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915140

FINAL REPORT

FISH AND SEDIMENT SAMPLING RESULTS FROM A TRIBUTARY AND A BREACHED POND NEAR TENNESSEE GAS COMPRESSOR STATION 229 NEAR EDEN, NEW YORK JULY 1994

Prepared for
Tennessee Gas Pipeline Company
Houston, Texas

and

New York Department of Environmental Conservation
Albany, New York

February 1995

WCC File 91B650C-A

Woodward-Clyde

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Engineering & science applied to the earth & its environment

February 20, 1995

Mr. Andrew English
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Environmental Conservation
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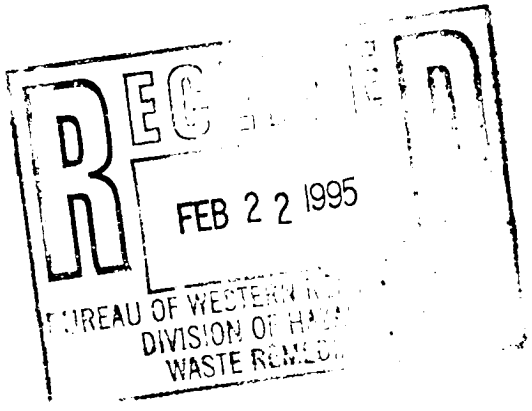

Re: Tennessee Gas Pipeline Company
Final Report: Fish and Sediment Sampling Results
From A Tributary And A Breached Pond Near
Tennessee Gas Compressor Station 229 Near
Eden, New York, July 1994
Document Control No. WCC-NY-172
WCC File No. 91B650C-A

Dear Mr. English:

At the request of Mr. Ed Schaper of Tennessee Gas Pipeline Company, I am enclosing four copies of the above-referenced final report. This document reports the results of fish tissue and sediment sampling and analysis from a reach (downstream from Highway 75) of an unnamed tributary to the South Branch of Eighteenmile Creek and the results of the sampling and analysis of fish tissues from a breached pond east of Highway 75 near Tennessee Gas Compressor Station 229 near Eden, New York. This field work was conducted during late July 1994. If you have any questions regarding this document, please contact either of the undersigned at 504/751-1873 or Ed Schaper of Tennessee Gas at 713/757-2753.

Very truly yours,

Douglas R. Hahn

Douglas R. Hahn, Ph.D.

William A. Beal

William A. Beal

Enclosure
91B650C\FSSR-LTR.172 TG

cc: Mr. Ed Schaper, Tennessee Gas
Ms. Suzanne L. Bissonette, Town of Eden

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EXECUTIVE SUMMARY

TGPL and NYSDEC agreed to sample and analyze fish tissues and sediments for potential PCB content from a tributary from Highway 75 downstream to Highway 62 near TGPL Compressor Station 229 near Eden, New York. In addition, fish tissues were sampled and analyzed for potential PCB content from a breached pond just upstream from and east of Highway 75 on the same tributary.

The objectives of the work plan included the sampling of fish tissues and sediments from a reach of an unnamed tributary to the South Branch of Eighteenmile Creek downstream from Highway 75, and the sampling of fish tissues from a breached pond on the same stream just east of Highway 75. This fish and sediment sampling program was conducted during late July 1994. Electrofishing was employed to collect all fish from the tributary. Gill netting was used to collect all fish from the breached pond. Collected fish were identified to species and enumerated. Individual fish suitable for chemical analysis were retained for later processing. All other fish were released back into the waters of their origin.

A total of 708 fish of 5 different species were collected in the tributary between Highway 75 and Highway 62 utilizing back-pack electrofishing. Creek chubs, a minnow species, dominated the catch, comprising 73.2 percent of the collected fish. Blacknose dace, another minnow species, were next in abundance, comprising 21.2 percent of the total catch, while bluegill comprised almost 5 percent of the catch. In addition, 4 unidentified shiners and 1 young-of-the-year largemouth bass were collected. A total of 29 pools were sampled between Highway 75 and Highway 62 with 26 of the pools (89.7%) yielding fish. However, only 20 of the 29 pools (68.9%) yielded fish in sufficient numbers and biomass to create at least one fish tissue sample for analysis from a given pool. Thus, twenty pools yielded fish tissue samples and were subsequently sampled for sediments. The number of fish collected per pool increased as the sampling activities moved downstream. Fish abundance increased significantly west of Hickman Road.

A total 42 fish of three different species were collected from the breached pond as a result of two days of gillnetting. All 42 fish were used to create 3 discrete and 7 composite whole body samples. Bluegill dominated the catch in the breached pond, comprising 61.9 percent of the collected fish. Creek chubs followed in abundance, comprising 33.3 percent of the catch, while largemouth bass comprised 4.7 percent of the catch from the breached pond. The fish collected in the breached pond were all quite small. All collected bluegill and largemouth bass were young-of-the-year fish averaging 6.5 and 19.0 grams, respectively. The chubs averaged 16.14 grams per fish and ranged up to 28 grams in weight. Due to the small size of the collected fish, only whole body tissue samples were created for chemical analysis.

A total of 256 out of the 708 fish (36.2%) collected from the tributary were used to create 22 discrete and 33 composite whole body fish tissue samples for chemical analysis. The remaining fish were released at their sites of capture. The creek chubs used for tissue analysis averaged 17.88 grams and ranged up to 60 grams in total weight. The blacknose dace and bluegill averaged 4.53 and 2.9 grams, respectively. Thus, the fish collected from the tributary were also rather small in size. Again, due to the small size of the collected fish, only whole body tissue samples were created for chemical analysis.

The breached pond yielded a total of 10 fish tissue samples, while 55 fish tissue samples were collected from the tributary for an overall total of 65 fish whole body tissue samples, not included duplicate samples. Twenty-five of the fish tissue samples were discrete samples, consisting of one fish per sample, while 40 of the samples were composites, consisting of more than one fish per sample.

The objectives of the work plan included the sampling and analysis of sediments from a reach of an unnamed tributary to the South Branch of Eighteenmile Creek downstream from Highway 75. Three sediment samples were to be collected from each location (pool) in the tributary where fish tissue samples were collected for chemical analysis.

The whole body fish tissue analytical data yielded the following key considerations:

- The average total PCB concentration in the 68 whole body fish tissue samples (including four duplicate sample analyses) from both the breached pond and the tributary downstream from Highway 75 was 1.53 ppm. The average total PCB concentration in the 11 whole body fish tissue samples from the breached pond was 1.94 ppm while the average concentration in the 57 whole body fish tissue samples from the tributary was 1.45 ppm.

- The maximum total PCB concentration found in a whole body fish tissue sample from the breached pond was 5.8 ppm in a single young-of-the-year largemouth bass weighing 19 grams. This value also represented the maximum PCB concentration found in any of the 68 fish tissue samples collected during this sampling event.

- The maximum total PCB concentration found in a whole body fish tissue sample from the tributary downstream from Highway 75 was 3.1 ppm in a composite sample of blacknose dace collected from Pool 11, just upstream from the Hickman Road bridge.

- All eleven whole body fish tissue samples from the breached pond and all 57 whole body fish tissue samples from the tributary downstream from Highway 75 contained detectable quantities of PCBs.

- The distribution of total PCB concentrations in the 68 whole body fish tissue samples were consistent. Nearly 70 percent of the fish samples contained total PCB concentrations ranging from one to three ppm. Only two samples (a discrete largemouth bass sample from the breached pond and a composite blacknose dace sample from the tributary) contained total PCB concentrations exceeding 3 ppm. The remaining 30 percent of the fish samples contained total PCB concentrations of less than 1 ppm. This lowered variation and consistency in the results suggests that the analytical data accurately

characterize the presence of PCBs in whole body fish tissues in this portion of the aquatic system.

The percentage lipid content of the 68 discrete and composite whole body fish samples ranged from 2.19 to 10.5 percent and averaged 6.13 percent. Such values are within the expected ranges for the various species and are indicative of fish in good health.

The sediment sample analytical data yields the following key considerations:

- A total of 60 sediment samples, including duplicate samples, from 19 different pools in the tributary between Highway 75 and Highway 62 were analyzed for total PCB content.

- Only one sediment sample out of 60 samples analyzed (1.7%) contained PCBs at a concentration above the reporting limit of 0.1 ppm wet weight. That sample contained 0.186 ppm total PCBs and originated from Pool 20 between Hickman Road and Highway 62. The other two sediment samples collected from Pool 20 and the sediment samples collected from the pools immediately upstream and downstream from Pool 20 did not contain PCBs in concentrations above the reporting limit of 0.1 ppm wet weight.

- Thus, 59 out of the 60 sediment samples analyzed (98.3%) did not contain PCBs above the reporting limit of 0.1 ppm wet weight.

- A total of 120 total organic carbon content analyses were performed on a total of 60 sediment samples, including duplicate samples, collected from 19 different pools in the tributary between Highway 75 and Highway 62.

- The average total organic carbon content value for the 120 analyses performed was 1.273 percent. Values ranged from 0.071 to 2.87 percent. However, 84.2 percent of the analytical results were between 0.80 and 2.20 percent.

- A geographic pattern to the analytical results was not apparent. It should be noted that the sediment samples were collected from areas of probable deposition.

1.0 INTRODUCTION

Tennessee Gas Pipeline Company (TGPL) and the New York State Department of Environmental Conservation (NYSDEC) entered into Consent Orders regarding certain TGPL compressor stations in the state of New York. These Consent Orders included the following stations:

Consent Order	Station
DO-0005-8903	Station 224 - Clymer, NY
DO-0004-8903	Station 229 - Eden, NY
DO-0003-8903	Station 237 - Clifton Springs, NY
DO-0002-8903	Station 241 - Lafayette, NY
DO-0001-8903	Station 245 - West Winfield, NY
DO-0000-8903	Station 254 - Nassau, NY

One requirement of these Consent Orders involved conducting Remedial Investigations (RIs) at each station. Draft reports of these RIs were prepared and presented to NYSDEC for review and comment beginning in August 1991.

One component of the RI at each site was a habitat based assessment (HBA) which followed the stepwise approach described in a December 28, 1989 Technical and Administrative Guidance Memorandum (TAGM): Habitat Based Assessment, Guidance Document for Conducting Environmental Risk Assessments at Hazardous Waste Sites. It should be noted that the performance of the initial HBA work was negotiated with NYSDEC and was not a specific requirement of the RI/FS Consent Order. The initial step of the HBA at each of the six sites included a site description with identification of natural resources of the site and the surrounding areas, natural resource characterization, and hazard threshold identification. The initial phase of HBA work, which was presented in the RI report for each site, included literature-based plant and animal species lists, vegetation cover maps and descriptions, literature-based identifications of New York State-regulated wetlands and sensitive habitats, and similar information. Limited field work was required in the preparation of these materials. As a result of the findings from the initial phase of HBA work and the results of site characterization,

NYSDEC eliminated Stations 237 (Clifton Springs), 245 (West Winfield), and 254 (Nassau) from further HBA requirements.

The second phase of HBA work included field verification of the Phase I literature-based plant and animal species lists, field confirmation of the Phase I habitat descriptions and vegetation cover maps, and field confirmation of New York State-regulated freshwater wetlands and sensitive habitats at Stations 224 (Clymer), 229 (Eden), and 241 (Lafayette). The emphasis of the second round of field work was on the identification of all species present at each site, estimation of the relative abundance of each identified species, and identification and delineation of all habitats. The hierarchy for species identification and evaluation was direct observation as a primary tool, the presence of sign as a secondary tool, and the presence of appropriate habitat requirements for a given species as a tertiary tool. The report of this phase of the HBA evaluated the resident communities and the pathways for potential polychlorinated biphenyl (PCB) transport through the natural community. This second phase of HBA field work was completed during June 1992 at each of the three sites. NYSDEC determined that further HBA work was not required at Station 241.

The next phase of HBA field work at two sites (Stations 224 and 229) included a request from NYSDEC for the preparation of a plan for sampling certain target species at each site and chemically analyzing the tissues from those species for the potential presence of PCBs and for the percentage lipid content of those tissues. Findings from the second phase of field work were used to select target species and appropriate sampling locations. Fish sampling was conducted at French Creek near Station 224 and at Station Lake, the breached pond, and the tributary connecting the two ponds near Station 229 during October 1993. The results of that work were presented as reports to NYSDEC during February and March 1994. After reviewing those documents, NYSDEC determined that further HBA work was not required at Station 224. However, NYSDEC requested that further HBA work be conducted in the tributary of Eighteenmile Creek near Station 229.

The numbers and biomass of fishes in the breached pond and the tributary between the breached pond and Station Lake during the October 1993 field work were inadequate to support tissue sampling and analysis. As a result, NYSDEC requested TGPL to

sample and analyze fish tissues and sediments for potential PCB content from the same tributary from Highway 75 downstream to the confluence of the tributary with the South Branch of Eighteenmile Creek. In addition, another effort was made to sample and analyze fish tissues for potential PCB content from the breached pond just upstream from and east of Highway 75 on the same tributary. TGPL agreed to conduct such sampling, and this document provides the results of that sampling and analysis of fish tissues and sediments.

2.0
SITE DESCRIPTION

The site description and characteristics presented below for Compressor Station 229 and the surrounding area originate from the results of the Phase I HBA work and from findings of the second phase of HBA field work.

