		0092
Lead		131	╡	31.8		137		85.3		123		14.5		127		143		1310		246		99
Magnesium		15000		6730		14000		12500		16100		5940		16200		12300		7230		13400		8400
Mangarese		384	$\uparrow$	246		405		251		456		207		377		324		345		371		262
Mercury	2.17	1.7	17	6.2	1.8J	1.9	1.8J	2.8	2.5J	6.1	5.21	0.20U	4.8]	4	3.4J	6.7	10.5J	1.2	6.0J	5.9	3.21	13.4
Nickel		27.7B		23.3		22.4		12.3B		31.5		23.5		25.9		28.3		31.4		20.9B		23.7
Potassium		2050B		1 540B	1	1570B		777B		1710B		1460B		1300B		1 <i>570</i> B		1690B		1490B		1440B
Selenium		2.SU		1.0U		1.6U		1.1U		1.5U		1.2U		1.5B		1.6U		1.3U		1.7U		1.8U
Silver		4.6B		3.2B		3.0B		1.5B		3.8U		3.0B		4.1B		4.1B		6.2		3.2B		5.3B
Sodium		357B		1400B		237B		184B		331B		424B		265B		290B		270B		275B		240B
Thallium		0.82U		0.35U		0.52U		0.37B	-	0.48U	_	0.40U		0.47U		0.53U		0.42U		0.58U		0.59U
Vanadium		34.4B		28.9		24.4B		12.1B		24.9		21.8		24.0B		29.2		29.9		24.4B	╞	27.9
Zine		328		146		390		164		267		174		326		363		1/6	-	320		595
Cyanide		2.00		U68.0		130		U0.1		1.3U		1.00		1.3U		1.3U		1.1U		1.51	ſ	1 511
1																					1	222

Legend for sample location: STA - Station STA through STA5 - Station number C - Center of creek SS - Shallow Sediment DS - Deeper Sediment

Legend for Qualifiers: U - Compound was analyzed for but not detected. The number is the detection limit for the sample. B - Estimate

## APPENDIX E

## NYSDEC ANALYTICAL DATA FOR OCTOBER 1992 GILL CREEK SEDIMENT SAMPLES

#### INORGANIC DATA COMMENT PAGE

Laboratory Name <u>RECRA ENVIRONMENTAL, INC.</u>

USEPA Defined Inorganic Data Qualifiers:

- B Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
- U Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).
- E Indicates a value estimated or not reported due to the presence of interference.
- S Indicates value determined by Method of Standard Addition.
- N Indicates spike sample recovery is not within control limits.
- \* Indicates duplicate analysis is not within control limits.
- + Indicates the correlation coefficient for method of standard addition is less than 0.995.
- M Indicates duplicate injection results exceeded control limits.
- W Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
- G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
- L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.



V	OLATILE (	1A ORGANICS ANALYSIS	5 DATA SHE	ET	18	EPA :	SAMPLE	NO.
J Name: <u>REC</u>	RA ENVIR	<u> </u>	Contract:	<u>C00241</u>	2	185	501	
		ase No.: <u>SH992</u>				No.:	1006	-
Matrix: (soil	/water)	SOIL		Lab Sam	ple ID:			
Sample wt/vol	: .	<u>5.0</u> (g/mL) <u>G</u>	-		e ID:		0	<del>-</del> .
Level: (lo	w/med)	LOW		-	ceived:			
% Moisture: n	ot dec.	49			alyzed:			
GC Column: DB	- 624	ID: <u>0.530</u> (mm)			n Factor			
Soil Extract	Volume:	(uL)			iquot Vo	lume:		(uL)
CAS NO		COMPOUND		NTRATION or ug/K	UNITS: g) <u>UG/KG</u>		Q	
74 - 83 - 75 - 01 - 75 - 00 - 75 - 09 - 67 - 64 - 75 - 15 - 75 - 35 - 75 - 34 - 540 - 59 - 67 - 66 - 107 - 06 - 78 - 93 - 71 - 55 - 56 - 23 - 75 - 27 - 78 - 87 - 10061 - 79 - 01 - 124 - 48 - 79 - 00 - 71 - 43 - 10061 - 79 - 01 - 124 - 48 - 79 - 00 - 71 - 43 - 10061 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 75 - 25 - 108 - 10 - 41 - 100 - 100 -	9	Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chlor Acetone Carbon Disulfid 1,1-Dichloroet 1,2-Dichloroet 1,2-Dichloroet 2-Butanone 1,1,1-Trichlor Carbon Tetrach -Bromodichlorom 1,2-Dichloropr cis-1,3-dichlo -Trichloroethen -Dibromochlorom 1,1,2-Trichlor -Benzene trans-1,3-dichlo -Bromoform 2-Hexanone Tetrachloroethe Tetrachloroethe Tetrachloroethe Chlorobenzene Ethylbenzene Styrene Total Xylenes	ride hene hane hene (tota hane oethane opane ropropene e ethane loroprope tanone hloroetha			20 20 20 20 20 20 20 20 20 20 20 20 20 2	מקם מממממממממ מממממת למממת	

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	EPA SAMPLE NO.
VOLATILE ORGANICS ANALYSIS DE TENTATIVELY IDENTIFIED COM	POUNDS 15 185501
I Name: <u>RECRA ENVIRON</u> Co:	ntract: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> S.	AS No.: SDG No.: 1006
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019104</u>
Sample wt/vol:5.0 (g/mL) G	Lab File ID: <u>H9740</u>
Level: (low/med) LOW	Date Received: <u>10/06/92</u>
<pre>% Moisture: not dec. <u>49</u></pre>	Date Analyzed: <u>10/07/92</u>
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor:1.0
Soil Extract Volume: (uL)	Soil Aliquot Volume:(uL)
Number TICs found: <u>0</u>	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====

1A VOLATILE ORGANICS ANALYSIS DATA S		EPA SAMPLE NO.
		185502
Name: <u>RECINA DIVERSE</u>	t: <u>C002412</u>	<u> </u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No	.: SDG N	o.: <u>1006</u>
Atrix: (soil/water) <u>SOIL</u>	Lab Sample ID:	
Sample wt/vol: (g/mL) G	Lab File ID:	<u>H9749</u>
Level: (low/med) LOW	Date Received:	10/06/92
* Moisture: not dec. <u>59</u>	Date Analyzed:	10/07/92
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor:	1.0
Soil Extract Volume: (uL)	Soil Aliquot Vol	ume:(uL)

CAS NO.

COMPOUND

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

Q

74-87-3Chloromethane	24	U
74-83-9Bromomethane	24	U
75-01-4Vinyl Chloride	24	U
75-00-3Chloroethane	24	U
75-00-3Methylene Chloride	3	J
75-09-2Methylene chioride	100	
67-64-1Acetone 75-15-0Carbon Disulfide	24	U
75-15-0Carbon Disulliue	24	U
75-35-41,1-Dichloroethene	24	Ū
75-34-31,1-Dichloroethane	24	U
540-59-01,2-Dichloroethene (total)	24	U
67-66-3Chloroloim	24	U
107-06-21,2-Dichloroethane		J
78-93-32-Butanone	20	1
78-93-32-Butanone 71-55-61,1,1-Trichloroethane	24	U
56-23-5Carbon Tetrachloride	27	U
75-27-4Bromodichloromethane	24	U
78 97 5	24	U
10061-01-5cis-1,3-dichloropropene	24	U
79-01-6Trichloroethene	24	U
124-48-1Dibromochloromethane	24	U
79-00-51,1,2-Trichloroethane	24	U
79-00-51,1,2-111cm020ccmano	23	J
71-43-2Benzene 10061-02-6trans-1,3-dichloropropene	24	U
	24	U
75-25-2Bromoform 108-10-14-Methyl-2-Pentanone	24	U
108-10-14-Methyl-2-Pentanone	24	U
591-78-62-Hexanone	24	Ū
127-18-4Tetrachloroethene	24	U
79-34-51,1,2,2-Tetrachloroethane	24	υ
108-88-3Toluene		E
108-90-7Chlorobenzene		Ū
100-41-4Ethylbenzene	24	
100-42-5Styrene		1 -
1330-20-7Total Xylenes	24	U
		_

1E	EET 21 EPA SAMPLE I	NO .
VOLATILE ORGANICS ANALYSIS DATA SHI TENTATIVELY IDENTIFIED COMPOUNDS	185502	
b Name: <u>RECRA DAVINON</u>	: <u>C002412</u>	
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.	: SDG No.: <u>1006</u>	
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019105</u>	
Sample wt/vol:5.0 (g/mL) G	Lab File ID: <u>H9749</u>	
Level: (low/med) LOW	Date Received: <u>10/06/92</u>	
<pre>% Moisture: not dec59</pre>	Date Analyzed: <u>10/07/92</u>	
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor: <u>1.0</u>	
Soil Extract Volume: (uL)	Soil Aliquot Volume:(	uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

T

Number TICs found: <u>3</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
1. 541-73-1 1. 106-46-7	1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene	23.57 23.70 24.30	43 160 31	N N U N

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EPA SAMPLE NO.

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VOLATILE ORGANICS ANALYSIS	3 DATA SHEET
	185502DL
b Name: RECRA ENVIRON	Contract: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u>	SAS No.: SDG No.: 1006
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019105DL</u>
Sample wt/vol: (g/mL) G	Lab File ID: <u>H9748</u>
Level: (low/med) LOW	Date Received: <u>10/06/92</u>
<pre>% Moisture: not dec59</pre>	Date Analyzed: <u>10/07/92</u>
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor: <u>1.0</u>
Soil Extract Volume: (uL)	Soil Aliquot Volume:(uL)
CAS NO. COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> Q
74-87-3Chloromethane	110 U 110 U

1**A** 

75-01-4-----Vinyl Chloride\_

75-09-2-----Methylene Chloride\_

75-35-4-----1,1-Dichloroethene\_

75-34-3-----1,1-Dichloroethane\_

107-06-2-----1,2-Dichloroethane

71-55-6-----1,1,1.1-Trichloroethane

56-23-5-----Carbon Tetrachloride\_

75-27-4-----Bromodichloromethane\_

124-48-1-----Dibromochloromethane\_

79-00-5-----1,1,2-Trichloroethane\_

108-10-1-----4-Methyl-2-Pentanone

127-18-4-----Tetrachloroethene

108-90-7----Chlorobenzene

100-41-4----Ethylbenzene

1330-20-7-----Total Xylenes

10061-02-6----trans-1,3-dichloropropene\_

79-34-5-----1,1,2,2-Tetrachloroethane\_

10061-01-5----cis-1,3-dichloropropene

78-87-5-----1,2-Dichloropropane\_

79-01-6-----Trichloroethene\_

540-59-0-----1,2-Dichloroethene (total)