2.1 GENERAL SITE DESCRIPTION

TGPL Compressor Station 229 occupies 50.5 acres along and west of East Eden Road and south of North Boston Road, approximately 4 miles south of the village of Hamburg in the town of Eden in Erie County, New York (see Figures 1 and 2). Open woods lie to the west of the station. The station (Figure 2) is situated at an elevation of approximately 1,000 feet above mean sea level. The topography is flat in the immediate vicinity of the Compressor Building and the Auxiliary Building. In the northern portion of the station, the topography slopes steeply downward from south to north, with surface runoff flowing to the north, toward the former TGPL corporate housing area. Two ditches run down the slope toward the road. In the southwestern portion of the station, the topography is moderately steep with surface runoff flowing to the west toward Station Lake. Drainage Ditch A runs south from the area which includes the Division Warehouse No. 2 and the Pipeline Warehouse and discharges into Drainage Ditch B. Drainage Ditch B runs from East Eden Road to the dehydration unit area and then west toward the separator pond and Station Lake. Another drainage ditch parallels the station road along the southern boundary of the facility and runs west toward the separator pond.

Soil in the area is composed primarily of glacial till with clay and shale. The depth to groundwater is approximately 5.5 feet. Most of the surface drainage from the site is received by Station Lake, which discharges to an unnamed tributary of Eighteenmile Creek. This tributary travels 3 to 4 miles before discharging into Eighteenmile Creek, which in turn travels approximately 5 miles before discharging into Lake Erie. Storm runoff from the north side of the facility discharges to a roadside culvert near North Boston Road, which eventually discharges to Hampton Brook.

Land use in the vicinity of the station is primarily agricultural and partly residential. Zoning laws are such that land use is not expected to change considerably in the near future. The unnamed tributary of Eighteenmile Creek is not used for recreational purposes, but Eighteenmile Creek is used for fishing, swimming, and other types of recreation.

2.2 DRAINAGES AND BIOTA

The draft RI for the Eden site concluded that "based on the field survey and exposure pathway information, the aquatic food chain represents a potential exposure pathway." Further, "based on PCB sampling data, it appears that potentially affected habitats include only Station Lake and portions of the tributary of Eighteenmile Creek. Hampton Brook does not appear to be in the PCB migration pathway based upon site topography and site drainage patterns."

The tributary of Eighteenmile Creek receives the overflow from Station Lake near the southwestern corner of the station property; flows west through a wooded area that includes an area which has been described variously as a "bog," a "swamp," and a "marsh"; flows northwest through a farm field south of North Boston Road; crosses North Boston Road and flows through wooded property owned by Tennessee Gas; flows into a pond with a breached dike east of Highway 75; flows from the breached pond back into the streambed and crosses Highway 75; flows southwest and then northwest where it crosses Hickman Drive; and crosses Hickman Drive and flows on to the South Branch of Eighteenmile Creek (Figure 1). PCBs have not been detected in the stream west of Highway 75. The tributary is a small stream throughout its length ranging from a few feet in width and averaging only a few inches in depth. The stream is so small that it will not support a diverse and abundant fish population. In addition, the stream is too small to support a fish population sufficient in size to provide a significant source of food to higher trophic levels.

During the second phase of HBA field verification work (June 1992), field crews surveyed the tributary from Station Lake to its confluence with the South Branch of Eighteenmile Creek. The separator pond did not support any fish but did contain frogs. Station Lake which ranges up to 17 feet in depth exhibited good populations of

largemouth bass and bluegill. Small pools in the reach from Station Lake to the farm field south of North Boston Road supported 15 to 20 pumpkinseed, 50 to 60 creek chubs, 30 to 40 bluegill, and less than 10 blacknose dace. The reach of the tributary from North Boston Road to Highway 75 exhibited the same four fish species as the upper reach but in much smaller numbers. The same fish species were found in the tributary during the October 1993 sampling but in fewer numbers. Finally, the breached pond just east of Highway 75 was choked with aquatic vegetation but did support populations of largemouth bass, bluegill, and bluegill/pumpkinseed hybrids during June 1992. However, only three young-of-the-year largemouth bass were found in the breached pond during October 1993. The reach of the tributary from Highway 75 to the South Branch of Eighteenmile Creek was similar to the middle reach of the stream.

Wildlife assemblages noted in the small floodplain associated with the tributary included squirrels, chipmunks, raccoons, and white-tailed deer, among others.

2.3 SEDIMENT/SOIL SAMPLING RESULTS

A review of selected sediment/soil sampling results from earlier field efforts is useful when interpreting the results of the biological surveys. Numerous samples were collected in the reach of the tributary from below Station Lake to the upper end of the farm field located south of North Boston Road. Most of the samples collected from this reach contained concentrations of PCBs, with the highest concentration of 760 mg/kg. An additional 21 sediment/soil samples were collected in the reach of the tributary between North Boston Road and the upper end of the farm field south of that road. Fifteen of those 21 samples did not contain detectable quantities of PCBs with the remaining samples containing less than 10 mg/kg except for one sample containing 11 mg/kg. A total of thirty more samples were collected on the tributary from North Boston Road to the upper end of the breached pond east of Highway 75. Two-thirds of those thirty samples did not contain detectable quantities of PCBs with the remaining samples containing less than 5 mg/kg. Twenty samples were collected from the breached pond located east of Highway 75. Fifteen of those 20 samples contained PCBs at concentrations less than 10 mg/kg while the remaining samples did not contain detectable PCB concentrations. Several sediment/soil samples were collected from the tributary reach between the breached pond and Highway 75, but only two of the samples

contained PCBs, both with less than 1 mg/kg concentrations. None of the sediment/soil samples collected downstream of Highway 75 contained PCBs. Thus, with the exception of the uppermost reach of the tributary (upstream from the farm field), most of the collected sediment/soil samples did not contain PCBs and the remainder contained less than 10 mg/kg.

3.0
TECHNICAL APPROACH

3.1 SAMPLING AND ANALYSIS PLAN ASSUMPTIONS AND CONSIDERATIONS

The sampling plan developed for the work described in this report was based on specific assumptions, criteria, and considerations. Key factors to the preparation of a plan for sampling certain target species and/or sediments at a given site and chemically analyzing the tissues from those specimens and the sediments from the same locations for the potential presence of PCBs included the development of data quality objectives. The purpose of the data quality objectives (DQO) process was to ensure that the data collection activities for the project focused on collecting the information needed to make decisions or answer the relevant questions leading up to such decisions. The DQO process mandated that specific data would not be collected until the purpose(s) for that data, the process(es) for analyzing and evaluating and interpreting that data, and the use of that data were defined and agreed by the involved parties. Further, collected data which did not meet the DQOs would not be considered valid or usable for the decision-making process. The development of DQOs for this work was the result of negotiations between TGPL and NYSDEC representatives prior to the preparation of the sampling plan for this work. Taken as a whole, the DQOs essentially defined the sampling program and defined how the data derived would be treated and used.

The narrative DQOs contained in this section pertain to the fish sampling and subsequent fish tissue analysis and sediment sampling and analysis from a specific reach of an unnamed tributary of Eighteenmile Creek (from Highway 75 downstream to the confluence with the South Branch of Eighteenmile Creek) which drains the southwestern portion of TGPL Compressor Station 229 near Eden, New York. In addition, an effort was made to sample and analyze fish tissues from a breached pond just upstream from and east of Highway 75 on the same tributary. The purpose of the DQOs for Station 229 was to develop data for a comprehensive evaluation of the site, including whether any remediation is necessary or appropriate and if so, the potential remedial alternatives

for the site. The resulting DQOs were the products of mutual agreement between representatives of TGPL and representatives of NYSDEC.

3.2 DATA QUALITY OBJECTIVES FOR THE EDEN SITE

The DQOs for the Eden site were as follows:

General

- All biota sampling and collection will be conducted under the auspices of a valid New York State Scientific Collecting Permit issued by the Special License Unit of the NYSDEC. Rare, threatened, or endangered species will not be collected.

- The draft Remedial Investigation (RI) report for the Eden site concluded that "based on the field survey and exposure pathway information, the aquatic food chain represents a potential exposure pathway." Thus, selected target species will be associated with aquatic systems.

- Direct sampling and analysis of target species are more appropriate and more scientifically defensible than modeling as a means to evaluate the actual effects of PCBs on a community.

- The purpose of the proposed sampling plan is to measure and evaluate the potential biological uptake of PCBs, if present, from a tributary ecosystem, including a breached pond. The direct measurement of PCB concentrations in tissues and sediments is considered the most scientifically valid method to achieve this purpose.

Sampling

- An unnamed tributary drains Station Lake on the TGPL Compressor Station 229 site near Eden, New York, and this tributary flows west to its confluence with the South Branch of Eighteenmile Creek. This

tributary is a small stream throughout its length ranging from approximately 4 to 10 feet in width and averaging only a few inches in depth during normal flow conditions. Efforts will be made during the summer of 1994 to collect fish tissues and sediments from the reach of the unnamed tributary from Highway 75 downstream to the confluence of the tributary with the South Branch of Eighteenmile Creek. The tributary is so small that it may not support an abundant fish population. Further, it is recognized that stream flows may be variable and limited, which in turn may affect fish availability. In addition, an effort will be made to collect fish tissues from a breached pond just upstream from and east of Highway 75 on the same unnamed tributary. The effort to collect such tissue samples from the pond during October 1993 was unsuccessful due to a lack of sufficient numbers and biomass of fish.

- Findings from the June 1992 and October 1993 phases of the field work will be used to select target species and appropriate sampling locations.

- The sampling program will be scaled in size so as not to deplete the target species in their communities. Selected species will be present in sufficient abundance and biomass to support sampling.

- As much as possible, sampling locations will be selected to minimize or eliminate confounding with other factors or other potential sources of PCBs. Interpretability of data will be maximized.

- Fishes, which are selected as target species, will either be predacious sport fishes or bottom feeding, bottom dwelling species. Both types of fishes should represent "worst case" scenarios. Predacious sport fishes represent the upper trophic levels or the top of the food chain and, as such, should exhibit any tendency to bioaccumulate or biomagnify any PCBs in the system. The bottom feeding, bottom dwelling species represent fishes whose life histories, behaviors, and food habits place them in closest physical contact with bottom sediments potentially containing PCBs. If such fish species are not available, then minnow

species, if such fishes are found, will be collected in lieu of predacious or bottom feeding fish.

- Adequate statistical and sufficient sample sizes are critical to generating valid, interpretable data. Sample sizes will be selected accordingly. However, it is recognized that optimal target numbers may be unrealistic and should be construed only as desired guidance for the sampling program.

- Fish of the same or taxonomically related species will be sampled and collected at each sampling location in order to generate comparable data.

- To the extent possible, the precise capture location for each fish caught will be recorded to enable correlation of laboratory analysis results with fish capture location.

- The following fish species are known to exist in the drainage from Station 229:

  - Largemouth bass, *Micropterus salmoides*
  - Bluegill, *Lepomis macrochirus*
  - Pumpkinseed, *Lepomis gibbosus*
  - Bluegill/Pumpkinseed hybrid
  - Creek chub, *Semotilus atromaculatus*
  - Blacknose dace, *Rhinichthys atratulus*

- Efforts will be made to collect up to eight samples each of two species of fish from the unnamed tributary and to collect up to eight samples each of the two species of fish from the breached pond. These species will be either representative bottom feeders or representative predators since such species represent potential "worst case" indicators of PCB concentrations in aquatic systems. If such fish species are not available, then minnow species, if such fishes are found, will be collected in lieu of predacious or bottom feeding fish.

- A maximum of eight predator filet and eight bottom feeder filet samples and eight predator remains and eight bottom feeder remains samples will be collected from the tributary, and a maximum of eight predator filet and eight bottom feeder filet samples and eight predator remains and eight bottom feeder remains samples will be collected from the breached pond in order to achieve a statistically adequate sample. The same maximum totals will apply whether the fish tissue samples are discrete or composite samples.

- Back-pack electrofishing units, seines, and dip nets will be employed in an effort to collect fish from the tributary and a boat-deployed electrofishing unit and/or seines will be employed to collect fish from the breached pond.

- As the unnamed tributary between Highway 75 and Eighteenmile Creek is surveyed, fish will be sampled and collected first. If fish of sufficient numbers and biomass are available at a given location, those fish will be processed as samples. Sediment samples will then be collected at the fish sampling location. Three sediment samples (for statistical replication) will be collected at each major fish collection location with the nature of the substrate determining the method of collection. The sediment samples will be submitted for chemical analysis for PCBs and total organic carbon. In addition, an immunoassay field screening kit will be employed for a preliminary determination of PCB concentrations, if any, in the sediments. The number of major fish sampling locations will determine the number of sediment samples to be collected. Sediment samples will not be collected from the breached pond.