75-15-0-----Carbon Disulfide

75-00-3-----Chloroethane\_

67-66-3-----Chloroform

78-93-3-----2-Butanone

71-43-2----Benzene

75-25-2----Bromoform\_

108-88-3-----Toluene

100-42-5----Styrene\_

591-78-6----2-Hexanone\_

67-64-1-----Acetone

1E IE DATA SI	HEET 23 EPA SAMPLE NO.
VOLATILE ORGANICS ANALYSIS DATA SI TENTATIVELY IDENTIFIED COMPOUNDS	185502DL
AD NAME: <u>RECRA DIVINON</u>	t: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No	.: SDG No.: <u>1006</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019105DL</u>
Sample wt/vol: <u>1.1</u> (g/mL) <u>G</u>	Lab File ID: <u>H9748</u>
Level: (low/med) LOW	Date Received: <u>10/06/92</u>
% Moisture: not dec. <u>59</u>	Date Analyzed: <u>10/07/92</u>
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor: <u>1.0</u>
Soil Extract Volume: (uL)	Soil Aliquot Volume:(uL)

## CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Number TICs found: <u>3</u>

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FORM	Ι	VOA
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127-18-4-----Tetrachloroethene\_

108-90-7-----Chlorobenzene

100-41-4----Ethylbenzene\_\_\_\_

1330-20-7----Total Xylenes\_

108-88-3-----Toluene\_

100-42-5-----Styrene\_

79-34-5-----1,1,2,2-Tetrachloroethane\_

Contract: <u>C002412</u>
Name: <u>RECRA ENVIRON</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.: <u>SDG No.: 1006</u>
Matrix: (soil/water) <u>SOIL</u> Lab Sample ID: <u>AS019106</u>
Sample wt/vol: (g/mL) G Lab File ID: H9745
Level: (low/med) LOW Date Received: 10/06/92
$D_{2} = 0.07/92$
* Moisture: not dec. <u></u>
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm) Dilution Factor: <u>1.0</u>
Soil Extract Volume: (uL) Soil Aliquot Volume:(uL)
CONCENTRATION UNITS: CAS NO. COMPOUND (ug/L or ug/Kg) <u>UG/KG</u> Q
74-87-3Chloromethane       21       U         74-83-9Bromomethane       21       U         75-01-4Vinyl Chloride       21       U         75-00-3Chloroethane       21       U         75-00-3Chloroethane       21       U         75-00-3Chloroethane       21       U         75-01-4

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#### 0 21 EPA SAMPLE NO.

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VOLATILE	ORGANICS	ANALYSIS	DATA	SHEET

1E VOLATILE ORGANICS ANALYSIS DATA SH	25 Eet	EPA SAMPLE NO.
TENTATIVELY IDENTIFIED COMPOUNDS		185503
b Name: <u>RECRA ENVIRON</u> Contract	: <u>C002412</u>	
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.	: SDG	No.: <u>1006</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID:	
Sample wt/vol:5.2 (g/mL) G	Lab File ID:	<u>H9745</u>
Level: (low/med) LOW	Date Received:	10/06/92
% Moisture: not dec. <u>55</u>	Date Analyzed:	10/07/92
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor	r: <u>1.0</u>
Soil Extract Volume: (uL)	Soil Aliquot Vo	olume:(uL)
CONCEN	TRATION UNITS:	

(ug/L or ug/Kg) <u>UG/KG</u>

Number TICs found: <u>4</u>

EST. CONC. Q  $\mathbf{RT}$ COMPOUND NAME CAS NUMBER -----\_\_\_\_\_ \_\_\_\_\_\_  $\mathbf{JN}$ 31 541-73-1 1,3-Dichlorobenzene 23.43 1. JN 130 23.57 106-46-7 1,4-Dichlorobenzene 2.  $\mathbf{JN}$ 22 24.15 95-50-1 1,2-Dichlorobenzene З. J 24 24.67 Siloxane Derivative 4.

26

EPA SAMPLE NO.

VOLATILE ORGANICS ANALYSIS DATA SHEET	۱ <del>-</del>		
		1855	03DL
Name: <u>RECRA ENVIRON</u> Contract: <u>C0024</u>	<u>412</u>		
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.:	SDG 1	No.: <u>1</u>	006
Matrix: (soil/water) SOIL Lab Sa	ample ID:	<u>AS019</u>	106DL
Sample wt/vol: <u>1.0</u> (g/mL) <u>G</u> Lab F:	ile ID:	<u>H9747</u>	<u> </u>
Level: (low/med) LOW Date Date D	Received:	<u>10/06</u>	/92
<pre>% Moisture: not dec55</pre> Date 2	Analyzed:	<u>10/07</u>	/92
	ion Factor	:	1.0
Soil Extract Volume: (uL) Soil	Aliquot Vo	lume:	(uL)
CAS NO. COMPOUND (ug/L or ug	ON UNITS: /Kg) <u>UG/KG</u>	2	Q
74-87-3Chloromethane 74-83-9Bromomethane 75-01-4Vinyl Chloride	1	.10 U .10 U .10 U	1 1

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	74-87-3Chioromechane	110	ប	
	74-83-9Bromomethane	110	U U	
	75-01-4Vinyl Chloride	110	U	,
	75-00-3Chloroethane 75-09-2Methylene Chloride	7	DJ	
	75-09-2Methylene Chloride	200	D	
	67-64-1Acetone		U	l
	67-64-1Acetone 75-15-0Carbon Disulfide	110	-	
	ar ar 4	110	U	l
	75.34.31,1-Dichlorcethane	TT0	U	Ĺ
	75-35-4	110	U	
1	C7 66-3Chloroform	48	DJ	
	67-66-3Chloroform 107-06-21,2-Dichloroethane	110	U	l
	10/-08-2	63	DJ	
	78-93-32-Butanone 71-55-61,1,1-Trichloroethane	110	U	1
	56-23-5Carbon Tetrachloride		U	
	75-27-4Bromodichloromethane	110	U	
	75-27-4Biomodicineseme	110	U	
	78-87-51,2-Dichloropropane 10061-01-5cis-1,3-dichloropropene	110	U	
	79-01-6Trichloroethene		ט (	
	124-48-1Dibromochloromethane	110	U	
	79-00-51,1,2-Trichloroethane	110	U	
		27	DJ	
	71-43-2Benzene 10061-02-6trans-1,3-dichloropropene	110	U	
		110	ប	1
	1008102200Bromoform 75-25-2Bromoform 108-10-14-Methyl-2-Pentanone	110	U	
	108-10-14-Methyl-2-renealed 591-78-62-Hexanone 127-18-4Tetrachloroethene 79-34-51,1,2,2-Tetrachloroethane	110	U	
	591-78-62-Rexamone	110	U	
	127-18-4Tetrachioroethane	110	U	
	79-34-51,1,2,2-ietrachiorocommo	110	U	
	108-88-3Toluene	860	D	
	108-90-7Chlorobenzene	110	U	
	100-41-4Ethylbenzene	110	U	
	100-42-5Styrene 1330-20-7Total Xylenes	110	U	
	1330-20-7Total Xylenes		1	
		· · · · · · · · · · · · · · · · · · ·		÷ '

EPA SAMPLE NO.

1E	EPA SAMPLE NO.
VOLATILE ORGANICS ANALYSIS DATA TENTATIVELY IDENTIFIED COMPOU	I85503DL
ab Name: <u>RECRA ENVIRON</u> Conta	ract: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS	No.: SDG No.: 1006
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019106DL</u>
Sample wt/vol: <u>1.0</u> (g/mL) <u>G</u>	Lab File ID: <u>H9747</u>
Level: (low/med) LOW	Date Received: <u>10/06/92</u>
<pre>% Moisture: not dec. <u>55</u></pre>	Date Analyzed: <u>10/07/92</u>
GC Column: <u>DB-624</u> ID: <u>0.530</u> (mm)	Dilution Factor: <u>1.0</u>
Soil Extract Volume: (uL)	Soil Aliquot Volume:(uL)
	NCENTRATION UNITS: g/L or ug/Kg) <u>UG/KG</u>

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CAS	NUMBER	COMPOUND NAME	RT =======	EST. CONC.	Q =====	
======	======================================	1,4-Dichlorobenzene	23.60	170	JN	
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EPA SAMPLE NO.

	11			
SEMIVOLATILE	ORGANICS	ANALYSIS	DATA	SHEET

b Name: <u>RECRA ENVI</u>	RON Contract	: <u>C002412</u>	185501
			No • 1006
Lab Code: <u>RECNY</u>	Case No.: <u>SH992</u> SAS No.	• 626 .	<u> </u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	AS019104
Sample wt/vol:	<u>30.40</u> (g/mL) <u>G</u>	Lab File ID:	12376Y
Level: (low/med)	LOW	Date Received:	10/06/92
% Moisture: <u>44</u>	decanted: $(Y/N)$ <u>N</u>	Date Extracted:	<u>10/09/92</u>
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/22/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:1.0

GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.5</u>

CAS NO.

COMPOUND

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

Q

	E 0 0	U
108-95-2Phenol	580	UU
111-44-4bis (2-Chloroethyl) Ether	580	
95-57-82-Chlorophenol	580	υ
541-73-11,3-Dichlorobenzene	1000	
106-46-71,4-Dichlorobenzene	3200	
95-50-11,2-Dichlorobenzene	230	J
95-48-72-Methylphenol	580	U
108-60-12,2'-oxybis(1-Chloropropane)_	580	U
106-44-54-Methylphenol 621-64-7N-Nitroso-Di-n-Propylamine	1 580	U
621-64-7N-Nitroso-Di-n-Propylamine	580	U
67-72-1Hexachloroethane	580	U
98-95-3Nitrobenzene	580	U
78-59-1Isophorone	580	U
88-75-52-Nitrophenol	580	U
105-67-92 4-Dimethylphenol	580	U
105-67-92,4-Dimethylphenol 111-91-1bis(2-Chloroethoxy)Methane	580	U
120-83-22,4-Dichlorophenol	580	U
120-82-11,2,4-Trichlorobenzene	840	
91-20-3Naphthalene	75	J
106-47-84-Chloroaniline	580	U
87-68-3Hexachlorobutadiene	580	U
59-50-74-Chloro-3-Methylphenol	- I	U
91-57-62-Methylnaphthalene	66	ĴĴ
		U
77-47-4Hexachlorocyclopentadlene 88-06-22,4,6-Trichlorophenol 95-95-42,4,5-Trichlorophenol	580	Ū
95-95-42,4,5-Trichlorophenol	1400	U
91-58-72-Chloronaphthalene	580	U
88-74-42-Nitroaniline	1400	U
		U
131-11-3Dimethyl Phthalate		J
208-96-8Acenaphthylene	_ 1	U
606-20-22,6-Dinitrotoluene		UU
99-09-23-Nitroaniline	- 1	J J
83-32-9Acenaphthene	100	

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EPA SAMPLE NO.

	Contract	: <u>C002412</u>	185501
Name: <u>RECRA ENVIE</u>			
Lab Code: <u>RECNY</u> (	Case No.: <u>SH992</u> SAS No.	: SDG	No.: <u>1006</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	<u>AS019104</u>
Sample wt/vol:	<u>30.40</u> (g/mL) <u>G</u>	Lab File ID:	12376Y
Level: (low/med)	LOW	Date Received:	<u>10/06/92</u>
% Moisture: <u>44</u>	decanted: $(Y/N)$ <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/22/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:1.0
GPC Cleanup: (Y/N)	<u>Y</u> pH: <u>7.5</u>		

1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CAS NO. COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u> Q

51-28-52,4-Dinitrophenol	1400	υ
100-02-74-Nitrophenol	- 1400	U
132-64-9Dibenzofuran	-  580	U
132-64-9	580	U
121-14-22,4-Dimitriotorutene	- 580	Ū
84-66-2Diethylphthalate 7005-72-34-Chlorophenyl-phenylether	- 580	Ū
7005-72-34-Chiorophenyi-phenyiether	- 580	U
86-73-7Fluorene	- 1400	U
100-01-64-Nitroaniline 534-52-14,6-Dinitro-2-Methylphenol	- 1400	U
534-52-14,6-Dinitro-2-Methylphenol	- 580	UU
86-30-6N-Nitrosodiphenylamine (1)	-	-
101-55-34-Bromophenyl-phenylether	580	U
118-74-1Hexachlorobenzene	580	U
87-86-5Pentachlorophenol	1400	U
85-01-8Phenanthrene	1200	_
120-12-7Anthracene	370	J
86-74-8Carbazole	97	J
84-74-2Di-n-Butylphthalate	580	U
206-44-0Fluoranthene	_ 2200	
	3100	
129-00-0Pyrene 85-68-7Butylbenzylphthalate	580	U
91-94-13,3'-Dichlorobenzidine	580	U
56-55-3Benzo(a)Anthracene	1200	
218-01-9Chrysene	- 1400	
117-81-7Bis (2-Ethylhexyl) Phthalate	- 530	J
117-84-0Di-n-Octyl Phthalate	580	U
205-99-2Benzo(b)Fluoranthene		
205-99-2Benzo(b)Fluoranthene		
20/-08-9Bell20(k)FildFalchene		
50-32-8Benzo(a) Pyrene 193-39-5Indeno(1,2,3-cd) Pyrene	- 330	J
193 - 39 - 5	- 43	J
53-70-3Dibenz (a, h) Anthracene	- 150	J
191-24-2Benzo(g,h,i)Perylene	- 150	

SEMTVOLATI	1F LE ORGANICS ANALYSIS DATA S	sнеет 30	EPA SAMPLE NO.
TENTAT	IVELY IDENTIFIED COMPOUNDS		185501
> Name: <u>RECRA ENVI</u>	RON Contract	: <u>C002412</u>	
	Case No.: <u>SH992</u> SAS No.	: SDG 1	No.: <u>1006</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	AS019104
Sample wt/vol:	<u>30.40</u> (g/mL) <u>G</u>	Lab File ID:	12376Y
Level: (low/med)	LOW	Date Received:	10/06/92
% Moisture: <u>44</u>	decanted: (Y/N) <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/22/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:1.0
GPC Cleanup: (Y/N)	<u>Y</u> pH: <u>7.5</u>		

Number TICs found: 20

.

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		*=====**		=====
1.	UNKNOWN	8.43	2000	J
2.	UNKNOWN	27.13	1100	J
3	UNKNOWN	27.35	3300	J
4.	UNKNOWN	27.42	2900	J
5.	UNKNOWN	28.33	3700	J
6.	UNKNOWN	29.28	870	J
5. 7.	PAH DERIVATIVE	29.35	400	J
8.	PAH DERIVATIVE	29.55	470	J
9.	LONG CHAIN SATURATED HYDROCA	30.02	1400	J
10.	UNKNOWN	30.68	1000	J
11.	UNKNOWN	30.83	1600	J
12.	UNKNOWN	31.32	4200	J
13.	UNKNOWN	31.62	2200	J
14.	UNKNOWN	33.17	2500	J
15.	UNKNOWN	33.32	900	J
16.	LONG CHAIN SATURATED HYDROCA	34.15	3700	J
17.	UNKNOWN	34.40	1000	J
18.	UNKNOWN	35.07	740	J
19.	UNKNOWN	35.45	1000	J
20.	LONG CHAIN SATURATED HYDROCA	36.00	4400	J

- .

EPA SAMPLE NO.

SEMIVOLATI	LE ORGANICS ANALISIS DA	IA SREEI	
Name: <u>RECRA ENVI</u>	185502		
Mane. <u>Recide Bitter</u>			
Lab Code: <u>RECNY</u>	Case No.: <u>SH992</u> SAS 1	No.: SDG	No.: <u>1006 ′</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	AS019105
Sample wt/vol:	<u>30.50</u> (g/mL) <u>G</u>	Lab File ID:	12381Y
Level: (low/med)	LOW	Date Received:	10/06/92
<pre>% Moisture:53</pre>	decanted: (Y/N) <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/23/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:1.0
GPC Cleanup: (Y/N)	<u>Y</u> pH: <u>7.8</u>	CONCENTRATION UNITS	•
CAS NO.		(ug/L or ug/Kg) UG/	

**D 3 M 3** 

OUPPD

1B

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108-95-2Phenol	690	U
108-95-2	690	U
111-44-4DIS(2-Chiorophonol	690	υ
95-57-82-Chlorophenol	450	J
541-73-11,3-Dichlorobenzene	1400	0
106-46-71,4-Dichlorobenzene		U
95-50-11,2-Dichlorobenzene	690	-
95-48-72-Methylphenol 108-60-12,2'-oxybis(1-Chloropropane)_	690	U
108-60-12,2'-oxybis(1-Chloropropane)_	690	U
106-44-54-Metnyiphenoi	090	U
621-64-7N-Nitroso-Di-n-Propylamine	690	U
67-72-1Hexachloroethane	690	U
98-95-3Nitrobenzene	690	U
78-59-1Isophorone	690	U
88-75-52-Nitrophenol	690	U
105-67-92,4-Dimethylphenol	690	U
111-91-1bis(2-Chloroethoxy)Methane	690	U
120-83-22,4-Dichlorophenol	690	U
120-82-11,2,4-Trichlorobenzene	390	J
91-20-3Naphthalene	88	J
106-47-84-Chloroaniline	690	U
87-68-3Hexachlorobutadiene	690	U
59-50-74-Chloro-3-Methylphenol	690	U
91-57-62-Methylnaphthalene	93	J
77-47-4Hexachlorocyclopentadiene	690	U
88-06-22,4,6-Trichlorophenol	690	U
95-95-42,4,5-Trichlorophenol	1700	U
91-58-72-Chloronaphthalene	690	U
88-74-42-Nitroaniline	1700	Ū
131-11-3Dimethyl Phthalate	690	Ū
208-96-8Acenaphthylene	63	J
606-20-22,6-Dinitrotoluene		U
99-09-23-Nitroaniline	1700	U
83-32-9Acenaphthene	160	J
05-52-9Acenaphenene	.	

FORM I SV-1

EPA SAMPLE NO.

1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET	EPA	SAMPLE NO	Э.
b Name: <u>RECRA ENVIRON</u> Contract: <u>C002412</u>	18	5502	
		<u></u>	
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.: SDO	G No.:	<u>1006 ·</u>	
Matrix: (soil/water) <u>SOIL</u> Lab Sample ID:	: <u>ASO</u>	19105	-
Sample wt/vol: <u>30.50</u> (g/mL) <u>G</u> Lab File ID:	1238	81Y	
Level: (low/med) LOW Date Received:	: <u>10/(</u>	06/92	
% Moisture: <u>53</u> decanted: (Y/N) <u>N</u> Date Extracted	1: <u>10/(</u>	09/92	
Concentrated Extract Volume: <u>500.0</u> (uL) Date Analyzed:	: <u>10/2</u>	23/92	
Injection Volume:2.0(uL) Dilution Facto	or:	1.0	
GPC Cleanup: (Y/N) Y pH: 7.8 CONCENTRATION UNIT			
CAS NO. COMPOUND (ug/L or ug/Kg) UC	<u>G/KG</u>	Q	
51-28-52,4-Dinitrophenol	L700	U	

51-28-52,4-Dinitrophenol	1700	U
100-02-74-Nitrophenol	1700	U
132-64-9Dibenzofuran	93	J
121-14-22,4-Dinitrotoluene	690	U
84-66-2Diethylphthalate	690	U
7005-72-34-Chlorophenyl-phenylether	690	U
86-73-7Fluorene	200	J
100-01-64-Nitroaniline	- 1700	U U
534-52-14,6-Dinitro-2-Methylphenol_	1700	U U
86-30-6N-Nitrosodiphenylamine (1)		U
101-55-34-Bromophenyl-phenylether	690	ש
118-74-1Hexachlorobenzene	- 61	J
87-86-5Pentachlorophenol	1700	U U
85-01-8Phenanthrene	1600	
120-12-7Anthracene	460	J
86-74-8Carbazole	170	J
84-74-2Di-n-Butylphthalate	690	U
206-44-0Fluoranthene	3200	
129-00-0Pyrene	3600	
85-68-7Butylbenzylphthalate	260	J
91-94-13,3'-Dichlorobenzidine	690	U
56-55-3Benzo(a)Anthracene	_ 2200	
218-01-9Chrysene	2600	
117-81-7Bis (2-Ethylhexyl) Phthalate	1800	
117-84-0Di-n-Octyl Phthalate	690	<u></u> ד
205-99-2Benzo(b)Fluoranthene	2700	
207-08-9Benzo(k)Fluoranthene	1900	
50-32-8Benzo(a) Pyrene	2100	
193-39-5Indeno(1,2,3-cd)Pyrene		J
53-70-3Dibenz(a,h)Anthracene		J
191-24-2Benzo(g,h,i)Perylene	290	J

EPA SAMPLE NO. 1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS 185502 b Name: <u>RECRA ENVIRON</u> Contract: <u>C002412</u> Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.: \_\_\_\_\_ SDG No.: <u>1006</u> Lab Sample ID: AS019105 Matrix: (soil/water) <u>SOIL</u> Sample wt/vol: <u>30.50</u> (g/mL) <u>G</u> Lab File ID: <u>12381Y</u> Date Received: <u>10/06/92</u> Level: (low/med) LOW % Moisture: \_\_\_\_53 decanted: (Y/N) N Date Extracted: 10/09/92 Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/23/92 Dilution Factor: <u>1.0</u> Injection Volume: <u>2.0</u>(uL) GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.8</u>