- Sediment samples will be obtained using a grab-type sampler (Eckman dredge), which is designed to retrieve about six inches of surface sediment on a bulk basis. Sampling requires setting a spring-loaded double closure mechanism, lowering the sampler to the stream bottom, and releasing a weight down a messenger line to activate the closure mechanism which excavates the surface sediments. Upon reaching the

surface, the sampler will be drained of free water and the sample will be deposited in a stainless steel bowl set within a larger catch basin for sample processing. Hand trowels will be used to collect sediments where the stream is shallow and substrates preclude the use of a dredge sampler. Sediment samples will be removed from the stainless steel bowl and placed directly in sample containers. Labels will be attached directly to sample containers which will be placed in individual Ziploc plastic bags. Sediment samples will be cooled with ice to 4° C and will be shipped on ice to the analytical laboratory, accompanied by a chain-of-custody document.

- It is recognized that the physical constraints of the tributary may result in a lack of fish of sufficient numbers or biomass in order to perform the desired chemical analyses. In such a contingency, the deployment of Semi-Permeable Membrane Devices (SPMDs) is proposed in lieu of fish tissue sampling and analysis. SPMDs will not be deployed in the breached pond. SPMDs consist of low density polyethylene bags filled with triolein, the major storage triglyceride in freshwater fish. Only the dissolved or bio-available fraction of non-polar organic compounds, such as PCBs, can diffuse through the polymeric sheet due to the size of the transport corridors ($\leq$ 10 Å). Thus, the polymeric film behaves as a biological membrane. SPMDs have been shown to be more accurate than conventional water analysis in measuring the dissolved PCB fraction.

  Environmental Sampling Technologies of St. Joseph, Missouri, is a commercial vendor for triolein-filled SPMDs. Their design uses a 32- to 36-inch long polyethylene lay-flat tubing, 1-inch wide. The SPMDs would be deployed as three units per sampling location (for statistical replication) in the tributary for a period not to exceed thirty days. At the end of the sampling period, the SPMDs would be collected and submitted for chemical analysis for PCB content. In addition, sediment samples, as described in the preceding bullet item, would be collected at the SPMDs deployment locations.

- The reach of the tributary to be sampled is located on private property except for public road and bridge crossings and right-of-way easements. In addition, the breached pond is also located on private property. Thus, permission for access to properties containing the tributary and breached pond will be required prior to sampling the targeted reach.

Analyses

- Discrete samples of individual organisms will be utilized whenever sample mass is sufficient for analytical purposes. The discrete nature of the sample allows optimal scientific interpretation for an individual. In contrast, composite sampling and analysis merely provide a mean value for several individuals without providing a measure of variation (e.g., standard deviation) or insight into individual results. The goal is to maximize the interpretability of the data. Composite sampling will only be employed when sample mass from individuals is insufficient for analytical purposes. The goal is to maximize the interpretability of the data.

- It is recognized that the presence of PCBs in a target species poses at least two potential concerns — effects on humans and effects on other wildlife (consuming organisms). In order to address those twin potential concerns, each specimen of a target species (assuming it is consumed by humans as well as wildlife) will be divided into two discrete samples. For example, the filet(s) will comprise one sample while the remainder (i.e., "the remains") of the fish will comprise a second sample. The analytical results from the filet sample will provide insight into potential effects on human consumers. The analytical results for an entire fish, reconstructed proportionately by weight from the filet and the remains results, will provide insight into potential effects on wildlife. If target species are not available and minnows are present and of sufficient size for analysis, the minnows will be prepared as whole body samples only since such fish are not consumed by humans.

- Larger, older individuals may have greater body burdens of PCBs than younger individuals. The largest specimens of a target species will be selected for chemical analysis. In addition, the individuals selected for analysis will be aged following accepted methodologies (e.g., otoliths, pectoral spines or scales from fish). Minnows, if utilized, will not be aged.

- The collection of predacious and/or bottom feeding, bottom dwelling fish species and analysis of both filet and whole body samples will maximize the information from each sample. Such a sampling and tissue analysis regime will yield directly measured, comparable data from fish for "worst case" effects on humans and wildlife.

- All fish tissue samples will be analyzed for total PCB content, as well as for individual PCB Aroclors.

- Total length and weight will be recorded for each specimen collected for sample analysis to aid in analytical data interpretation.

- Duplicate filet analysis will be performed on at least 5 percent of the samples at each sampling location to monitor laboratory analysis reproducibility.

- Each fish tissue sample will be analyzed for its total PCB (and individual Aroclors) and total percentage lipid content. The selected analytical laboratory will use quantitation limits of 0.02 ppm for PCB analysis and 0.01 percent for lipid content. A minimum of 20 grams of fish tissue will be required for the analysis, and the final extract will be concentrated to a greater extent in order to achieve the quantitation limit. PCB analyses will be performed according to EPA Method 8080, SW-846, 3rd Edition.

- The skin will not be removed from fish filet samples for chemical analysis except in the case of freshwater catfishes.

- Aroclor (PCB) data for fish tissues will be developed according to analytical protocols similar to those presented in the EPA Method 3500 Organic Extraction and Sample Preparation, EPA Method 3540 Soxhlet Extraction, EPA Method 3620 Florisil Column Cleanup, EPA Method 3640 Gel-Permeation Cleanup, EPA Method 8000 Gas Chromatography and EPA Method 8080 Organochloride Pesticides and PCBs in Test Methods for Evaluating Solid Waste (SW-846, Third Edition, Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, Washington, D.C., November 1986).

  The modifications to these protocols which will be employed in the analyses are summarized in this paragraph. The surrogate, decachlorobiphenyl (DCB), will replace the specified surrogates, 2,4,5,6-tetrachloro-m-xylene (TMX) and dibutylchlorendate (DBC). The Aroclor PCBs will be eluted from the Florisil column with petroleum ether/ethyl ether in a single fraction. The various single component pesticide quality control criteria will be deleted. All analytical determinations will be performed on the single chromatographic stationary phase SP-2100. The specified 5-point initial calibration with 20 percent or less relative standard deviation (%RSD) will be restricted to 3 points with 15 percent or less RSD for Aroclor 1016, 1242, 1248, 1254 and 1260 and to a single point for the remaining Aroclors 1221 and 1232. All quantitations will be performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three. None of these modifications should be deleterious to the technical quality of the data. The use of the single chromatographic stationary phase may increase the potential for reporting false positive results with some low level sample concentrations near the reporting limits.

- All PCB results and percentage lipid determinations will be reported on an "as received" basis.

- Sediments will be analyzed for total PCBs including individual Aroclor analysis and for total organic carbon. Sediments will be field screened for PCB content utilizing the ENSYS Inc. Rapid Immunoassay Screen PCB RISC™ Test with an analytical detection limit of 0.4 ppm for Aroclors 1254 and 1260 in wet sediments or the D TECH™ PCB Field Test Kit manufactured by EM Science/Strategic Diagnostics Incorporated. The sediments will be adequately dewatered prior to the field screen in order to avoid false low values. Sediment samples will also be submitted to an analytical laboratory for PCB analysis including individual Aroclor analysis according to U.S. EPA Contract Laboratory Program Statement of Work for Organic Analysis Multi-Media Multi-Concentration (Document Number of OLM01.0 with Revisions OLM01.1 through OLM01.8, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. 1991) (SOW OLM01.0). This protocol will be modified to include a concentrated sulfuric acid wash cleanup step of the solvent extracts to remove potential interferences for the analysis of PCBs. Additional Aroclor 1254 continuing calibration verification standards will be analyzed periodically throughout the analytical run sequence. Aroclor 1254 will be employed as a matrix spiking compound. The selected analytical laboratory will use quantitation limits of 0.1 ppm for PCB analysis. Total organic carbon will be determined following Plumb, R. H., Jr. 1981, "Procedure for Handling and Chemical Analysis of Sediment and Water Samples," Technical Report EPA/CE-81-1, prepared by Great Lakes Laboratory, State University College at Buffalo, Buffalo, New York for the U.S. EPA and Corps of Engineers (combustion method).

- If SPMDs are deployed due to an insufficiency of fish, the devices will remain in the tributary for a period of thirty days. The SPMDs will then be collected and sent to the manufacturer for analytical cleanup. Following the completion of such cleanup, the manufacturer will place the contents of each SPMD into an ampule and will send all ampules to an analytical laboratory for analysis for potential PCB content.

- Validation of the analytical data will be performed according to applicable criteria in the Quality Assurance Plan, Tennessee Gas Compressor Station Sites (Woodward-Clyde Consultants, Baton Rouge, Louisiana, June 1989) and the draft Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D.C., 1990, Revised February 1, 1988) (a.k.a. QAP and Organic Functional Guidelines, respectively).

The following areas will be reviewed during the data validation process:

- Blanks
- Surrogate recoveries
- Matrix spike/matrix spike duplicate recoveries
- Laboratory control sample recoveries
- Field duplicates
- Aroclor identification
- Aroclor quantitation and quantitation limits
- Overall assessment of data
- Documentation

All laboratory results will be either accepted (unqualified), qualified or rejected. Accepted (unqualified) results are valid with respect to the specified procedures, and may be used without reservation. Qualified results are usable with the indicated limitation. Rejected results are unusable and the analyte may or may not be present. Resampling as determined to be necessary and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

Qualified and rejected results will be annotated according to Functional Guidelines conventions employing the following codes:

U The analyte was analyzed for, but was not detected above the associated numerical value.

J The associated numerical value was an estimated quantity.

R The data were unusable. The presence or absence of the analyte could not be verified from the existing data. Resampling as determined to be necessary and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

N There was presumptive evidence to make a tentative identification.

NJ There was presumptive evidence to make a tentative identification, and the associated numerical value was an estimated quantity.

UJ The analyte was analyzed for, but was not detected above the reported value. The associated numerical value was an estimate.

- Method blanks will be processed at a frequency of 1 per 20 or fewer samples of a similar matrix or each time sample preparation is performed or each time a new batch of reagents or solvents is employed.

- Surrogates will be used, recovered and evaluated in terms of laboratory-quoted advisory control limits of 60 to 121 percent. Decachlorobiphenyl (DCB) will be employed as a surrogate rather than the specified 2,4,5,6-tetrachloro-m-xylene (TMX) and dibutylchlorendate (DBC).

- Matrix spike/matrix spike duplicate (MS/MSD) sample pairs will be associated with the samples. MS/MSD percentage recoveries (%R) will be within the laboratory-quoted 30 to 160 percent quality control limits.

- Laboratory control samples (LCSs) for fish tissue analysis will consist of commercial tuna fish spiked with Aroclor 1254, and such samples will be processed and analyzed at a frequency of 1 per 20 or fewer samples each time sample preparation is performed. The LCS percentage recoveries will be within the laboratory-quoted 62 to 111 percent control limits.

- A sample/field duplicate sample pair will be associated with each 20 or fewer samples. Field duplicates will be employed to assess the overall precision of the field sampling and laboratory analysis.

- All equipment utilized in sample preparation will be decontaminated before use and again after each sample is processed. The following procedures will be employed:

  1) Washing with a detergent solution (Alconox soap)
  2) Rinsing with clean deionized water
  3) Rinsing with methanol
  4) Rinsing with clean deionized water

  After each decontamination procedure, each piece of sampling equipment will be placed in a plastic tub to dry and will be wrapped in foil or plastic until its subsequent use. All wash fluids and disposable equipment will be placed in containers for disposal.

- For documentation purposes, all pertinent field observations and sampling information will be recorded in a field log book. Sufficient information will be recorded in each log book to reconstruct sampling activities and conditions without relying on the collector's memory. Entries in the log book will include the following:

- Location and purpose of sampling activity
- Description of sampling point
- Date and time of sample collection
- Number and type of samples taken
- Sample identification number(s)
- Sample preservation and distribution
- Field observations and measurements

- In addition to the field log book, each sample sent off-site will be recorded on a chain-of-custody form. Chain-of-custody forms will provide the permanent records of all sample handling and shipment. The person collecting a sample will initiate the chain-of-custody documentation procedure. Chain-of-custody documentation will include the following applicable data:

  - Field sample number, site name and project number
  - Date sample collected and processed
  - Date sample submitted to the laboratory
  - Field sampler's signature
  - Sample source and description
  - Number of shipping containers
  - Signature of persons relinquishing and obtaining custody of samples
  - Indication of sample disposition

  To ensure safe and proper chain-of-custody for all field samples, sample coolers will be closed with sample seals to prevent tampering. The seal number of each cooler will be noted and recorded in the field log book before shipment of any samples. Samples will be kept in a limited access or locked storage area at the proper temperature (4° C) until custody is relinquished from the site and formal documentation of the transfers is completed. All samples for total PCB analysis will be transported on ice to the analytical laboratory under chain-of-custody.

Use of Data

- The results of all fish and sediment sampling will be reported to NYSDEC upon completion of analytical data validation and preparation of a written report.

- The evaluation of the data resulting from sampling will be based upon a determination of impacts to a population, community or ecosystem and not on impacts to individual organisms.

- Results of HBA sampling and fish tissue and sediment analysis will be evaluated on the basis of current site conditions and not on conjecture as to theoretical historic PCB levels which are not indicated by current sampling results.

- The standards and guidelines to be used for evaluation of fish tissue analytical results will include NYSDEC, FDA, and other appropriate standards or guidelines. The NYSDEC PCB guidance of 0.1 ppm (for the protection of wildlife) will not serve as the sole standard for the evaluation of fish tissue analytical results. The U. S. Food and Drug Administration (FDA) regulation of 2 ppm for PCBs in fish tissue will be employed to aid in evaluating fish filet analytical results, since that standard determines which fish are sold to restaurants, supermarket, and other such outlets for consumption by the general public.