Number TICs found: 20

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
		UNKNOWN HYDROCARBON	26.98	3100	J
	1. 2.	UNKNOWN HYDROCARBON	27.20	5400	J
	3.	PAH DERIVATIVE	29.17	270	J
-	<b>4</b> .	PAH DERIVATIVE	29.37	290	J
	4. 5.	PAH DERIVATIVE	29.47	540	J
	5. 6.	PAH DERIVATIVE	29.73	170	J
	o. 7.	UNKNOWN	30.98	290	J
	8.	UNKNOWN	31.10	440	J
	9.	UNKNOWN	31.23	480	J
	10.	UNKNOWN	31.42	160	J
	11.	UNKNOWN	32.22	290	J
	12.	UNKNOWN	32.53	390	J
	13.	UNKNOWN	33.05	410	J
	14.	PAH DERIVATIVE	33.20	340	J
	15.	UNKNOWN	33.57	400	J
	16.	UNKNOWN	33.77	500	J
	17.	UNKNOWN	34.03	3100	J
	18.	UNKNOWN	34.32	1600	J
	19.	UNKNOWN HYDROCARBON	34.95	670	J
	20.	UNKNOWN	35.32	2500	J
				l	

34 EPA SAMPLE NO.

18 SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

185503 D Name: <u>RECRA ENVIRON</u> Contract: <u>C002412</u> Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.: \_\_\_\_\_ SDG No.: <u>1006'</u> Lab Sample ID: AS019106 Matrix: (soil/water) <u>SOIL</u> Lab File ID: <u>12375Y</u> Sample wt/vol: <u>30.90</u> (g/mL) <u>G</u>\_\_\_\_ Date Received: 10/06/92 Level: (low/med) LOW % Moisture: <u>54</u> decanted: (Y/N) <u>N</u> Date Extracted: <u>10/09/92</u> Concentrated Extract Volume: 500.0 (uL) Date Analyzed: 10/22/92 Dilution Factor: <u>1.0</u> Injection Volume: <u>2.0</u>(uL)

GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>

CAS NO. COMPOUND

CONCENTRATION UNITS:  $(uq/L \text{ or } ug/Kg) \underline{UG/KG} Q$ 

108-95-2Phenol	700	U
111-44-4bis (2-Chloroethyl) Ether	700	U
95-57-82-Chlorophenol	700	U
541-73-11,3-Dichlorobenzene	3300	
106-46-71,4-Dichlorobenzene	12000	Е
95-50-11,2-Dichlorobenzene	910	
	700	υ
95-48-72-Methylphenol 108-60-12,2'-oxybis(1-Chloropropane)	700	Ū
108-60-12,2 -OxyDis(1-Chiolopropunc)_	700	Ū
106-44-54-Methylphenol 621-64-7N-Nitroso-Di-n-Propylamine	700	Ū
621-64-7N-NICIOSO-DI-N-PIOPYIAMIMe	700	Ū
67-72-1Hexachloroethane	700	U
98-95-3Nitrobenzene	700	U
78-59-1Isophorone	700	U
88-75-52-Nitrophenol	700	U
105-67-92,4-Dimethylphenol		U
111-91-1bis(2-Chloroethoxy)Methane	700	U
120-83-22,4-Dichlorophenol	1300	
120-82-11,2,4-Trichlorobenzene	1300	J
91-20-3Naphthalene		U
106-47-84-Chloroaniline		U
87-68-3Hexachlorobutadiene		UUU
59-50-74-Chloro-3-Methylphenol	/00	-
91-57-62-Methylnaphthalene	150	J
77-47-4Hexachlorocyclopentadiene		U
88-06-22,4,6-Trichlorophenol	700	U
95-95-42,4,5-Trichlorophenol	1700	U
91-58-72-Chloronaphthalene	700	U
88-74-42-Nitroaniline	1700	U
131-11-3Dimethyl Phthalate	700	U
208-96-8Acenaphthylene	700	U
606-20-22,6-Dinitrotoluene	700	U
99-09-23-Nitroaniline	1700	U
83-32-9Acenaphthene	180	J

FORM I SV-1

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EPA SAMPLE NO.

Name: <u>RECRA ENVI</u>	RON Contract	: <u>C002412</u>	185503
	Case No.: <u>SH992</u> SAS No.	· SDG	No.: 1006
Lab Code: <u>RECNI</u>	Lase NO.: <u>31772</u> 345 NO.	• 000	<u>+000</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	AS019106
Sample wt/vol:	<u>30.90</u> (g/mL) <u>G</u>	Lab File ID:	<u>12375Y</u>
Level: (low/med)	LOW	Date Received:	10/06/92
% Moisture: <u>54</u>	decanted: $(Y/N)$ <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/22/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:1.0
GPC Cleanup: (Y/N)	<u>Y</u> pH: <u>7.6</u>		

1C SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CAS NO. COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u> Q

	Y	· · · · · · · · · · · · · · · · · · ·
51-28-52,4-Dinitrophenol	1700	υ
100-02-74-Nitrophenol	1700	υ
132-64-9Dibenzofuran	140	JJ
121-14-22,4-Dinitrotoluene	700	Ū
84-66-2Diethylphthalate	700	Ū
7005-72-34-Chlorophenyl-phenylether	700	Ū
86-73-7Fluorene	250	J
100-01-64-Nitroaniline	1700	U
534-52-14,6-Dinitro-2-Methylphenol		Ū
S34-52-14, 8-Dimitro-2-methylphenol	700	U
86-30-6N-Nitrosodiphenylamine (1)	700	U
101-55-34-Bromophenyl-phenylether		J
118-74-1Hexachlorobenzene	1700	U
87-86-5Pentachlorophenol	1600	U
85-01-8Phenanthrene	440	-
120-12-7Anthracene		J
86-74-8Carbazole	210	J
84-74-2Di-n-Butylphthalate	700	U
206-44-0Fluoranthene	3000	1
129-00-0Pyrene	3700	
85-68-7Butylbenzylphthalate	700	U
91-94-13,3'-Dichlorobenzidine	700	U
56-55-3Benzo(a)Anthracene	1300	
218-01-9Chrysene	1800	
117-81-7Bis (2-Ethylhexyl) Phthalate	1000	 
117-84-0Di-n-Octyl Phthalate	700	ש
205-99-2Benzo(b)Fluoranthene	2400	
205-99-2Benzo(b)Fluoranthene 207-08-9Benzo(k)Fluoranthene	1000	
50-32-8Benzo(a)Pyrene	1100	
193-39-5Indeno(1,2,3-cd)Pyrene	700	U
53-70-3Dibenz(a,h)Anthracene	700	U
191-24-2Benzo(g,h,i)Perylene		U

1F SEMIVOLATILE ORGANICS ANALYSIS DAT	30 EPA SAMPLE NO
TENTATIVELY IDENTIFIED COMPOUNT	
Name: <u>RECRA ENVIRON</u> Contra	ct: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS N	o.: SDG No.: 1006
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019106</u>
Sample wt/vol: <u>30.90</u> (g/mL) <u>G</u>	Lab File ID: <u>12375Y</u>
Level: (low/med) <u>LOW</u>	Date Received: <u>10/06/92</u>
% Moisture: <u>54</u> decanted: (Y/N) <u>N</u>	Date Extracted: <u>10/09/92</u>
Concentrated Extract Volume: <u>500.0</u> (uL)	Date Analyzed: <u>10/22/92</u>
Injection Volume: <u>2.0</u> (uL)	Dilution Factor: <u>1.0</u>
GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>	

Number TICs found: <u>20</u>

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

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CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q =====
1.	POLYCHLORINATED COMPOUND	25.85	580	J
2.	UNKNOWN	26.02	430	J
2.	POLYCHLORINATED COMPOUND	26.35	890	J
	UNKNOWN	26.62	570	J
5.	UNKNOWN HYDROCARBON	27.17	770	J
6.	UNKNOWN	27.38	2500	J
7.	UNKNOWN	27.87	320	J
8.	UNKNOWN	28.07	290	J
9.	UNKNOWN	28.50	210	J
10.	UNKNOWN	29.05	220	J
11.	PAH DERIVATIVE	29.38	640	J
12.	PAH DERIVATIVE	29.58	850	J
13.	UNKNOWN	30.73	660	J
14.	HEXANEDIOIC ACID DERIVATIVE	31.02	1600	J
15.	UNKNOWN	32.83	2200	J
16.	UNKNOWN	33.20	1400	J
17.	UNKNOWN	33.93	1600	J
18.	LONG CHAIN SATURATED HYDROCA	34.17	890	J
19.	UNKNOWN	35.10	360	J
20.	UNKNOWN	35.80	1700	J
			I	

37 EPA SAMPLE NO.

1B SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

b Name: <u>RECRA ENVIRON</u>	Contract:	<u>C002412</u>	185503DL
	e No.: <u>SH992</u> SAS No.:	SDG 1	No.: <u>1006</u>
Matrix: (soil/water) SO	)IL	Lab Sample ID:	AS019106DL
Sample wt/vol: <u>30</u>	).90 (g/mL) <u>G</u>	Lab File ID:	<u>12393Y</u>
Level: (low/med) LO	W	Date Received:	10/06/92
% Moisture: <u>54</u> de	ecanted: (Y/N) <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract Vo	olume: <u>500.0</u> (uL)	Date Analyzed:	10/24/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor:	5.0

GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>

CAS NO. COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u> Q

		I
108-95-2Phenol	3500	U
108-95-2Phenol 111-44-4bis(2-Chloroethyl)Ether	3500	υ
111-44-4Bis(2-Chiorophenol	3500	Ū
95-57-82-Chlorophenol 541-73-11,3-Dichlorobenzene 106-46-71,4-Dichlorobenzene	3000	JJ
541-73-11, 3-Dichlorobenzene	11000	D
	790	JJ
95-50-11,2-Dichlorobenzene		U ·
95-48-72-Methylphenol 108-60-12,2'-oxybis(1-Chloropropane)	3500	U
		U
106-44-54-Methylphenol 621-64-7N-Nitroso-Di-n-Propylamine	3500	U
621-64-7N-Nitroso-Di-n-Propylamine	3500	υ
67-72-1Hexachloroethane		UUU
98-95-3Nitrobenzene	3500	υ
78-59-1Isophorone 88-75-52-Nitrophenol	3500	
88-75-52-Nitrophenol 105-67-92,4-Dimethylphenol 111-91-1bis(2-Chloroethoxy)Methane	3500	U
105-67-92,4-Dimethylphenol	3500	U
111-91-1bis(2-Chloroethoxy)Methane	3500	U
120-83-22,4-Dichlorophenol	3500	U
120-83-22,4-Dichlorophenol 120-82-11,2,4-Trichlorobenzene	930	DJ
Nanhthalene	1 150	DJ
106-47-84-Chloroaniline	3500	U
87-68-3Hexachlorobutadiene	3500	υ
59-50-74-Chloro-3-Methylphenol	3500	U
91-57-62-Methylnaphthalene	110	DJ
91-20-3	3500	ש
88-06-22,4,6-Trichlorophenol	3500	U
95-95-42,4,5-Trichlorophenol	8400	U
91-58-72-Chloronaphthalene	3500	U
88-74-42-Nitroaniline	8400	U
131-11-3Dimethyl Phthalate	3500	U
208-96-8Acenaphthylene	3500	U
208-96-8Acenaphthylene 606-20-22,6-Dinitrotoluene	3500	U
99-09-23-Nitroaniline	8400	U
83-32-9Acenaphthene	140	DJ

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

COMPOUND

CAS NO.