- During the evaluation of the fish tissue sampling results, NYSDEC will consider the information on the habitats developed from the field verification work as presented in Woodward-Clyde's Phase II HBA Report. The fish tissue and sediment analytical results are not intended to provide an exclusive basis for evaluating ecological effects, if any.

- The impact of remediation on a natural community will be considered when addressing cleanup or "action" levels at the site, as well as the decision to remediate.

- The number and biomass of fishes in the tributary and associated ponds will be included in an analysis of the sufficiency of the food supply to provide potential exposure to PCBs to any piscivorous predator population that may reside in the area.

- The actual condition of the community or ecosystem under review will be taken into account when applying theoretical standards or generic guidance values which are assumed to be protective of wildlife.

- Because sampling variability is difficult to control in biological organisms, the analytical detection limit should be well below any level of concern such that there is a statistically significant distinction between them.

- Direct sampling and analysis of fish tissues and equilibrium partitioning will be used as ways to evaluate the effects, if any, of sediment PCBs on humans and wildlife. TGPL does not endorse the use of equilibrium partitioning.

- Data which does not meet the DQOs will not be considered valid or usable.

The sampling program was developed based on the aforementioned assumptions, criteria, and considerations.

3.3 SAMPLING PROGRAM

3.3.1 Sampling Approach

The draft RI report for the Eden site concluded that "based on the field survey and exposure pathway information, the aquatic food chain represents a potential exposure pathway." Thus, only aquatic systems, as represented by an unnamed tributary, were sampled.

An unnamed tributary drains Station Lake on the TGPL Compressor Station 229 site near Eden, New York, and this tributary flows west to its confluence with the South Branch of Eighteenmile Creek. This tributary is a small stream throughout its length ranging from a few feet in width and averaging only a few inches in depth during normal flow conditions. Efforts were made during July 1994 to collect fish tissues and sediments from the reach of the unnamed tributary from Highway 75 downstream to the confluence of the tributary with the South Branch of Eighteenmile Creek. In addition, an effort was made to collect fish tissues from a breached pond just upstream from and east of Highway 75 on the same tributary.

Discrete samples of individual fish were to be utilized whenever sample mass was sufficient for analytical purposes. Composite sampling was to be employed when sample mass from individuals was insufficient for analytical purposes.

Each specimen of a target fish species (assuming it is consumed by humans as well as wildlife) was to be divided into two discrete samples. For example, the filet(s) were to comprise one sample while the remainder (i.e., "the remains") of the fish was to comprise a second sample. The analytical results from the filet sample were to provide insight into potential effects on human consumers. The analytical results for an entire fish, reconstructed proportionately by weight from the filet and the remains results, were to provide insight into potential effects on wildlife. If target species were not available and minnows were present and of sufficient size for analysis, the minnows were prepared as whole body samples only since such fish are not consumed by humans.

The following fish species were known to exist in the drainage from Station 229:

- Largemouth bass, *Micropterus salmoides*
- Bluegill, *Lepomis macrochirus*
- Pumpkinseed, *Lepomis gibbosus*
- Bluegill/Pumpkinseed hybrid
- Creek chub, *Semotilus atromaculatus*
- Blacknose dace, *Rhinichthys atratulus*

Efforts were made to collect up to eight samples each of two species of fish from the unnamed tributary. Efforts were also made to collect up to eight samples each of two species of fish from the breached pond. These species were to be either representative bottom feeders or representative predators since such species represented potential "worst case" indicators of PCB concentrations in aquatic systems. If such fish species were not available, then minnow species, if such fishes were found, were to be collected in lieu of predacious or bottom feeding fish.

A maximum of eight predator filet and eight bottom feeder filet samples and eight predator remains and eight bottom feeder remains samples were to be collected from the tributary, and a maximum of eight predator fish and eight bottom feeder filet samples and eight predator remains and eight bottom feeder remains samples were to be collected from the breached pond in order to achieve a statistically adequate sample. The same maximum totals were to apply whether the fish tissue samples were discrete or composite samples.

As the unnamed tributary between Highway 75 and Eighteenmile Creek was surveyed, fish were to be sampled and collected first. If fish of sufficient numbers and biomass were available at a given location, those fish were to be processed as samples. Sediment samples were then to be collected at the fish sampling location. Three sediment samples (for statistical replication) were to be collected at each major fish collection location with the nature of the substrate determining the method of collection. Sediment samples were not to be collected from the breached pond. The sediment samples were to be submitted for chemical analysis for PCBs and total organic carbon. In addition, an immunoassay field screening kit was to be employed for a preliminary determination of PCB concentrations, if any, in the sediments. The number of major fish sampling locations determined the number of sediment samples to be collected.

It was recognized that the physical constraints of the tributary may result in a lack of fish of sufficient numbers or biomass in order to perform the desired chemical analyses. In such a contingency, the deployment of SPMDs was proposed in lieu of fish tissue sampling and analysis. SPMDs were not to be deployed in the breached pond. SPMDs consist of low density polyethylene bags filled with triolein, the major storage triglyceride in freshwater fish. Only the dissolved or bio-available fraction of non-polar organic

compounds, such as PCBs, can diffuse through the polymeric sheet due to the size of the transport corridors ($\leq$ 10 Å). Thus, the polymeric film behaves as a biological membrane. SPMDs have been shown to be more accurate than conventional water analysis in measuring the dissolved PCB fraction.

Environmental Sampling Technologies of St. Joseph, Missouri, is a commercial vendor for triolein-filled SPMDs. Their design uses a 32- to 36-inch long polyethylene lay-flat tubing, 1-inch wide. The SPMDs would be deployed as three units per sampling location (for statistical replication) in the tributary for a period not to exceed thirty days. At the end of the sampling period, the SPMDs would be collected and submitted for chemical analysis for PCB content. In addition, sediment samples, as described earlier, would be collected at the SPMDs deployment locations.

The reach of the tributary to be sampled is located on private property except for public road and bridge crossings and right-of-way easements. In addition, the breached pond is also located on private property. Thus, permission for access to properties containing the tributary and the breached pond was required prior to sampling the targeted reach.

3.3.2 Sample Analysis

Fish tissues were to be analyzed for total PCBs including individual Aroclor analysis and for percentage lipid determination. PCB analysis were performed according to EPA Method 8080, SW-846, 3rd Edition.

Sediments were analyzed for total PCBs including individual Aroclor analysis and for total organic carbon. Sediments were be field screened for PCB content utilizing the ENSYS Inc. Rapid Immunoassay Screen PCB RISC™ Test with an analytical detection limit of 0.4 ppm for Aroclors 1254 and 1260 in wet sediments or the D TECH™ PCB Field Test Kit manufactured by EM Science/Strategic Diagnostics Incorporated. The sediments were adequately dewatered prior to the field screen in order to avoid false low values. Sediment samples were also submitted to an analytical laboratory for PCB analysis including individual Aroclor analysis according to U.S. EPA Contract Laboratory Program Statement of Work for Organic Analysis Multi-Media Multi-Concentration (Document Number OLM01.0 with Revisions OLM01.1 through OLM01.8, Office of

Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. 1991) (SOW OLM01.0). This protocol was modified to include a concentrated sulfuric acid wash cleanup step of the solvent extracts to remove potential interferences for the analysis of PCBs. Additional Aroclor 1254 continuing calibration verification standards were analyzed periodically throughout the analytical run sequence. Aroclor 1254 was employed as a matrix spiking compound. The selected analytical laboratory used quantitation limits of 0.1 ppm for PCB analysis. Total organic carbon was determined following Plumb, R. H., Jr. 1981, "Procedure for Handling and Chemical Analysis of Sediment and Water Samples," Technical Report EPA/CE-81-1, prepared by Great Lakes Laboratory, State University College at Buffalo, Buffalo, New York for the U.S. EPA and Corps of Engineers (combustion method).

4.0 METHODS

4.1 FIELD METHODS

4.1.1 Scientific Collecting Permit

Woodward-Clyde Consultants applied for and received a scientific collecting permit from NYSDEC, Division of Fish and Wildlife, Special License Unit, for conducting the fish sampling and collection. This Fish and Wildlife License to Collect and Possess (License Number LCP93-673) was issued on December 9, 1993 and was valid until December 31, 1994.

4.1.2 Fish Sampling

All of the fish collected from the unnamed tributary to the South Branch of Eighteenmile Creek were obtained with a back-pack electrofishing unit. All of the fish collected from the breached pond were obtained using a fine-meshed gill net.

4.1.2.1 Procedures and Equipment Used in Electrofishing

The primary fish collection device for the tributary was a back-pack electrofishing unit because the waters were too shallow, and the sampled habitat was too restricted to use a boat-mounted electrofishing unit. The back-pack unit was Smith Root Model 15-B Electrofisher paired with a Honda EX 350 power unit.

Two people were used to conduct electrofishing activities. One person utilized the back-pack electrofishing unit while a second person collected the stunned fish with a dip net. Fish were immobilized by the electrical field generated around the probe by electrotaxis or oscillotaxis processes. The stunned fish were collected with a dip net and then placed on ice in a cooler prior to categorization and processing.

4.1.2.2 Procedures Used for Fish Collection With a Gill Net

The gill net used for fish collection in the breached pond was made with monofilament nylon netting. Number 6 braided polypropylene was used for the top and bottom lines. A Number 125 plastic float was tied approximately every 60 inches on the top line, and a one-ounce lead weight was tied on the bottom line directly beneath the floats. The gill net was a floating style with a length of 60 feet and a depth of 4 feet. A one-inch square mesh size was used in an effort to catch small fish. Fish, if present, were expected to be small because the breached pond was without fish in October 1993 during that earlier sampling effort.

The breached pond during late July 1994 was shallow enough to be waded with chest waders. The pond was choked with submerged and emergent aquatic vegetation. The gill net was deployed in the most open water portion of the breached pond parallel with the eastern shore of the pond, and the gill net was anchored on each end. The gill net was first deployed in the breached pond during the late afternoon of July 19, 1994. The gill net was removed from the pond on the morning of July 21, 1994. The gill net was checked and the captured fish were removed during both the morning and evening of July 20 and during the morning of July 21. Thus, the gill net in the breached pond was fished for two full days.

4.1.3 Fish Categorization and Processing

All fish collected for PCB analysis and percentage lipid determination by the procedures described above were taken on ice from the field to TGPL Compressor Station 229 for categorization, processing, and documentation. Categorization and processing consisted of separating the usable specimens and assigning them a sample number, and obtaining the total weight and total length of each fish. Otoliths and/or scales were collected for age and growth analysis, when appropriate. Following the collection of this information, appropriate tissue samples were collected from each fish. Discrete samples of individual organisms were utilized whenever sample mass was sufficient for analytical purposes. Composite sampling was only employed when sample mass was insufficient from individuals. Two discrete samples were to be prepared from each fish. The filets were to comprise one sample while the remainder (i.e., the "remains") of the fish was to

comprise a second sample. Whole body samples were to be prepared if minnow species were utilized. All of the fish collected during this sampling were either minnow species or were too small to be divided into separate filet and remains samples. As a result, all of the fish tissue samples were either discrete or composite whole body samples. The samples were placed in appropriately labeled glass jars, stored on ice, and then sent under established chain-of-custody procedures to the laboratory for analysis. A scale sample was collected for age determination from one bluegill weighing 12 grams. This sample was sent to a Woodward-Clyde subcontractor for age estimation. All other non-minnow fish were deemed to be young-of-the-year specimens so otoliths and scales were not collected from these specimens. Minnows, if utilized, were not to be aged so otoliths and scales were not collected from these specimens.

4.1.4 Sediment Sampling and Processing

The tributary was very shallow, and the bottom of the stream consisted of bedrock and rocky rubble. As a result, conventional sediment sampling equipment, such as sampling dredges, could not be deployed. Sediment samples were collected by hand and placed directly into glass sample containers. Labels were attached directly to the sample containers which were then placed in individual Ziploc plastic bags. Sediment samples were cooled with ice to 4°C and were shipped on ice to the analytical laboratory, accompanied by a chain-of-custody document.

4.1.5 SPMD Sampling

The deployment of SPMDs had been proposed in the work plan in lieu of fish tissue sampling and analysis in the event that the physical constraints of the tributary resulted in a lack of fish of sufficient numbers or biomass to meet tissue sampling goals. However, fish were present in both the breached pond and in the sampled reach of the tributary in sufficient numbers and biomass to support tissue sampling and analysis. As a result, SPMDs were not deployed.

4.2 SAMPLE LABELING

Each fish tissue specimen collected as a part of the sampling effort was assigned a unique identification number. A typical identification number consisted of twelve characters, such as 220-TR-F-D-LB-004. The first three numbers represented the TGPL Compressor Station Code, in this case Station 229 near Eden. The next two letters represented the location of capture, TR for the tributary and BP for the breached pond. The next letter represented either filet (F), remains (R), or whole body (W) samples. The fifth character represented either discrete (D) or composite (C) samples. The next two characters were the species code, in this case, LB for largemouth bass, BG for bluegill, CB for creek chub, or BD for blacknose dace. The final three numbers identified the chronological order in which the specimen was collected within the species.

Each sediment sample collected as a part of the sampling effort was assigned a unique identification number. A typical identification number consisted of eleven characters, such as 229-SD-PCB-001. The first three numbers represented the TGPL Compressor Station Code, in this case Station 229 near Eden. The next two letters represented the type of sample, SD for sediment. The next three letters represented the type of analysis, in this PCBs. The final three numbers identified the chronological order in which the specimen was collected.

4.3 DECONTAMINATION PROCEDURES

All fish collected were utilized as whole body specimens. Due to the physical nature of the tributary, all sediment samples were collected by hand. As a result, special equipment was not utilized in the collection or preparation of fish and sediment samples. Therefore, decontamination procedures were neither needed nor employed.

4.4 DOCUMENTATION AND CHAIN-OF-CUSTODY PROCEDURES

4.4.1 Documentation of Sample Acquisition

For documentation purposes, all pertinent field observations and sampling information were recorded in a field log book. A log book was designated for the TGPL compressor

station and its related off-site activities. Sufficient information was recorded in the log book to reconstruct sampling activities and conditions without relying on the collector's memory. Entries in the log book included the following:

- Location and purpose of sampling activity
- Description of sampling point
- Date and time of sample collection
- Number and type of samples taken
- Sample identification number(s)
- Sample preservation and distribution
- Field observations and measurements

4.4.2 Chain-of-Custody

In addition to the field log book, each sample sent off-site was recorded on a chain-of-custody form. Chain-of-custody forms were the permanent records of all sample handling and shipment. The person collecting a sample initiated the chain-of-custody documentation procedure. Chain-of-custody documentation included the following applicable data:

- Field sample number, site name and project number
- Date sample collected and processed
- Date sample submitted to the laboratory
- Field sampler's signature
- Sample source and description
- Number of shipping containers
- Signature of persons relinquishing and obtaining custody of samples
- Indication of sample disposition

To ensure safe and proper chain-of-custody for all field samples, sample coolers were closed with sample seals to prevent tampering. The seal number of each cooler was noted and recorded in the field log book before shipment of any samples. Samples were kept in a limited access or locked storage area at the proper temperature (4° C) until custody was relinquished from the site and formal documentation of the transfers completed. All fish tissue samples for total PCB analysis and percentage lipid determination were transported on ice to Hazelton Laboratory in Madison, Wisconsin,

under chain-of-custody. All sediment samples for total PCB analysis and total organic content analysis were transported on ice to a selected analytical laboratory under chain-of-custody.

4.5 FISH AGE AND GROWTH ANALYSES

The age composition of a fish population provides insights for good resource management. In this study, age information aids in interpreting the potential bioaccumulation of PCBs in fish over time. The hard parts of fish, such as scales, otoliths (ear bones), and pectoral spines, were to be used in this study to determine the ages of the captured fish. Analysis of the hard parts of fish to determine their ages depends on recognizing changes in the rate of growth or metabolism during certain periods, reflected as layers in the hard parts. The ease of distinguishing these layers varies with the species and the structure analyzed. In general, the layers are deposited rapidly during periods of rapid fish growth and slowly during periods of slow growth. The annual layers (annuli) used to age the fish are typified by alternating, wide, fast-growth concentric rings and narrow slow-growth rings.

In addition to providing a means to age fishes, the hard structures can also be employed to back-calculate the previous growth history of the fish. For example, a fish's scale may be used to determine that specimen's length at each age interval (annulus). Such a determination can be made because the growth of the hard structures is proportional to the growth of the total length of the fish. Although such proportional growth is not precise for individuals, the data is statistically valid for a population of fish. Thus, the back-calculation method to determine past fish growth assumes a direct proportion between the scale (or other such structure) and the body growth throughout the entire life of the fish. The following formula is employed to compute past growth:

$$\frac{\textit{Length of scale radius to annulus X}}{\textit{Length of total scale radius}} = \frac{\textit{Length of fish when annulus X was formed}}{\textit{Length of fish at time scale sample was obtained}}$$

The resulting data can be used to evaluate growth patterns in the fishery and the condition of the fish stock. For example, a pattern of increasing growth at certain age

intervals suggests a rapidly growing, expanding, healthy population. A pattern of decreasing growth at the same age intervals may indicate a stagnant, stunted population.

As fish were captured in the sampling effort, certain structures were to be collected in order to perform age and growth analyses of the specimen. Scale samples and otolith samples were to be collected from each scaled fish used for PCB analysis. The scale samples were to be placed in individually labeled envelopes while the encased otoliths were to be removed and placed in a labeled plastic Ziploc bag. Pectoral spine samples and otolith samples were to be collected from each scaleless fish (such as catfish) used for PCB analysis.

Age and growth studies were to be performed on the fishes collected during the fish sampling. Dr. Charles A. Wilson, president of New Seas Aquatic Technologies and associated with Louisiana State University, served as the subcontractor to Woodward-Clyde for the purpose of aging the fishes and performing back-calculations of growth patterns for those fishes. The work performed by Dr. Wilson and his associates included the preparation of otoliths, pectoral spines, and scales for aging; the estimation of age; a comparison of age estimates derived by otoliths and age estimates derived by scales or spines; and a comparison of age estimates derived by different individuals (readers).

4.6 FISH CONDITION FACTORS (PONDERAL INDICES)

Fisheries biologists have developed a mathematical indicator which describes the condition, plumpness, or relative well-being of an individual fish. This condition factor or ponderal index is based on the presumption that the weight of a fish varies with the cube of its length provided that the general shape and the specific gravity of the fish remain the same. Thus, as described by Carlander (1969 and 1977) in his Handbook of Freshwater Fishery Biology, a change in the relative plumpness of a fish results in a change in the value "c" in the formula:

$$W = c \times L^3$$

where W = weight in metric or English units, L = length in like units and c = coefficient of condition. This formula has been used to describe the condition of a fish utilizing a reconfiguration of the formula as follows:

$$K = \frac{W \times 10^5}{L^3}$$

where K = coefficient of condition, W = weight in grams, L = length in millimeters and 10^5 is a factor to bring the value of K near unity. Standard length (SL) is the distance in straight line from the anteriormost part of the fish's snout or upper lip to the end of the vertebral column. Total length (TL) is the greatest distance in a straight line from the tip of the head to the tip of the tail when the rays are squeezed together. Where applicable, factors for converting one type of measurement to another are given. K values are reported according to the type of length measurement used on the fish [e.g., standard length (SL) or total length (TL)] resulting in condition factor designations such as K-TL or K-SL. Condition factors were calculated for the fish collected during this sampling event.

4.7 ANALYTICAL METHODS

4.7.1 Fish Tissue Analysis

Aroclor (PCB) data for fish tissue samples were developed according to analytical protocols similar to those presented in the EPA Method 3500 Organic Extraction and Sample Preparation, EPA Method 3540 Soxhlet Extraction, EPA Method 3620 Florisil Column Cleanup, EPA Method 3640 Gel-Permeation Cleanup, EPA Method 8000 Gas Chromatography and EPA Method 8080 Organochloride Pesticides and PCBs in Test Methods for Evaluating Solid Waste (SW-846, Third Edition, Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, Washington, D. C., November 1986).

The modifications to these protocols which were employed in the analyses are summarized in this paragraph. The surrogate, decachlorobiphenyl (DCB), replaced the

specified surrogates, 2,4,5,6-tetrachloro-m-xylene (TMX) and dibutylchlorendate (DBC). The Aroclor PCBs were eluted from the Florisil column with petroleum ether/ethyl ether in a single fraction. The various single component pesticide quality control criteria were deleted. All analytical determinations were performed on the single chromatographic stationary phase SP-2100. The specified 5-point initial calibration with 20 percent or less relative standard deviation (%RSD) were restricted to 3 points with 15 percent or less RSD for Aroclor 1016, 1242, 1248, 1254 and 1260 and to a single point for the remaining Aroclors 1221 and 1232. All quantitations were performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three. None of these modifications were deleterious to the technical quality of the data. The use of the single chromatographic stationary phase may increase the potential for reporting false positive results with some low level sample concentrations near the reporting limits.

Each fish tissue sample was analyzed for its total PCB (and individual Aroclors) and total percentage lipid content. The selected analytical laboratory used quantitation limits of 0.02 ppm for PCB analysis and 0.01 percent for lipid content. A minimum of 20 grams of fish tissue was required for the analysis, and the final extract was concentrated to a greater extent in order to achieve the quantitation limit. PCB analyses were performed according to EPA Method 8080, SW-846, 3rd Edition. The skin was not to be removed from fish filet samples for chemical analysis except in the case of freshwater catfishes.

The samples collected during the sampling activity were shipped on ice to Hazelton Laboratories in Madison, Wisconsin, where the samples were analyzed for the presence of PCBs. PCBs were extracted from a 20-gram aliquot of tissue by soxhlet extraction (for 16 hours) with a 1:1 ratio of methylene chloride and acetone. The extract was concentrated by roto-evaporation, exchanged to methylene chloride, and diluted to a volume of 10 ml. A 5-ml aliquot of the 10-ml methylene chloride extract was fractionated by gel permeation chromatography and concentrated again by roto-evaporation. The concentrated extract was solvent-exchanged to isooctane and diluted to a volume of 50 ml. Final determination of PCBs was performed by gas chromatography with electron capture detection according to U. S. EPA Method 8080.

All PCB results and percentage lipid determinations were reported on an "as received" basis.

4.7.2 Fish Data Validation

Validation of the analytical data was performed according to applicable criteria in the Quality Assurance Plan, Tennessee Gas Compressor Station Sites (Woodward-Clyde Consultants, Baton Rouge, Louisiana, June 1989) and the draft Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D. C., 1990, Revised February 1, 1988) (a.k.a. QAP and Organic Functional Guidelines, respectively).

The following areas were reviewed during the data validation process:

- Blanks
- Surrogate recoveries
- Matrix spike/matrix spike duplicate recoveries
- Laboratory control sample recoveries
- Field duplicates
- Aroclor identification
- Aroclor quantitation and quantitation limits
- Overall assessment of data
- Documentation

All laboratory results was either accepted (unqualified), qualified or rejected. Accepted (unqualified) results are valid with respect to the specified procedures, and may be used without reservation. Qualified results are usable with the indicated limitation. Rejected results are unusable and the analyte may or may not be present. Resampling as determined to be necessary and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

Qualified and rejected results were annotated according to Functional Guidelines conventions employing the following codes:

U The analyte was analyzed for, but was not detected above the associated numerical value.

J The associated numerical value was an estimated quantity.

R The data were unusable. The presence or absence of the analyte could not be verified from the existing data. Resampling as determined to be necessary and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

N There was presumptive evidence to make a tentative identification.

NJ There was presumptive evidence to make a tentative identification, and the associated numerical value was an estimated quantity.

UJ The analyte was analyzed for, but was not detected above the reported value. The associated numerical value was an estimate.

Method blanks were processed at a frequency of 1 per 20 or fewer samples of a similar matrix or each time sample preparation was performed or each time a new batch of reagents or solvents was employed.

Surrogates were used, recovered and evaluated in terms of laboratory-quoted advisory control limits of 60 to 121 percent. Decachlorobiphenyl (DCB) was employed as a surrogate rather than the specified 2,4,5,6-tetrachloro-m-xylene (TMX) and dibutylchlorendate (DBC).

Matrix spike/matrix spike duplicate (MS/MSD) sample pairs were associated with the samples. MS/MSD percentage recoveries (%R) were within the laboratory-quoted 30 to 160 percent quality control limits.

Laboratory control samples (LCSs) consisted of commercial tuna fish spiked with Aroclor 1254, and such samples were processed and analyzed at a frequency of 1 per 20

or fewer samples each time sample preparation is performed. The LCS percentage recoveries were within the laboratory-quoted 62 to 111 percent control limits.

A sample/field duplicate sample pair was associated with each 20 or fewer samples. Field duplicates were employed to assess the overall precision of the field sampling and laboratory analysis.

4.7.3 Sediment Analysis

Sediments were analyzed for total PCBs including individual Aroclor analysis and for total organic carbon. Sediments were field screened for PCB content utilizing the ENSYS Inc. Rapid Immunoassay Screen PCB RISC™ Test with an analytical detection limit of 0.4 ppm for Aroclors 1254 and 1260 in wet sediments. The sediments were adequately dewatered prior to the field screen in order to avoid false low values. Sediment samples were also submitted to an analytical laboratory for PCB analysis including individual Aroclor analysis according to U.S. EPA Contract Laboratory Program Statement of Work for Organic Analysis Multi-Media Multi-Concentration (Document Number of OLM01.0 with Revisions OLM01.1 through OLM01.8, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C. 1991) (SOW OLM01.0). This protocol was modified to include a concentrated sulfuric acid wash cleanup step of the solvent extracts to remove potential interferences for the analysis of PCBs. Additional Aroclor 1254 continuing calibration verification standards were analyzed periodically throughout the analytical run sequence. Aroclor 1254 was employed as a matrix spiking compound. The selected analytical laboratory used a quantitation limit of 0.1 ppm for PCB analysis. Total organic carbon was determined following Plumb, R. H., Jr. 1981, "Procedure for Handling and Chemical Analysis of Sediment and Water Samples," State University College at Buffalo, Buffalo, New York for the U.S. EPA and Corps of Engineers (combustion method).