38 EPA SAMPLE NO.

	185503DL
b Name: <u>RECRA ENVIRON</u>	Contract: <u>C002412</u>
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u>	_ SAS No.: SDG No.: 1006
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019106DL</u>
Sample wt/vol: <u>30.90</u> (g/mL) <u>G</u>	Lab File ID: <u>12393Y</u>
Level: (low/med) LOW	Date Received: <u>10/06/92</u>
<pre>% Moisture:54 decanted: (Y/N)</pre>	<u>N</u> Date Extracted: <u>10/09/92</u>
Concentrated Extract Volume: 500.0	(uL) Date Analyzed: <u>10/24/92</u>
Injection Volume: <u>2.0</u> (uL)	Dilution Factor:5.0
GPC Cleanup: (Y/N) <u>Y</u> pH: _	<u>7.6</u>

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u> Q

		· · · · · · · · · · · · · · · · · · ·
51-28-52,4-Dinitrophenol 100-02-74-Nitrophenol	8400	υ
100-02-74-Nitrophenol	8400	U
132-64-9Dibenzofuran	3500	U
121-14-22,4-Dinitrotoluene	3500	U
84-66-2Diethylphthalate	3500	U 0
7005-72-34-Chlorophenyl-phenylether	3500	U
	3500	U 1
	8400	υ
100-01-64-Nitroaniline 534-52-14,6-Dinitro-2-Methylphenol 86-30-6N-Nitrosodiphenylamine (1)	8400	U
86-30-6N-Nitrosodiphenylamine (1)	3500	U U
101-55-34-Bromophenyl-phenylether	3500	Ū
119-74-1Hexachlorobenzene	160	LT LT
27.96.5Pentachlorophenol	8400	U
118-74-1Hexachlorobenzene 87-86-5Pentachlorophenol 85-01-8Phenanthrene	1400	DJ
120-12-7Anthracene	330	DJ
86-74-8Carbazole		DJ
86-74-8Carbazole 84-74-2Di-n-Butylphthalate	3500	U
206-44-0Fluoranthene	2800	DJ J
		DJ
129-00-0Pyrene 85-68-7Butylbenzylphthalate	3500	U
91-94-1	3500	Ū
91-94-13,3'-Dichlorobenzidine 56-55-3Benzo(a)Anthracene	980	JJ
218-01-9Chrysene 117-81-7Bis(2-Ethylhexyl)Phthalate 117-84-0Di-n-Octyl Phthalate 205-99-2Benzo(b)Fluoranthene 207-08-9Benzo(k)Fluoranthene	1400	DJ
117-91-7Big(2-Ethylberyl)Phthalate	770	DJ
117-84-0	3500	U
205-09-2Benzo(b) Fluoranthene	1600	DJ
203-99-2Benzo(b)Fluoranthene	720	DJ
50.32.9 Bongo(3) Dyrone	750	JU
50-32-8Benzo(a) Pyrene 193-39-5Indeno(1,2,3-cd) Pyrene 53-70-3Dibenz(a,h) Anthracene 191-24-2Benzo(g,h,i) Perylene	3500	UU
193-39-3	3500	UUU
101 04 0 Bongo (g h i) Domilono	3500	UUU
191-24-2Benzo(g, n, 1) Peryrene	3500	
		I I

1F

### 39 EPA SAMPLE NO.

SEMIVOLATILE C	RGANICS	ANALYSI	S DATA	SHEET
TENTATIVEI	LY IDENT	IFIED CO	MPOUNDS	5

TENIAI.	LVELI IDENIIFIED COMPOUNDS		185503DL
o Name: <u>RECRA ENVI</u>	RON Contract	: <u>C002412</u>	
	Case No.: <u>SH992</u> SAS No.	: SDG	No.: <u>1006</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	AS019106DL
Sample wt/vol:	<u>30.90</u> (g/mL) <u>G</u>	Lab File ID:	12393Y
Level: (low/med)	LOW	Date Received:	<u>10/06/92</u>
% Moisture: <u>54</u>	decanted: $(Y/N)$ <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/24/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:5.0

GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>

Number TICs found: \_20

#### CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
			***********	=====
1.	UNKNOWN	8.17	750	J
2.	UNKNOWN	9.22	900	J
	TRICHLOROBENZENAMINE ISOMER	17.55	1300	J
4.	UNKNOWN	17.80	940	J
5.	HEXACHLOROCYCLOHEXANE ISOMER	22.15	2000	J
6.	HEXACHLOROCYCLOHEXANE ISOMER	23.90	1300	J
7.	LINKNOWN	25.68	1300	J
8.	POLYCHLORINATED COMPOUND	26.07	1200	J
9.	UNKNOWN HYDROCARBON	26.90	1300	J
10.	UNKNOWN	27.10	3500	J
11.	UNKNOWN	28.17	740	J
12.	UNKNOWN	29.25	920	J
4	UNKNOWN	30.73	1300	J
13.	UNKNOWN	31.92	1600	J
14.	UNKNOWN	32.52	2500	J
15.	UNKNOWN	32.88	930	J
	UNKNOWN HYDROCARBON	33.90	3000	J
17.	UNKNOWN	35.18	1400	J
18.	UNKNOWN HYDROCARBON	35.83	2000	J
19.	UNKNOWN HYDROCARBON	37.78	1100	J
20.	UNATIONIA HIDROCARDON			

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

40 EPA SAMPLE NO.

Q

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) Name: <u>RECRA ENVIE</u>	ON Contract	: <u>C002412</u>	185503RE
	Case No.: <u>SH992</u> SAS No.		No.: 1006
Matrix: (soil/water)		Lab Sample ID:	
Sample wt/vol:		Lab File ID:	12382Y
Level: (low/med)		Date Received:	10/06/92
% Moisture: <u>54</u>	decanted: $(Y/N)$ <u>N</u>	Date Extracted:	<u>10/09/92</u>
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/23/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor:	1.0

GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>

CAS NO.

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COMPOUND

CONCENTRATION UNITS:

(ug/L or ug/Kg) <u>UG/KG</u>

108-95-2Phenol	700	U
111-44-4bis (2-Chloroethyl) Ether	700	U
95-57-82-Chlorophenol	700	Ū
541-73-11,3-Dichlorobenzene	3400	-
106-46-71,4-Dichlorobenzene	12000	E
95-50-11,2-Dichlorobenzene	900	-
	700	U
108-60-12,2'-oxybis(1-Chloropropane)_	700	U
108-60-12,2 -OxyDis(1-enioropropane)	700	U
621-64-7N-Nitroso-Di-n-Propylamine	700	U
67-72-1Hexachloroethane	700	U
98-95-3Nitrobenzene	700	U
78-59-1Isophorone	700	U
88-75-52-Nitrophenol	700	U
105-67-92,4-Dimethylphenol	700	U
111-91-1bis (2-Chloroethoxy) Methane	700	U
120-83-22,4-Dichlorophenol	700	U
120-83-22,4-Dichlorophenol	1200	
91-20-3Naphthalene	170	J
106-47-84-Chloroaniline	700	U
87-68-3Hexachlorobutadiene	700	U
59-50-74-Chloro-3-Methylphenol	700	U
91-57-62-Methylnaphthalene	150	J
77-47-4Hexachlorocyclopentadiene	700	U
88-06-22,4,6-Trichlorophenol	700	U
95-95-42,4,5-Trichlorophenol	1700	U
91-58-72-Chloronaphthalene	700	υ
88-74-42-Nitroaniline	1700	U
131-11-3Dimethyl Phthalate	700	U
	700	U
208-96-8Acenaphthylene	700	U
606-20-22,6-Dinitrotoluene	1700	U
99-09-23-Nitroaniline	180	J
83-32-9Acenaphthene	100	
EOPM T SV-1	I	·

EPA SAMPLE NO.

SEMTVOLATI	LE ORGANICS ANALYSIS DAT	A SHEET	
Name: <u>RECRA ENVI</u>		ct: <u>C002412</u>	185503RE
Lab Code: <u>RECNY</u>	Case No.: <u>SH992</u> SAS N	O.: SDG 1	No.: <u>1006</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	<u>AS019106RI</u>
Sample wt/vol:	<u>30.90</u> (g/mL) <u>G</u>	Lab File ID:	12382Y
Level: (low/med)	LOW	Date Received:	10/06/92
% Moisture: <u>54</u>	decanted: (Y/N) <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	10/23/92
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor:	1.0
GPC Cleanup: (Y/N)	<u>Y</u> pH: <u>7.6</u>	ONCENTRATION UNITS	
CAS NO.	-	ug/L or ug/Kg) <u>UG/I</u>	

lC

51-28-52,4-Dinitrophenol	1700	U
100-02-74-Nitrophenol	1700	U
132-64-9Dibenzofuran	140	J
121-14-22,4-Dinitrotoluene	700	U
84-66-2Diethylphthalate	700	U
7005-72-34-Chlorophenyl-phenylether	700	U
86-73-7Fluorene	240	J
100-01-64-Nitroaniline	1700	U
534-52-14,6-Dinitro-2-Methylphenol	1700	U
86-30-6N-Nitrosodiphenylamine (1)		U
101-55-34-Bromophenyl-phenylether	700	υ
118-74-1Hexachlorobenzene	160	J
87-86-5Pentachlorophenol	1700	U
85-01-8Phenanthrene	1600	
120-12-7Anthracene	390	J
86-74-8Carbazole	220	J
84-74-2Di-n-Butylphthalate	700	υ
206-44-0Fluoranthene	3500	
129-00-0Pyrene	2900	
85-68-7Butylbenzylphthalate	700	U
91-94-13,3'-Dichlorobenzidine	700	U
56-55-3Benzo(a) Anthracene	1400	
218-01-9Chrysene	1800	
117-81-7Bis (2-Ethylhexyl) Phthalate	1100	
117-84-0Di-n-Octyl Phthalate	700	U
205-99-2Benzo(b)Fluoranthene	3100	
207-08-9Benzo(k) Fluoranthene	1100	
50-32-8Benzo (a) Pyrene	1200	
193-39-5Indeno(1,2,3-cd) Pyrene	700	U
53-70-3Dibenz (a, h) Anthracene	700	U
191-24-2Benzo(g,h,i)Perylene	700	U
		1

EPA SAMPLE NO.