Sediment data validation followed the procedures described in Section 4.7.2.

4.7.4 SPMD Analysis

SPMDs were not deployed because fish were present in the tributary in sufficient numbers and biomass to support sampling activities. Thus, there were not any SPMD samples to analyze.

4.8 STATISTICAL METHODS

When appropriate, statistical methods were applied to the data obtained from the study. The methods used and associated theories are presented below. The total PCB concentration was computed as the arithmetic sum of all detectable PCB Aroclor values. In conducting statistical analysis of the data, the total PCB concentration was computed as the arithmetic sum of all the Aroclor values, using a value equal to one-half the detection limit for those values which were reported as being not detected.

4.8.1 Correlation Coefficient

If appropriate, the correlation coefficient was applied to some data sets in the study with potential relationships to each other. A correlation analysis measured the intensity of association between any pair of random variables (i.e., age versus weight) and tested whether that intensity was greater than could be expected by chance alone. The chief concern with correlation was whether the two variables were interdependent or covary, that was, vary together. One variable is not expressed as a function of the other. Terms such as dependent and independent variables, as in regression analysis, are not used in correlation analysis.

Correlation analysis helped to establish and estimate the strength of the association between two variables in terms of their degree of mathematical linearity. Random distribution of the data has a correlation coefficient of zero. A very strong linear relationship, hence correlation, has values of or near one. A positive correlation coefficient indicated a direct relationship between the two variables while a negative coefficient indicated an indirect relationship (Sokal and Rohlf, 1973).

Since there was not a reason to think of one variable as the dependent variable and the other as the independent variable, the values were designated X_1 and X_2 instead of Y and X. To find the sample correlation coefficient for a sample of "n"pairs of X_1 and X_2 the following terms were computed first:

1. $\Sigma X_{1n}^2 = \Sigma (X_{1n} - \bar{X}_1)^2$

2. $\Sigma X_{2n}^2 = \Sigma (X_{2n} - \bar{X}_2)^2$

3. $\Sigma X_{1n}X_{2n} = \Sigma (X_{1n} - \bar{X}_1)(X_{2n} - \bar{X}_2)$

Using the above three equations, the sample correlation coefficient, denoted by r was defined as:

$$r = \frac{\Sigma X_{1n}X_{2n}}{\sqrt{(\Sigma X_{1n}^2)(\Sigma X_{2n}^2)}}$$

(Snedecor and Cochran, 1957)

4.8.2 t-Test

The t-test statistic was normally used to measure the statistical significance of a given correlation coefficient by the following formula (Alder and Roessler, 1964):

$$t = \frac{r}{\sqrt{\frac{(1-r^2)}{n-2}}}$$

where r = correlation coefficient and n = sample size. The number of degrees of freedom was taken as n - 2 since 2 independent relationships existed involving the n pairs of X_1 and X_2 values.

5.0
QUALITY ASSURANCE/QUALITY CONTROL PROGRAM

Woodward-Clyde has prepared a Quality Assurance Plan for all TGPL Compressor Station sites and activities associated with those sites. That plan was approved by TGPL on June 23, 1989, and applied to the activities described in this report. A portion of Section 4.0 of the Quality Assurance Plan was of particular relevance. That section included the following:

> Other Sample Matrices. Two sample matrices other than soil and water will be sampled during this study. These include ... biota (fish) samples collected from selected sites.
>
> For biota (specifically fish samples), a detection limit of 2 ppm is required to meet FDA standards. The low level extraction for EPA Method 8080, SW-846, 3rd Edition, will be used with a detection limit goal of 0.2 ppm. (The latter value will be modified to 0.02 ppm for this current program.)
>
> Data Validation, Accuracy and Precision. Data validation of the biota samples using the method blanks, holding times, laboratory control samples, duplicate sample analyses, matrix spike and matrix spike duplicates will be completed. All samples will be considered to be valid based upon this evaluation.
>
> All samples will meet the required holding times as specified in the quality Assurance Plan. The laboratory control samples (LCS), using a tuna fish matrix, will demonstrate whether the accuracy and precision are within acceptable limits.

Both fish tissue and sediment sample analytical results were evaluated in terms of precision (the measure of variability of individual sample measurements), accuracy (a measure of the system bias), completeness (a measure of the amount of data meeting the data evaluation criteria obtained from a measurement system compared to the amount that was expected to be obtained), representativeness (the degree to which data

accurately and precisely represent the concentration of target compounds in the samples), and comparability (the confidence with which one set of data can be compared with another). The QA/QC samples aid in addressing many of these data quality issues.

6.0 RESULTS

6.1 SAMPLE COLLECTION

6.1.1 Fish Tissue Collection

The objectives of the work plan included the sampling of fish tissues from a reach of an unnamed tributary to the South Branch of Eighteenmile Creek downstream from Highway 75, and the sampling of fish tissues from a breached pond on the same stream just east of Highway 75. This fish sampling program was conducted from Tuesday, July 19 through Thursday, July 21, 1994, a total of three sampling and collecting days. Electrofishing was employed to collect all fish from the tributary. Gill netting was used to collect all fish from the breached pond. Collected fish were identified to species and enumerated. Individual fish suitable for chemical analysis were retained for later processing. All other fish were released back into the waters of their origin.

The overall catch composition by species and collection location of fish captured in the tributary between Highway 75 and Highway 62 is shown in Table 1. A total of 708 fish of 5 different species were collected in that reach of the stream utilizing back-pack electrofishing. Creek chubs, a minnow species, dominated the catch, comprising 73.2 percent of the collected fish. Blacknose dace, another minnow species, were next in abundance, comprising 21.2 percent of the total catch, while bluegill comprised almost 5 percent of the catch. In addition, 4 unidentified shiners and 1 young-of-the-year largemouth bass were collected. A total of 29 pools were sampled between Highway 75 and Highway 62 with 26 of the pools (89.7%) yielding fish. However, only 20 of the 29 pools (68.9%) yielded fish in sufficient numbers and biomass to create at least one fish tissue sample for analysis from a given pool. Thus, twenty pools yielded fish tissue samples and were subsequently sampled for sediments (Figure 3). As Table 1 indicates, the number of fish collected per pool increased as the sampling activities moved downstream. Fish abundance increased significantly west of Hickman Road.

A summary of the fish sampling results from the tributary and from the breached pond is presented in Table 2. A total 42 fish of three different species were collected from the breached pond as a result of two days of gillnetting. All 42 fish were used to create 3 discrete and 7 composite whole body samples. Bluegill dominated the catch in the breached pond, comprising 61.9 percent of the collected fish. Creek chubs followed in abundance, comprising 33.3 percent of the catch, while largemouth bass comprised 4.7 percent of the catch from the breached ponds. The fish collected in the breached pond were all quite small. All collected bluegill and largemouth bass were young-of-the-year fish averaging 6.5 and 19.0 grams, respectively. The chubs averaged 16.14 grams per fish and ranged up to 28 grams in weight. Due to the small size of the collected fish, only whole body tissue samples were created for chemical analysis.

As Table 2 indicates, a total of 256 out of the 708 fish (36.2%) collected from the tributary were used to create 22 discrete and 33 composite whole body fish tissue samples for chemical analysis. The remaining fish were released at their sites of capture. The creek chubs used for tissue analysis averaged 17.88 grams and ranged up to 60 grams in total weight. The blacknose dace and bluegill averaged 4.53 and 2.9 grams, respectively. Thus, the fish collected from the tributary were also rather small in size. Again, due to the small size of the collected fish, only whole body tissue samples were created for chemical analysis.

The breached pond yielded a total of 10 fish tissue samples, while 55 fish tissue samples were collected from the tributary for an overall total of 65 fish whole body tissue samples, not including duplicate samples (Table 2). Twenty-five of the fish tissue samples were discrete samples, consisting of one fish per sample, while 40 of the samples were composites, consisting of more than one fish per sample.

The proposed work plan envisioned collecting 8 filet and 8 remains samples from each of two fish species from the tributary and collecting 8 filet and 8 remains samples from each of two fish species from the breached pond. Game fish were to be preferred to minnow species. The small size of all of the fish collected from the breached pond and the tributary precluded the creation of separate filet and remains samples. Thus, a decision was made to prepare only whole body tissue samples for chemical analysis. In addition, the paucity of game fish and the abundance of minnows precluded the use of

the game fish as the preferred target species. As a result, a field judgment was made to use minnows as the target species, supplemented by game fish samples as available. The result was that 65 whole body fish tissue samples were collected and created for analysis in lieu of the originally proposed 32 filet and 32 remains samples (64 total samples) from the tributary and the breached pond. The resulting samples represent the intent of the proposed fish sampling program and certainly characterize the actual fish populations in the tributary and the breached pond.

Woodward-Clyde field crews had previously sampled fish in the breached pond and in the tributary between Station Lake on the TGPL Compressor Station 229 site and Highway 75, the reach of the tributary upstream from the reach sampled during this July 1994 effort. The previous samplings were conducted during June 1992 and October 1993 with the following results:

- Tributary

  June 1992 - Small pools in the reach from Station Lake to the farm field south of North Boston Road supported 15 to 20 pumpkinseed, 50 to 60 creek chubs, 30 to 40 bluegill, and less than 10 blacknose dace. The reach of the tributary from North Boston Road to Highway 75 exhibited the same four fish species as the upper reach but in much smaller numbers.

  October 1993 - The field crew collected 20 blacknose dace, 34 creek chubs, one pumpkinseed, 4 bluegill, and one largemouth bass from the entire length of the tributary between the two ponds. The largest specimen collected was a 19 gram bluegill. Most of the minnows weighed approximately one gram per fish, and the sunfishes were small, young-of-the-year fish.

- Breached Pond

  June 1992 - The breached pond just east of Highway 75 was choked with aquatic vegetation but did support abundant populations of largemouth bass, bluegill, and bluegill/pumpkinseed hybrids.

  October 1993 - The field crew collected three, small, young-of-the-year largemouth bass from the breached pond, the only fish seen in that body of water.

The fish composition results from the two different samplings were generally similar. Any differences may be attributable to seasonal variation and the transient nature of fish populations in the intermittent tributary and breached pond. Water levels in the tributary would generally be higher in June than in late October. The intensity of the fish sampling effort was much greater in October 1993 than in June 1992. Fish suitable in size for chemical analysis were simply not present in the tributary and the breached pond during October 1993.

During the July 1994 fish sampling, a reconnaissance of the tributary between Station Lake and the breached pond was conducted. The tributary was small, narrow, shallow, and occasionally intermittent throughout this reach. The stream from Station Lake to North Boston Road is incised into the bedrock and exhibits a steep gradient. The tributary from North Boston Road to the breached pond exhibits a very low gradient. The stream bed in this reach contains sediment and rubble and is not incised into bedrock. Many pools throughout the reach between Station Lake and the breached pond contained small (less than 15 individuals) schools of very small minnows (less than 1 gram per fish); some of the minnows were identifiable as creek chubs. Although the observed minnows were fairly abundant during July 1994, the specimens were insufficient in both numbers and biomass for analytical purposes. This finding from the tributary supported similar observations about this reach of the stream during June 1992 and October 1993.

The reach of the unnamed tributary which was sampled during July 1994 changes markedly as one moves downstream toward the confluence of the tributary with the

South Branch of Eighteenmile Creek. As noted in the preceding paragraph and in earlier reports, the stream from Station 229 to Highway 75 is small, narrow, shallow, and occasionally intermittent. The reach of the tributary from Highway 75 to just west of Hickman Road increases somewhat in size and water flow and exhibits a rocky substrate with deeper pools (up to 2 feet in depth) and downed trees and limbs. Although flows were low during July 1994, the width of the tributary increased dramatically from west of Hickman Road to Highway 62. Numerous deep pools (up to 3 feet in depth) and a steep gradient to the streambed characterized this reach. The stream is incised into bedrock in most of this reach. The velocity of the flow, the very steep gradient and the pavement-like nature of the stream bed provide an ecological barrier to the movement of fish upstream in a reach of the tributary west of Hickman Road. As the tributary passes Highway 62 and flows toward its confluence with the South Branch of Eighteenmile Creek, the stream further increases in size and flow until it approximates the physical characteristics of Eighteenmile Creek.

Whole body tissue samples were prepared from the fish retained for PCB analysis and determination of lipid content. Discrete tissue samples were prepared when individual fish were of sufficient mass to create such samples. Composite samples were prepared when fish were too small for discrete samples. All fish tissue samples were shipped under chain-of-custody to Hazelton Laboratory in Madison, Wisconsin for PCB analysis and determination of lipid content. A scale sample from a single bluegill was shipped to New Seas Aquatic Technology in Baton Rouge, Louisiana for age and growth analysis.

6.1.2 Sediment Sample Collection

The objectives of the work plan included the sampling and analysis of sediments from a reach of an unnamed tributary to the South Branch of Eighteenmile Creek downstream from Highway 75. Three sediment samples were to be collected from each location (pool) in the tributary where fish tissue samples were collected for chemical analysis (Figure 3). The sediment sample collection was conducted from Thursday, July 21 through Friday, July 22, 1994, a total of two sampling and processing days. The tributary was very shallow, and the bottom of the stream consisted of bedrock and rocky rubble. As a result, conventional sediment sampling equipment could not be deployed.

Sediment samples were collected by hand and placed directly into glass sample containers.

Fish tissue samples were collected from the following pools in the reach of the tributary between Highway 75 and Highway 62: Pools 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20 and 21 (Figure 3). Fish had been collected in Pool 2 but insufficient biomass was available for an analytical sample. Three discrete sediment samples were collected from each of the twenty locations (pools) yielding fish tissue analytical samples, except for Pool 14 (Figure 3). The substrate at Pool 14 was bedrock and insufficient sediment had accumulated in order to prepare samples. Thus, sediment samples were collected from 19 different locations for a total of 57 discrete sediment samples, not including duplicate samples. At each sampling location (pool), sediments were collected along a transect lying perpendicular to the stream banks. One discrete sediment sample was collected from the center of the pool, and the second and third samples were collected on either side of the first sample along the transect. Thus, each set of three samples along a transect was designated as the north, middle, and south samples. All sediment samples were shipped under chain-of-custody to Gulf South Laboratories in New Orleans, Louisiana, for PCB analysis and total organic carbon determination.

6.2 AGE PROFILE FOR COLLECTED FISHES

The data quality objectives for the tributary and breached pond fish sampling program specified that minnows, if used for tissue analysis, would not undergo age determination. As noted in Table 2, a total of 247 out of the 298 fish (82.9%) used for tissue analysis from the tributary and the breached pond were either creek chubs or blacknose dace, both minnow species. As a result, the ages of these specimens were not determined. The remaining 51 fish (17.1%) of the fish utilized for tissue analysis consisted of 49 bluegill and 2 largemouth bass. The largemouth bass specimens each weighed 19 grams, while the bluegill averaged 1 to 2 grams per fish. Thus, the largemouth bass and all except one of the bluegills appeared to be young-of-the-year fish. One bluegill collected from the breached pond (a part of sample number 229-BP-W-C-BG-003) was 84 mm in total length and weighed 12 grams. Scales were collected from this fish and submitted for age determination. The fish scales exhibited 3 annuli which indicated that the fish was age class III.

6.3 ANALYTICAL RESULTS

6.3.1 Fish Tissue Analyses

6.3.1.1 PCB Analyses

The analytical methodology used to determine the PCB content of the fish tissue samples for this study was a modification of EPA Method 8080, SW-846, 3rd Edition. The modifications included a florisil cleanup which validated specifically for PCBs, and a three point calibration with a percentage relative standard deviation of ± 15 percent or less from the PCB standards. These modifications provided a more specific analysis of only PCBs, and the florisil cleanup modification eliminated most pesticide interferences. This methodology provided for the determination of individual PCB Aroclor concentrations for each sample. When Aroclor chromatographic patterns (i.e., characteristic fingerprints) are observed with packed column gas chromatography with electron capture detection (GC/EDC) analyses, total PCB concentrations are routinely obtained as the arithmetic sum of the concentrations of the individual Aroclor values reported above the detection limit.

The laboratory data provided by the analytical subcontractor (Hazelton Laboratories) for the fish tissue samples is presented in Appendix A. The summary tables present the individual PCB Aroclor concentrations for all samples and report the total PCBs as the arithmetic sum of the concentrations of the individual Aroclors present. This procedure provides a consistent, easily understood total PCB concentration for each sample. For this sampling event, only Aroclor 1254 was detected in the fish tissues from the breached pond and the tributary. Thus, the total PCB Aroclor concentration is represented by Aroclor 1254.

Total PCB concentrations in fish tissues presented in this report are the arithmetic sums of detected Aroclors, as discussed above. These arithmetic totals are reflected in the analysis summary presented in the tables referenced later. In the case where analytical results were reported as "not detected", the results are reported as ND in the tables. For conducting statistical analysis of the data, one half of the reported detection limit was

the value used for nondetected results. The analytical detection limit for PCBs in fish tissues used for these analyses was 0.02 ppm.

The PCB analysis summary for the discrete and composite whole body fish tissue samples from the tributary west of Highway 75 and from the breached pond is presented in Table 3. That table lists the fish samples collected from the breached pond and the tributary along with the fish species, sample type, date collected, method of collection, total length, total weight, condition factor (K-TL), percentage lipid content, and the analytical results for each fish or each fish tissue sample in the case of composite samples consisting of more than one fish. The locations from which the fish samples were collected are illustrated on Figure 3.

The whole body fish tissue analytical data contained in Table 3 is further summarized in Table 4. The analytical data yields the following key considerations:

- The average total PCB concentration in the 68 whole body fish tissue samples (including four duplicate sample analyses) from both the breached pond and the tributary downstream from Highway 75 was 1.53 ppm. The average total PCB concentration in the 11 whole body fish tissue samples from the breached pond was 1.94 ppm while the average concentration in the 57 whole body fish tissue samples from the tributary was 1.45 ppm.

- The maximum total PCB concentration found in a whole body fish tissue sample from the breached pond was 5.8 ppm in a single young-of-the-year largemouth bass weighing 19 grams. This value also represented the maximum PCB concentration found in any of the 68 fish tissue samples collected during this sampling event.

- The maximum total PCB concentration found in a whole body fish tissue sample from the tributary downstream from Highway 75 was 3.1 ppm in a composite sample of blacknose dace collected from Pool 11, just upstream from the Hickman Road bridge.

- All eleven whole body fish tissue samples from the breached pond and all 57 whole body fish tissue samples from the tributary downstream from Highway 75 contained detectable quantities of PCBs.

- The distribution of total PCB concentrations in the 68 whole body fish tissue samples was consistent. Nearly 70 percent of the fish samples contained total PCB concentrations ranging from one to three ppm. Only two samples (a discrete largemouth bass sample from the breached pond and a composite blacknose dace sample from the tributary) contained total PCB concentrations exceeding 3 ppm. The remaining 30 percent of the fish samples contained total PCB concentrations of less than 1 ppm. This lowered variation and consistency in the results suggests that the analytical data accurately characterize the presence of PCBs in whole body fish tissues in this portion of the aquatic system.

- Aroclor 1254 was the only form of PCBs detected in the fish tissues.

- The maximum total PCB concentration found in bluegill tissues from the tributary was less than the minimum total PCB concentration found in bluegill tissues from the breached pond. Otherwise, differences among species were not remarkable.

- All of the fish analyzed for their PCB content were quite small, and all except one of the non-minnow species were young-of-the-year fish.

- All of the fish samples analyzed for PCB content consisted of either discrete or composite whole bodies. Whole body samples are expected to contain higher PCB concentrations that filet samples from the same fish since PCBs are known to be lipophilic substances and most fatty accumulations in fish are associated with nonfilet tissues. The U.S. Food and Drug Administration (FDA) utilizes a standard of 2.0 ppm PCBs for fish filets transported and sold in interstate commerce. A corresponding standard for whole body fish does not exist.

- Totals of 91.5 percent of the fish collected from both the breached pond and the tributary and 88.2 percent of the fish tissue samples analyzed were from minnow species, which are not consumed by humans. The remaining collected fish and analyzed samples originated from species (largemouth bass and bluegill) which are normally consumed by humans. However, all of the fish collected from these two game species were very small and well below the size of fish normally utilized for human consumption. Thus, the potential effects, if any, realized from consuming fish from the breached pond and the tributary would be directed toward potential wildlife consumers, not human consumers.

6.3.1.2 Percentage Lipid Determination

A profile of the percentage lipid content (percentage wet weight) for the whole body fish samples, as derived from Table 3, is as follows:

Sampling Location/ Fish Species	Sample Size (Including Duplicates)	Percentage Lipid Content (% wet weight)		
		Mean	Minimum	Maximum
BREACHED POND				
Largemouth Bass	2	2.38	2.19	2.56
Bluegill	4	3.78	3.50	4.07
Creek Chub	5	5.42	3.67	6.31
Pond Subtotals	11	4.27	2.19	6.31
TRIBUTARY (DOWNSTREAM FROM HIGHWAY 75)				
Creek Chub	43	6.13	2.30	9.07
Blacknose Dace	12	8.18	5.31	10.5
Bluegill	2	4.06	4.03	4.08
Tributary Subtotals	57	6.49	2.30	10.5
OVERALL TOTALS	68	6.13	2.19	10.5

The percentage lipid content of the 68 discrete and composite whole body fish samples ranged from 2.19 to 10.5 percent and averaged 6.13 percent. Such values are within the expected ranges for the various species and are indicative of fish in good health. As

expected, the lipid content was higher in the minnow species than in the centrarchid fishes. In addition, the fish collected from the tributary downstream from Highway 75 exhibited somewhat higher lipid levels that did fish collected from the breached pond. This latter result may reflect the greater proportion of centrarchid fishes in the breached pond fish population.

6.3.2 Sediment Analyses

6.3.2.1 PCB Analyses

The analytical methodology used to determine the PCB content of the tributary sediment samples for this study was according to U.S. EPA Contract Laboratory Program Statement of Work for Organic Analysis Multi-Media Multi-Concentration (Document Number of OLM01.1 with Revisions OLM01.1 through OLM01.8, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C., 1991) (SOW OLM01.0). This protocol was modified to include a concentrated sulfuric acid wash cleanup step of the solvent extracts to remove potential interferences for the analysis of PCBs. Additional Aroclor 1254 continuing calibration verification standards were analyzed periodically throughout the analytical run sequence. The analytical laboratory used quantitation limits of 0.1 ppm for the sediment PCB analysis.

The laboratory data for the PCB analyses provided by the analytical subcontractor (Gulf South Laboratories) for the sediment samples is presented in Appendix B. The summary tables present the individual PCB Aroclor concentrations for all samples and report the total PCBs as the arithmetic sum of the concentrations of the individual Aroclors present. This procedure provides a consistent, easily understood total PCB concentration for each sample where the compound is present. For this sampling event, only Aroclor 1254 was detected in any of the sediment samples from the tributary. Thus, the total PCB Aroclor concentration is represented by Aroclor 1254.

Total PCB concentrations in sediment samples presented in this report are the arithmetic sums of detected Aroclors, as discussed above. These arithmetic totals are reflected in the analysis summary presented in the table referenced later. In the case

where PCBs were not reported at or above the analytical detection limit of 0.1 ppm, the results are reported as < 0.1 ppm (less than 0.1 ppm).

The PCB analysis summary for the sediment samples collected from the tributary downstream from Highway 75 is presented in Table 5. That table lists the sediment samples collected from the tributary, along with the sampling location, the location of the sample on a given transect, the total PCB concentration in the sample, and the total organic carbon content of the sample. Two separate total organic carbon content analyses were performed on each sample; hence, two analytical results are reported for each sample. The locations from which the sediment samples were collected corresponded to the locations from which fish tissue samples were collected. Those sampling locations are illustrated on Figure 3.

The sediment sample analytical data contained in Table 5 yields the following key considerations:

- A total of 60 sediment samples, including duplicate samples, from 19 different pools in the tributary between Highway 75 and Highway 62 were analyzed for total PCB content.

- Only one sediment sample out of the 60 samples analyzed (1.7%) contained PCBs at a concentration above the reporting limit of 0.1 ppm wet weight. That sample contained 0.186 ppm total PCBs and originated from Pool 20 between Hickman Road and Highway 62. The other two sediment samples collected from Pool 20 and the sediment samples collected from the pools immediately upstream and downstream from Pool 20 did not contain PCBs in concentrations above the reporting limit of 0.1 ppm wet weight.

- Thus, 59 out of the 60 sediment samples analyzed (98.3%) did not contain PCBs above the reporting limit of 0.1 ppm wet weight.

6.3.2.2 Total Organic Carbon Content

The analytical methodology used to determine the total organic carbon content of the tributary sediment samples for this study followed Plumb, R. H., Jr. 1981, "Procedure for Handling and Chemical Analysis of Sediment and Water Samples," Technical Report EPA/CE-81-1, prepared by Great Lakes Laboratory, State University College at Buffalo, Buffalo, New York for the U.S. EPA and Corps of Engineers (combustion method). Two separate analyses were performed on each sediment sample so two analytical results were reported for each sample. The total organic carbon content of each sediment sample was reported as a percentage by weight.

The laboratory data for the total organic carbon content analyses provided by the analytical subcontractor (Gulf South Laboratories) for the sediment samples is presented in Appendix C. The summary tables present the results for each sample along with the specific associated analytical detection limits.

The total organic carbon content results for the sediment samples collected from the tributary downstream from Highway 75 were presented earlier in Table 5 along with supporting information. The total organic carbon content data contained in Table 5 yields the following key consideration:

- A total of 120 total organic carbon content analyses were performed on a total of 60 sediment samples, including duplicate samples, collected from 19 different pools in the tributary between Highway 75 and Highway 62.

- The average total organic carbon content value for the 120 analyses performed was 1.273 percent. Values ranged from 0.071 to 2.87 percent. However, 84.2 percent of the analytical results were between 0.80 and 2.20 percent.

- A geographic pattern to the analytical results was not apparent. It should be noted that the sediment samples were collected from areas of probable deposition.