1F SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

1 CN IAI	IVEDI IDENTIFIED COMPOUNDS		185503RE
) Name: <u>RECRA ENVI</u>	RON Contract	: <u>C002412</u>	
Lab Code: <u>RECNY</u>	Case No.: <u>SH992</u> SAS No.	: SDG	No.: <u>1006</u>
Matrix: (soil/water)	SOIL	Lab Sample ID:	<u>AS019106RI</u>
Sample wt/vol:	<u>30.90</u> (g/mL) <u>G</u>	Lab File ID:	12382Y
Level: (low/med)	LOW	Date Received:	<u>10/06/92</u>
% Moisture: <u>54</u>	decanted: $(Y/N)$ <u>N</u>	Date Extracted:	10/09/92
Concentrated Extract	Volume: <u>500.0</u> (uL)	Date Analyzed:	<u>10/23/92</u>
Injection Volume:	<u>2.0</u> (uL)	Dilution Factor	:1.0
GPC Cleanup: (Y/N)	<u>Y</u> pH: <u>7.6</u>		

Number TICs found: 20

#### CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
				=====
1.	UNKNOWN	27.22	5100	J
2.	PAH DERIVATIVE	29.20	670	J
3.	UNKNOWN	29.40	660	J
4.	UNKNOWN HYDROCARBON	29.92	1200	J
5.	UNKNOWN	30.03	2000	J
6.	UNKNOWN	30.50	1300	J
7.	UNKNOWN	30.57	1000	J
8.	HEXANEDIOIC ACID DERIVATIVE	30.87	2600	J
9.	UNKNOWN	31.25	1800	J
10.	UNKNOWN	31.48	2000	J
11.	UNKNOWN	32.25	1100	J
12.	UNKNOWN	32.68	6100	J
13.	UNKNOWN	32.90	1100	J
14.	UNKNOWN	33.07	3200	J
15.	UNKNOWN	33.22	1500	J
16.	UNKNOWN	33.58	2500	J
17.	UNKNOWN HYDROCARBON	34.05	5700	J
18.	UNKNOWN	34.98	1200	J
19.	UNKNOWN	35.35	1800	J
20.	LONG CHAIN SATURATED HYDROCA	35.90	6800	J
l				

43 EPA SAMPLE NO.

1D PESTICIDE ORGANICS ANALYSIS DATA SHEET	EPA SAMPLE NO
PESTICIDE ORGANICS ANALISIS DATA CHILLI	185501
ab Name: <u>RECRA ENVIRON</u> Contract: <u>C002412</u>	
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.: SI	DG No.: <u>1006</u>
	D: <u>AS019104</u>
Sample wt/vol: <u>31.0</u> (g/mL) <u>G</u> Lab File ID:	
% Moisture: <u>44</u> decanted: (Y/N) <u>N</u> Date Receive	d: <u>10/06/92</u>
Extraction: (SepF/Cont/Sonc) SONC Date Extract	ed: <u>10/09/92</u>
Concentrated Extract Volume:5000 (uL) Date Analyze	d: <u>10/28/92</u>
Injection Volume: <u>1.00</u> (uL) Dilution Fac	tor: <u>10.0</u>
-	up: (Y/N) <u>N</u>
CAS NO. COMPOUND (ug/L or ug/Kg) UG	

319-84-6alpha-BHC	400		
319-85-7beta-BHC	29	U	
ato of B and delta-BHC	520	P	Į
58-89-9gamma-BHC (Lindane)	29	U	
76-44-8Heptachlor	29	U	
200-00-2Aldrin	29	U	ĺ
1024-57-3Heptachlor epoxide	29	U	
959-98-8Endosulfan I	29	U	
60-57-1Dieldrin	57	U	
72-55-94,4'-DDE	57	U	
72-20-8Endrin	57	U	
33213-65-9Endosulfan II	57	U	
	57	U	
72-54-84,4'-DDD 1031-07-8Endosulfan_sulfate	57	U	ļ
50-29-3 <b>4</b> . <b>4'-</b> DDT	57	U	l
72-43-5Methoxychlor	290	U	
53494-70-5Endrin ketone	57	U	
7421-93-4Endrin aldehyde	57	U	1
5103-71-9alpha-Chlordane	29	บ บ	
5103-74-2gamma-Chlordane	29	U	
8001-35-2Toxaphene	2900	UU	
12674-11-2Aroclor-1016	570	U	
11104-28-2Aroclor-1221	1200	U	
11141-16-5Aroclor-1232	- 570	UU	
53469-21-9Aroclor-1242	- 4400		
12672-29-6Aroclor-1248	-	U	
11097-69-1Aroclor-1254	- 570	U	
11096-82-5Aroclor-1260	-		
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FORM I PEST

44 EPA SAMPLE NO.

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	1	LD		
PESTICIDE	ORGANICS	ANALYSIS	DATA	SHEET

	185502
Name: <u>RECRA ENVIRON</u> Contract:	: <u>C002412</u>
	: SDG No.: <u>1006</u>
Matrix: (soil/water) SOIL	Lab Sample ID: <u>AS019105</u>
Sample wt/vol: <u>30.3</u> (g/mL) <u>G</u>	Lab File ID:
<pre>% Moisture: 53 decanted: (Y/N) N</pre>	Date Received: <u>10/06/92</u>
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Extracted: <u>10/09/92</u>
Concentrated Extract Volume:	Date Analyzed: <u>10/28/92</u>
Injection Volume: <u>1.00</u> (uL)	Dilution Factor: <u>4.00</u>
GPC Cleanup: (Y/N) Y pH: 7.8	Sulfur Cleanup: (Y/N) <u>N</u>
	· · · · · · · · · · · · · · · · · · ·

CAS NO.

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COMPOUND

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

Q

	570	
319-84-6alpha-BHC	14	U
319-85-7beta-BHC	580	
319-86-8delta-BHC	14	U
58-89-9gamma-BHC (Lindane)	14	U
76-44-8Heptachior	14	Ū ·
309-00-2Aldrin	14	U
1024-57-3Heptachlor epoxide	14	U
959-98-8Endosulfan 1	28	U
60-57-1Dieldrin		
72-55-94,4'-DDE	28	U
72-20-8Endrin	28	U
33213-65-9Endosulfan II	28	U
72 54 8 4 . 4' - DDD	28	U
1031-07-8Endosulfan sulfate	28	U
50-29-34,4'-DDT	28	U
72-43-5Methoxychlor	140	U
53494-70-5Endrin ketone	28	U
7421-93-4Endrin aldehyde	28	U
5103-71-9alpha-Chlordane	14	U
5103-74-2gamma-Chlordane	14	U
8001-35-2Toxaphene	1400	U
12674-11-2Aroclor-1016	280	U
12674-11-2Aroclor-1010	560	U
11104-28-2Arocion-1221	280	U
11141-16-5Aroclor-1232	280	U
53469-21-9Aroclor-1242	5300	
12672-29-6Aroclor-1248	280	U
11097-69-1Aroclor-1254	- 280	Ū
11096-82-5Aroclor-1260	-  200	1
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EPA SAMPLE NO.

1D PESTICIDE ORGANICS ANALYSIS DATA SHEET

	185502DL : <u>C002412</u>
ab Name: <u>RECRA ENVIRON</u> Contract	
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.	: SDG No.: <u>1006</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019105DL</u>
Sample wt/vol: <u>30.3</u> (g/mL) <u>G</u>	Lab File ID:
<pre>% Moisture: <u>53</u> decanted: (Y/N) <u>N</u></pre>	Date Received: <u>10/06/92</u>
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Extracted: <u>10/09/92</u>
Concentrated Extract Volume: <u>5000</u> (uL)	Date Analyzed: <u>10/28/92</u>
Injection Volume: <u>1.00</u> (uL)	Dilution Factor: <u>40.0</u>
GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.8</u>	Sulfur Cleanup: $(Y/N)$ <u>N</u>

CAS NO.

COMPOUND

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

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319-84-6alpha-BHC	740 140 550 140 140 140 140	บ ษ บ บ บ บ
1024-57-3Heptachlor epoxide 959-98-8Endosulfan I	140	Ū
60-57-1Dieldrin	280	U
72-55-94,4'-DDE	280	U
72-20-8Endrin	280	υ
33213-65-9Endosulfan II	280	U
72-54-84,4'-DDD	280	U
1031-07-8Endosulfan sulfate	280	U
50-29-34,4'-DDT	280	U
72-43-5Methoxychlor	1400	U
53494-70-5Endrin ketone	280	U
7421-93-4Endrin aldehyde	280	U
5103-71-9alpha-Chlordane	140	U
5103-74-2gamma-Chlordane	140	U
8001-35-2Toxaphene	14000	บ บ
12674-11-2Aroclor-1016	2800	UU
11104-28-2Aroclor-1221	- 2800	U
11141-16-5Aroclor-1232	- 2800	UU
53469-21-9Aroclor-1242	- 2800	P
12672-29-6Aroclor-1248	- 2800	Ŭ
11097-69-1Aroclor-1254	- 2800	
11096-82-5Aroclor-1260	- 2000	
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FORM I PEST

EPA SAMPLE NO.

PESTICIDE ORGANICS ANALYSIS DATA SHEET			
	185503		
ib Name: <u>RECRA BINTINGA</u>			
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.:	SDG No.: <u>1006</u>		
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: AS019106		
Sample wt/vol: <u>30.1</u> (g/mL) <u>G</u>	Lab File ID:		
	Date Received: <u>10/06/92</u>		
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Extracted: <u>10/09/92</u>		
Concentrated Extract Volume:5000 (uL)	Date Analyzed: <u>10/28/92</u>		
Injection Volume: <u>1.00</u> (uL)	Dilution Factor: <u>10.0</u>		
GPC Cleanup: (Y/N) <u>Y</u> pH: <u>7.6</u>	Sulfur Cleanup: (Y/N) <u>N</u>		

CAS NO.

.

COMPOUND

1D

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

319-84-6alpha-BHC	1500	
319-85-7beta-BHC	37	U
210_06_0delta-BHC	2000	
58-89-9gamma-BHC (Lindane)	- 37	U
76-44-8Heptachlor	37	U
309-00-2Aldrin	37	U
1024-57-3Heptachlor epoxide	- 37	U
959-98-8Endosulfan I	- 37	U
	- 72	U
60-57-1Dieldrin	- 72	Ū
72-55-94,4'-DDE	- 72	Ū
72-20-8Endrin	- 72	U
33213-65-9Endosulfan II	- 72	U
72-54-84,4'-DDD	- 72	U
1031-07-8Endosulfan sulfate	$-1$ $\frac{72}{72}$	UU
50-29-3 <b>4,4'-</b> DDT		-
72-43-5Methoxychlor	370	U
53494-70-5Endrin ketone	72	U
7421-93-4Endrin aldehyde	72	U
5103-71-9alpha-Chlordane	37	U
5103-74-2gamma-Chlordane	37	U
8001-35-2Toxaphene		U
12674-11-2Aroclor-1016	720	U
11104-28-2Aroclor-1221	1500	ט
11141-16-5Aroclor-1232	_ 720	U
53469-21-9Aroclor-1242	720	U
12672-29-6Aroclor-1248	8200	P
11097-69-1Aroclor-1254	720	U
11096-82-5Aroclor-1260	720	U
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PESTICIDE	ORGANICS	ANALYSIS	DATA	SHEET	

47 EPA SAMPLE NO.

1

CONTRACT	185503DL
b Name: <u>RECRA ENVIRON</u> Contract:	
Lab Code: <u>RECNY</u> Case No.: <u>SH992</u> SAS No.:	SDG No.: <u>1006</u>
Matrix: (soil/water) <u>SOIL</u>	Lab Sample ID: <u>AS019106DL</u>
Sample wt/vol: <u>30.1</u> (g/mL) <u>G</u>	Lab File ID:
<pre>% Moisture: 54 decanted: (Y/N) N</pre>	Date Received: <u>10/06/92</u>
Extraction: (SepF/Cont/Sonc) <u>SONC</u>	Date Extracted: <u>10/09/92</u>
Concentrated Extract Volume: 5000 (uL)	Date Analyzed: <u>10/28/92</u>
Injection Volume: <u>1.00</u> (uL)	Dilution Factor: <u>100</u>
GPC Cleanup: (Y/N) Y pH: 7.6	Sulfur Cleanup: (Y/N) <u>N</u>

CAS NO.

.

COMPOUND

CONCENTRATION UNITS: (ug/L or ug/Kg) <u>UG/KG</u>

Q

		1
319-84-6alpha-BHC	2100 370 3300 370 370 370 370 720 720 720 720 720 720 720 7	ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט ט
959-98-8Endosullan 1	-	1 1
60-57-1Dieldrin		-
72-55-94,4'-DDE	1	1
72-20-8Endrin		-
33213-65-9Endosulfan II		-
72-54-84,4'-DDD		L -
1031-07-8Endosulfan sulfate	1	4
50-29-34.4'-DDT	720	U
72-43-5Methoxychlor	3700	
53494-70-5Endrin ketone		_
7421-93-4Endrin aldehyde	720	
5103-71-9alpha-Chlordane	370	U
5103-74-2gamma-Chlordane	370	U
8001-35-2Toxaphene	37000	U
12674-11-2Aroclor-1016	7200	U
11104-28-2Aroclor-1221	15000	U
11141-16-5Aroclor-1232	7200	U
53469-21-9Aroclor-1242	7200	U
12672-29-6Aroclor-1248	11000	P
11097-69-1Aroclor-1254	7200	U
11096-82-5Aroclor-1260	7200	U
	`	

#### NYSDEC-ASP

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COVER PAGE - INORGANIC ANALYSES DATA PACK	AGE	45
Lab Name: RECRA_ENVIRONMENTAL_INC Contract: C002412		
Der Code: RECNY_ Case No.: SH992_SAS No.:	SDG No.:10	06
Version: ASP91		
NYSDEC Sample No.       Lab Sample ID         185501       0569         185501D       0571         185501S       0572         185503       0573         185503       0573         185503       0573         185503       0573         185503       0573		
Were ICP interelement corrections applied ?	Yes/No	YES
re TCP background corrections applied ?	Yes/No	YES
If yes - were raw data generated before application of background corrections ?	Yes/No	NO_

Comments:

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:	Leborah J Kinecki	Name:	DEBORAH J. KINE	CKI
Date:	11/5/92	Title:	VICE PRESIDENT, OPERATIONS	LABORATORY
	·	COVER PAG		ILMO2.1

1 INORGANIC ANALYSES DATA SHEET

185501 Hab Name: RECRA\_ENVIRONMENTAL\_INC.\_ Contract: C002412\_ Case No.: SH992 SAS No.: \_\_\_\_\_ SDG No.: 1006\_\_\_ Lab Code: RECNY\_ Lab Sample ID: 0569\_\_\_\_\_ Matrix (soil/water): SOIL\_ Date Received: 10/06/92 LOW Level (low/med): \_51.0 % Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

	1	1				· 1 ·-	
	CAS NO.	Analyte	Concentration	С	Q	M	
	$\overline{7429 - 90 - 5}$ $7440 - 36 - 0$ $7440 - 38 - 2$ $7440 - 39 - 3$ $7440 - 41 - 7$ $7440 - 43 - 9$ $7440 - 47 - 3$ $7440 - 47 - 3$ $7440 - 48 - 4$ $7440 - 50 - 8$ $7439 - 92 - 1$ $7439 - 95 - 4$ $7439 - 95 - 4$ $7439 - 95 - 4$ $7439 - 95 - 4$ $7439 - 95 - 4$ $7439 - 95 - 4$ $7439 - 95 - 4$ $7439 - 95 - 5$ $7439 - 97 - 6$ $7440 - 02 - 0$ $7440 - 02 - 0$ $7440 - 02 - 0$ $7440 - 23 - 5$ $7440 - 23 - 5$ $7440 - 28 - 0$ $7440 - 66 - 6$	Aluminum Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Mercury Nickel Potassium Selenium Silver Sodium Thallium Vanadium Zinc Cyanide			E*		· · · · · · · · · · · · · · · · · · ·
Color Before:	BROWN	Clari	ty Before:		_	Texture:	COARSE
Color After:	YELLOW		ty After: CLE	AR_	-	Artifacts:	
CLIENT SAMP	ID: AS01910 LE ID: SH99 N_ID#1015	2-1006-0569	9				

FORM I - IN

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NYSDEC SAMPLE NO.

#### NYSDEC-ASP

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#### 1 INORGANIC ANALYSES DATA SHEET

185502 Lab Name: RECRA\_ENVIRONMENTAL\_INC.\_ Contract: C002412\_\_ Lab Code: RECNY\_ Case No.: SH992 SAS No.: \_\_\_\_\_ SDG No.: 1006\_\_\_ Matrix (soil/water): SOIL Lab Sample ID: 0572\_\_\_\_\_ Date Received: 10/06/92 Level (low/med): LOW\_\_\_\_ \_41.0 % Solids:

Concentration Units (ug/L or mg/kg dry weight): MG/KG

	CAS No.	Analyte	Concentration	С	Q	M	
	7429-90-5 7440-36-0	Aluminum_ Antimony_	13300 23.0	– ច	E*	P_ P_	
	7440-38-2 7440-39-3 7440-41-7	Arsenic Barium Beryllium	8.4 8.4 261 2.3	- <del>0</del>		F_ P_ P_	
	7440-41-7	Cadmium Calcium	2.3		*	P P A	
	7440-47-3 7440-48-4	Chromium_ Cobalt	62.6 62.6 11.2 93.9	B		A_ P_ P	
	7440-50-8 7439-89-6 7439-92-1	Copper Iron Lead	<u> </u>	-	* *		
$\sim$	7439-95-4 7439-96-5	Magnesium Manganese	<u> </u>	_	 		
	7439-97-6 7440-02-0 7440-09-7	Mercury Nickel Potassium	33.4	-		P_	
	7782-49-2 7440-22-4	Selenium_ Silver	2.5	ប ប	N	P_ F P_ A_	
	7440-23-5 7440-28-0 7440-62-2	Sodium Thallium Vanadium	<u> </u>	B U	w		
	7440-66-6	Zinc Cyanide	482	-		p NR	
Color Before:	BROWN	Clarit	y Before:			Texture:	COARSE
Color After:	YELLOW	Clarit	y After: CLEA	NR_	-	Artifacts:	
CLIENT SAMP	ID:_AS01910 LE_ID:_SH993 N_ID_#101	2-1006-0572	2				

FORM I - IN

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NYSDEC SAMPLE NO.

#### NYSDEC-ASP

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#### I INORGANIC ANALYSES DATA SHEET

Mame: RECRA\_ENVIRONMENTAL\_INC.\_ Contract: C002412\_\_\_\_185503Lab Code: RECNY\_Case No.: SH992SAS No.: \_\_\_\_\_Matrix (soil/water): SOIL\_Lab Sample ID: 0573\_\_\_\_\_Level (low/med):LOW\_\_\_Date Received: 10/06/92% Solids:\_\_45.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

			F		(	·····	
	CAS No.	Analyte	Concentration	С	Q	м	••
	7429-90-5	Aluminum	6370	-	E*	P	
	7440-36-0	Antimony_	24.2	ਹਿ	— <u> </u>	P_	
	7440-38-2	Arsenic	10.2			F <sup>-</sup>	
	7440-39-3	Barium	139	-		<b>p</b>	
	7440-41-7	Beryllium		ប៊		P_	
	7440-43-9	Cadmium	2.4	Ŭ		P_	
	7440-70-2	Calcium	26600	Ŭ	*	<b>P</b>	
	7440-47-3	Chromium	26000	-		A	
	7440-48-4	Cobalt	26.1	ΰ		P <sup>-</sup>	
			62.8			<b>p</b> -	
	7440-50-8	Copper	11800	—		P	
	7439-89-6	Iron	219			F-	
	7439-92-1	Lead		_	s	P	
	7439-95-4	Magnesium		_			
$\smile$	7439-96-5	Manganese	168	_	N*	P_	
	7439-97-6	Mercury	10.6	_	N*	CV	
	7440-02-0	Nickel	14.8	B		P	
	7440-09-7	Potassium		в		P	
	7782-49-2	Selenium_	2.3	U	WN	F	
	7440-22-4	Silver	4.8	U	N	P_	
	7440-23-5	Sodium	938	в		A_	
	7440-28-0	Thallium	2.8	U	W	F_	
	7440-62-2	Vanadium	14.0	B		P	
	7440-66-6	Zinc -	213		*	P	
		Cyanide		-		NR	
				-			
	1			- '		1	
Color Before:	BROWN	Clari	ty Before:		-	Texture:	COARSE
Color After:	YELLOW	Clari	ty After: CLEA	NR_	-	Artifacts:	<u> </u>
CLIENT SAMP	ID: AS01910 LE_ID: SH99 N_ID_#_1018	2-1006-057	3				

9/89

NYSDEC SAMPLE NO.

## APPENDIX F

## GILL CREEK RCRA CHARACTERISTICS DATA

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# Gill Creek Composite Sediment TCLP Analyses - September 1992\*/April 1993<sup>b</sup> Niagara Falls, New York

## (Page 1 of 3)

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TCLP Parameters	RCRA Criterion	Transect A 0'-1'	sect -1'	Transec A 1'-2'	Transect A 1'-2'	Transec B 0'-1'	Transect B 0'-1'	Transect B 1'-2'	sect -2'	Transect C 0'-1'	sect -1'	Transec C 1'-2'	Transect C 1'-2'	Transect	Transect D 0'-1'	Transect D 1'-2'	ect 2'
		Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep. 92	Anr. 93	Sen 97	Anr 93
Volatile Organics (ug/L)																	2
Vinyl chloride	200	10 U	100 U	10 U	1 00 L	10 U	100 U	10 U	100 U	10 U	100 U	10 U	1 00 L	10 U	1001	101	
1,1-Dichloroethene	700	5 U	50 U	5 U	50 U	εu	50 U	εu	50 U	5 U	50 U	۶U	50 U	50	50 U	202	
Chloroform	6,000	5 U	50 U	5 U	50 U	5 U	50 U	5 U	50 U	5 U	50 U	sυ	50 U	5 U	50 U	5 U	50 U
1,2-Dichlorothane	500	5 U	50 U	5 U	50 U	5 U	50 U	5 U	50 U	5 U	50 U	εu	50 U	5 U	50 U	5 U	50 U
2-Butanone	200,000	œ	1 00 L	œ	100 U	· æ	100 U	Я	100 U	œ	100 U	æ	100 U	œ	100 L	æ	100 U
Carbon Tetrachloride	500	5 U	50 U	5 U	50 U	5 U	50 U	5 U	50 U	5 U	50 U	۶U	50 U	5 U	50 U	5 U	50 U
Trichloroethene	500	sυ	50 U	5 U	50 U	5 U	20 JT	5 U	7 JT	5 U	7L 02	sU	10 J	5 U	20 JT	5 U	20 JT
Benzene	500	ΣU	50 U	5 U	50 U	ъU	50 U	sυ	100 T	5 U	50 U	5 U	50 U	۶U	50 U	5 U	50 U
Tetrachloroethene	700	sυ	30 JT	5 U	40.JT	5 U	200 T	5 U	70 T	5 U	100 T	5 U	100 T	ξU	100 T	5 U	100 T
Chlorobenzene	100,000	80	50 U	5 U	50 U	54	50 U	14	50 U	2	50 U	۶U	50 U	ß	50 U	17	50 U
Semivolatile Organics (ug/L)																	
1,4-Dichlorobenzene	7,500	D 68	10 U	0 68	10 U	N 68	30 U	U 68	50 U	U 68	30 U	N 68	30 U	U 68	30 U	0 68	30 U
Hexechloroethane	300	96 U	10 U	96 U	10 U	N 96	30 U	0 96 U	50 U	0 96	30 U	U 96	30 U	U 96	30 U	n 96	30 U
Nitrobenzene	2.000	79 U	10 U	79 U	10 U	U 67	30 U	79 U	50 U	U 67	30 U	U 67	30 U	79 []		- 02	
														, ,	,	5	2000

A: VOLENVW P946. F1 \40816617-30-93

30 U

U 68

30 U

89 U

30 U

89 U

30 U

0 68 U

50 U

U 68

30 U

0 68

10 U

89 U

10 U

0 68

500

Hexachlorobutadiene

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ble F.	
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(Page 2 of 3)

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TCLP Parameters	RCRA Criterion	Transect A 0'-1'	sect -1'	Transect A 1'-2'	sect -2'	Transect B 0'-1'	sect -1'	Transect B 1'-2'	sect -2'	Transect C 0'-1'	sect	Transect C 1'-2'	sect '-2'	Transect D 0'-1'	sect -1'	Transect D 1'-2'	-2,
		Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93
Semivolatile Organics (Continued)	_																
2,4,6-Trichlorophenol	2,000	70 U	10 U	70 U	10 U	70 U	30 U	70 U	50 U	70 U	30 U	10 N	30 U	70 U	30 U	70 U	30 U
2,4,5-Trichlorophenol	400,000	340 U	60 U	340 U	60 U	340 U	200 U	340 U	200 U	340 U	200 U	340 U	200 U	340 ∪	200 U	340 U	200 U
2,4-Dinitrotoluene	130	50 U	10 U	50 U	10 U	50 U	30 U	50 U	50 U	50 U	30 N	50 U	30 U	20 C	30 U	50 U	30 U
Hexachiorobenzene	130	50 U	10 U	50 U	10 U	50 U	30 U	50 U	50 U	50 U	30 U	50 U	30 U	50 U	30 U	50 U	30 U
Pentachlorophenol	100,000	250 U	60 U	250 U	60 U	250 U	200 U	250 U	200 U	250 U	200 U	250 U	200 U	250 U	200 U	250 U	200 U
Total Methylphenol	200,000	100 U	10 U	100 U	10 U	100 U	30 U	100 U	50 U	100 U	30 U	100 U	30 U	100 U	30 U	100 U	30 U
Pyridine	5,000	540 U	10 U	540 U	10 U	540 U	30 U	540 U	50 U	540 U	30 U	540 U	30 U	540 U	30 U	540 U	30 U
Pesticides (ug/L)																	
gemma-BHC	400	0.4 UJ	1.4 U	0.4 UJ	1.5 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 U	3 U	0.4 UJ	3 U
Heptachlor	8	0.4 UJ	1.4 U	0.4 UJ	1.5 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 UJ	3 U	0.4 UJ	3 U
Heptachlor epoxide	80	8 UJ	1.4 U	8 UJ	1.5 U	8 UJ	3 U	8 UJ	3 U	FN 8	3 U	FU 8	3 N	۲N 8	3 U	۲N 8	3 U
Endrin	20	0.6 UJ	2.9 U	0.6 UJ	3 U	0.6 UJ	6 U	0.6 UJ	6 U	0.6 UJ	7 U	0.6 UJ	5 U	0.6 UJ	5 U	0.6 UJ	ъu
Methoxychlor	10,000	18 UJ	2.9 U	18 UJ	3 U	18 UJ	6 U	18 UJ	6 U	18 UJ	7 U	18 NJ	5 U	18 UJ	5 U	LU 81	εu
Chiordane	30	1.4 UJ	8.6 U	1.4 UJ	0.6	1.4 UJ	20 U	1.4 UJ	19 U	1.4 UJ	20 U	1.4 UJ	20 U	1.4 UJ	20 U	1.4 UJ	15 U
Toxaphene	500	38 UJ	29 U	38 UJ	30 U	38 UJ	60 U	38 UJ	60 U	38 UJ	70 U	38 UJ	50 U	38 NJ	50 U	38 UJ	50 U
Herbicides (ug/L)																	
2,4-D	10,000	190 U	1.5 U	190 U	1.4 U	U 061	3 U	190 U	3 U	190 U	3 U	190 U	3 U	190 U	2 U	190 U	3 U
Silvex	1,000	28 U	1.5 U	28 U	1.4 U	28 U	3 U	28 U	3 U	28 U	3 U	28 U	3 U	28 U	2 U	28 U	3 U

A:VOLINW P946.F1 VIO81667-30-93

Table F-1

## (Page 3 of 3)

TCLP Parameters	RCRA Criterion	Transect A 0'-1'	sect -1'	Transect A 1'-2'	sect -2'	Transect B 0'-1'	sect -1'	Transect B 1'-2'	sect -2'	Transect C 0'-1'	sect -1'	Transec C 1'-2'	Transect C 1'-2'	Transect D 0'-1'	sect '-1'	Transect D 1'-2'	-2'
		Sep.92	Sep.92 Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92	Apr.93	Sep.92 Apr.93	Apr.93
Metals (mg/L)																	
Arsenic	5.0	0.114	0.013	0.1 U	0.004	0.1 U	0.004 U	0.1 U	0.004 U	0.1 U	0.007	0.1 U	0.004 U	0.1 U	0.006	010	
Barium	100.0	1.39	0.80	1.75	1.1	1.39	1.1	1.23	0.74	1.41	1.2	1.52	1.2	4.1	0.73	1.54	0.75
Cadmium	1.0	0.005 U	0.010 U	0.005 U	0.010 U	0.005 U	0.010 U	0.005 U	0.010 U	0.005 U	0.010 U	0.005 U	0.010 U	0.005 U	0.010 U	0.0321	0 010 0
Chromium	5.0	0.05 U	0.010 U	0.05 U	0.010 U	0.05 U	0.010 U	0.05 U	0.010 U	0.05 U	0.010 U	0.05 U	0.010 U	0.05 U	0 010 0	0.05.11	
Lead	5.0	0.107	0.052	0.05 U	0.050 U	0.05 U	0.20	0.05U	0.050 U	0.0845	0.050 U	0.05 U	0.050 U	0.105	0.10	38.9	0.050 U
Mercury	0.2	0.0002 U	0.0006	0.0002 U	0.0002 U	0.0002 U	0.0004 U	0.0002 U	0.0004 U	0.0002 U	0.0004 U	0.0002 U	0.0004 U 0.0002 U 0.0004 U 0.0002 U	0.0002 U	0.0004 U	=	0 0004
Selenium	1.0	0.05 U	0.004 U	0.05 U	0.004 U	0.05 U	0.004 U	0.05 U	0.004 U	0.05 U	0.004 U	0.05 U	0.004 U	0.05 U	0.004 U		0.004 U
Silver	5.0	0.01 U	0.010 U	0.01 U	0.010 U	0.01 U	0.0003 U	0.01 U	0.0003 U	0.01 U	0.0003 U		0.01 U 0.0003 U	0.01 U	0.0003 U		0.0003 U
																l	

J: Estimated value.
U: Not detected at given quantitation limit.
R: Data rejected.
T: Analyte found in the TCLP extraction blank.

"From 40CFR 261.24, Table 1, "Maximum Concentration of Contaminants for the Toxicity Characterics."

A: VOL, INVWP946, F1 v408166/7: 30-93

### Table F-2

#### Data for Reactivity Gill Creek Composite Sediments September 1992\*/April 1993<sup>b</sup> Niagara Falls, New York

Sample No.		Reactivity <sup>c</sup> g/Kg)		Reactivity⁴ ng/Kg)
	Sep. '92	Apr. '93	Sep. '92	Apr. '93
Transect A (0-1ft)	<250	10U	<250	53.6
Transect A (1-2ft)	<250	100	<250	100
Transect B (0-1ft)	481	100	<250	100
Transect B (1-2ft)	<250	100	<250	100
Transect C (0-1ft)	328	100	<250	100
Transect C (1-2ft)	<250	10U	<250	100
Transect D (0-1ft)	<250	100	450	100
Transect D (1-2ft)	<250	100	<250	100

\*IT Corporation (IT).

PRECRA Environmental, Inc. (RECRA).

U: Not detected at given quantitation limit.

<sup>c</sup>RCRA criterion is 500 mg/kg. <sup>d</sup>RCRA criterion is 250 mg/kg.

#### Table F-3 Gill Creek Transect D Analysis Lead by TCLP September 1992 Niagara Falls, New York

Parameter	Units	TD 1'-2' East	TD 1'-2' Center	TD 1'-2' West
Lead	mg/kg	54.4 UJ	0.05 U	0.05 U

J: Estimated value.

U: Not detected at given guantitation limit.