6.3.2.3 ENSYS Kit Sediment Results

As described in the work plan and as noted in Sections 3.2 and 3.3.1 of this report, ENSYS Inc. Rapid Immunoassay Screen PCB RISC™ Test kits with an analytical detection limit of 0.4 ppm for Aroclors 1254 and 1260 in wet sediments were used on a limited basis to field screen sediments from the tributary west of Highway 75. The ENSYS Kits are designed to provide a qualitative evaluation of the presence or absence of the tested analyte, and the kits tend to provide false positive results when testing samples which may contain very low concentrations of the target analyte. The ENSYS Kits were utilized in this sampling effort to provide some early qualitative insight into the presence or absence of PCBs in tributary sediments downstream from Highway 75. It was recognized that the test kit results do not enjoy the accuracy of the results provided by the analytical laboratory. The ENSYS Kit results do not and can not undergo the rigorous quality assurance/quality control and data validation scrutiny afforded the analytical laboratory results. The results from the ENSYS Kit surveys utilized for tributary sediments are provided in Appendix D.

6.4 CONDITION FACTOR

A profile of the calculated condition factors (K-TL) for the analyzed fishes is as follows:

		CONDITION FACTOR (K-TL)	
LOCATION/SPECIES	NUMBER OF FISH	MINIMUM VALUE	MAXIMUM VALUE
Breached Pond			
Largemouth Bass	2	1.51	1.51
Bluegill	25	1.82	2.40
Pumpkinseed	1	2.28	2.28
Creek Chub	14	1.10	1.43
Tributary			
Creek Chub	113	0.90	1.52
Blacknose Dace	120	0.71	1.46
Bluegill	23	1.27	2.71

Such values are within the expected ranges for the five species and are indicative of fish in good condition. A normal condition factor for an "average" fish (body shape like a rainbow trout) is 1.0. Fish with long, slender bodies, such as blacknose dace, will often exhibit condition factors less than 1.0. Fish with shorter, deeper bodies, such as bluegill, will often exhibit condition factors greater than 1.0. Thus, the fish in the breached pond and the tributary appear to be in good condition. All fish collected for analysis appeared robust, healthy, and free of any visually apparent diseases.

6.5 STATISTICAL ANALYSIS

The work plan for this project anticipated performing various statistical analyses on the fish and sediment data including correlation analysis and analysis of variance. However, many of the data sets were extremely uniform. For example, all but one of the sediment samples was "non-detect" for PCBs. As another example, all but one of the collected fish was young-of-the-year or age class 0. Statistical analysis of such uniform data sets is meaningless so such analysis was not performed in this study. However, certain basic statistical calculations, such as means and standard deviations, were performed and are presented throughout the results.

6.6 QUALITY ASSURANCE/QUALITY CONTROL

Woodward-Clyde's data validation staff examined and evaluated the reports and data submittals prepared by Hazelton Laboratories regarding the analyses for PCB content and percentage lipid determination from the fish samples and by Gulf South Laboratories regarding the analysis for PCB content and total organic carbon from the sediment samples. Summaries of the quality assurance/quality control analysis of that laboratory data are provided in Appendices A, B, and C along with the analytical data. All of the data were acceptable and usable.

7.0
SUMMARY AND CONCLUSIONS

The objectives of the work plan included the sampling of fish tissues and sediments from a reach of an unnamed tributary to the South Branch of Eighteenmile Creek downstream from Highway 75, and the sampling of fish tissues from a breached pond on the same stream just east of Highway 75. This fish and sediment sampling program was conducted during late July 1994. Electrofishing was employed to collect all fish from the tributary. Gill netting was used to collect all fish from the breached pond. Collected fish were identified to species and enumerated. Individual fish suitable for chemical analysis were retained for later processing. All other fish were released back into the waters of their origin.

A total of 708 fish of 5 different species were collected in the tributary between Highway 75 and Highway 62 utilizing back-pack electrofishing. Creek chubs, a minnow species, dominated the catch, comprising 73.2 percent of the collected fish. Blacknose dace, another minnow species, were next in abundance, comprising 21.2 percent of the total catch, while bluegill comprised almost 5 percent of the catch. In addition, 4 unidentified shiners and 1 young-of-the-year largemouth bass were collected. A total of 29 pools were sampled between Highway 75 and Highway 62 with 26 of the pools (89.7%) yielding fish. However, only 20 of the 29 pools (68.9%) yielded fish in sufficient numbers and biomass to create at least one fish tissue sample for analysis from a given pool. Thus, twenty pools yielded fish tissue samples and were subsequently sampled for sediments. The number of fish collected per pool increased as the sampling activities moved downstream. Fish abundance increased significantly west of Hickman Road.

A total of 42 fish of three different species were collected from the breached pond as a result of two days of gillnetting. All 42 fish were used to create 3 discrete and 7 composite whole body samples. Bluegill dominated the catch in the breached pond, comprising 61.9 percent of the collected fish. Creek chubs followed in abundance, comprising 33.3 percent of the catch, while largemouth bass comprised 4.7 percent of the catch from the breached pond. The fish collected in the breached pond were all

quite small. All collected bluegill and largemouth bass were young-of-the-year fish averaging 6.5 and 19.0 grams, respectively. The chubs averaged 16.14 grams per fish and ranged up to 28 grams in weight. Due to the small size of the collected fish, only whole body tissue samples were created for chemical analysis.

A total of 256 out of the 708 fish (36.2%) collected from the tributary were used to create 22 discrete and 33 composite whole body fish tissue samples for chemical analysis. The remaining fish were released at their sites of capture. The creek chubs used for tissue analysis averaged 17.88 grams and ranged up to 60 grams in total weight. The blacknose dace and bluegill averaged 4.53 and 2.9 grams, respectively. Thus, the fish collected from the tributary were also rather small in size. Again, due to the small size of the collected fish, only whole body tissue samples were created for chemical analysis.

The breached pond yielded a total of 10 fish tissue samples, while 55 fish tissue samples were collected from the tributary for an overall total of 65 fish whole body tissue samples, not including duplicate samples. Twenty-five of the fish tissue samples were discrete samples, consisting of one fish per sample, while 40 of the samples were composites, consisting of more than one fish per sample.

The objectives of the work plan included the sampling and analysis of sediments from a reach of an unnamed tributary to the South Branch of Eighteenmile Creek downstream from Highway 75. Three sediment samples were to be collected from each location (pool) in the tributary where fish tissue samples were collected for chemical analysis.

The whole body fish tissue analytical data yields the following key considerations:

- The average total PCB concentration in the 68 whole body fish tissue samples (including four duplicate sample analyses) from both the breached pond and the tributary downstream from Highway 75 was 1.53 ppm. The average total PCB concentrations in the 11 whole body fish tissue samples from the breached pond was 1.94 ppm while the average concentration in the 57 whole body fish tissue samples from the tributary was 1.45 ppm.

- The maximum total PCB concentrations found in a whole body fish tissue sample from the breached pond was 5.8 ppm in a single young-of-the-year largemouth bass weighing 19 grams. This value also represented the maximum PCB concentration found in any of the 68 fish tissue samples collected during this sampling event.

- The maximum total PCB concentration found in a whole body fish tissue sample from the tributary downstream from Highway 75 was 3.1 ppm in a composite sample of blacknose dace collected from Pool 11, just upstream from the Hickman Road bridge.

- All eleven whole body fish tissue samples from the breached pond and all 57 whole body fish tissue samples from the tributary downstream from Highway 75 contained detectable quantities of PCBs.

- The distribution of total PCB concentrations in the 68 whole body fish tissue samples was consistent. Nearly 70 percent of the fish samples contained total PCB concentrations ranging from one to three ppm. Only two samples (a discrete largemouth bass sample from the breached pond and a composite blacknose dace sample from the tributary) contained total PCB concentrations exceeding 3 ppm. The remaining 30 percent of the fish samples contained total PCB concentrations of less than 1 ppm. This lowered variation and consistency in the results suggests that the analytical data accurately characterize the presence of PCBs in whole body fish tissues in this portion of the aquatic system.

The percentage lipid content of the 68 discrete and composite whole body fish samples ranged from 2.19 to 10.5 percent and averaged 6.13 percent. Such values are within the expected ranges for the various species and are indicative of fish in good health.

The sediment sample analytical data yields the following key considerations:

- A total of 60 sediment samples, including duplicate samples, from 19 different pools in the tributary between Highway 75 and Highway 62 were analyzed for total PCB content.

- Only one sediment sample out of the 60 samples analyzed (1.7%) contained PCBs at a concentration above the reporting limit of 0.1 ppm wet weight. That sample contained 0.186 ppm total PCBs and originated from Pool 20 between Hickman Road and Highway 62. The other two sediment samples collected from Pool 20 and the sediment samples collected from the pools immediately upstream and downstream from Pool 20 did not contain PCBs in concentrations above the reporting limit of 0.1 ppm wet weight.

- Thus, 59 out of the 60 sediment samples analyzed (98.3%) did not contain PCBs above the reporting limit of 0.1 ppm wet weight.

- A total of 120 total organic carbon content analyses were performed on a total of 60 sediment samples, including duplicate samples, collected from 19 different pools in the tributary between Highway 75 and Highway 62.

- The average total organic content value for the 120 analyses performed was 1.273 percent. Values ranged from 0.071 to 2.87 percent. However, 84.2 percent of the analytical results were between 0.80 and 2.20 percent.

- A geographic pattern to the analytical results was not apparent. It should be noted that the sediment samples were collected from areas of probable deposition.

8.0
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TABLES

TABLE 1

FISH CATCH COMPOSITION FROM ELECTROFISHING A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK NEAR EDEN, NEW YORK DURING LATE JULY 1994

Chronology of Pools West of Highway 75	Fish Sampling Location	Fish Tissue Samples Collected	Fish Species Collected					Total Number of Fish
			Creek Chub	Blacknose Dace	Shiner sp.	Bluegill	Largemouth Bass	
Highway 75 Bridge								
1	--	No	1	0	0	0	0	1
2	Pool 1	Yes	4	0	0	0	0	4
3	Pool 2	No	2	3	0	0	0	5
4	--	No	0	0	0	0	0	0
5	--	No	0	0	0	0	0	0
6	--	No	0	1	0	0	0	1
7	--	No	0	0	0	0	0	0
8	Pool 3	Yes	3	2	0	0	0	5
9	--	No	2	1	0	0	0	3
10	Pool 4	Yes	8	3	0	0	0	11
11	Pool 5	Yes	6	0	0	2	0	8
12	Pool 6	Yes	4	1	0	0	1	6
13	--	No	0	2	0	0	0	2
14	Pool 7	Yes	9	5	0	0	0	14
15	Pool 8	Yes	7	12	0	0	0	19
16	Pool 9	Yes	4	9	0	0	0	13
17	Pool 10	Yes	16	3	0	0	0	19
18	Pool 11	Yes	6	7	0	0	0	13
Hickman Road Bridge								
19	Pool 12	Yes	37	11	0	0	0	57
20	Pool 13	Yes	6	11	0	0	0	17
21	Pool 14	Yes	10	9	0	0	0	19
22	Pool 15	Yes	95	20	0	0	0	116
23	Pool 16	Yes	36	12	0	0	0	51

TABLE 1 (Continued)

FISH CATCH COMPOSITION FROM ELECTROFISHING A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK NEAR EDEN, NEW YORK DURING LATE JULY 1994

Chronology of Pools West of Highway 75	Fish Sampling Location	Fish Tissue Samples Collected	Fish Species Collected					Total Number of Fish
			Creek Chub	Blacknose Dace	Shiner sp.	Bluegill	Largemouth Bass	
24	Pool 17	Yes	30	5	0	0	0	35
25	Pool 18	Yes	44	0	0	2	0	46
26	Pool 19	Yes	23	5	0	2	0	30
27	Pool 20	Yes	55	14	0	2	0	71
28	--	No	15	0	0	0	0	15
29	Pool 21	Yes	95	14	4	14	0	127
One-quarter Mile Highway 62 Bridge								
Totals			518	150	4	35	1	708
Percentage of Total Catch			73.2%	21.2%	0.56%	4.94%	0.14%	

TABLE 2

SUMMARY OF FISH SAMPLING (WHOLE BODY SAMPLES) OF BREACHED POND AND TRIBUTARY NEAR TENNESSEE GAS COMPRESSOR STATION 229 NEAR EDEN, NEW YORK DURING LATE JULY 1994

Location/Fish Species	Number of Fish Used For Tissue Samples	Number of Tissue Samples		Weight of Fish (grams)			
		Discrete	Composite	Average	Standard Deviation	Minimum	Maximum
Breached Pond							
Creek Chub	14	1	4	16.14	4.50	11	28
Blacknose Dace	0	0	0	0	0	0	0
Bluegill	26	0	3	6.5	2.06	4	14
Largemouth Bass	2	2	0	19.0	0.0	19	19
Subtotals	42	3	7				
Tributary							
Creek Chub	113	22	20	17.88	11.59	3	60
Blacknose Dace	120	0	11	4.53	0.99	2	10
Bluegill	23	0	2	2.9	1.06	2	5
Largemouth Bass	0	0	0	0	0	0	0
Subtotals	256	22	33				
Overall Totals	298	25	40				

65 total samples

TABLE 3

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
BREACHED POND												
229-BP-W-D-LB-001	Breached Pond	Largemouth Bass	Discrete	07-20-94	Gill Net	108	19	1.51	2.19	1.50	ND[2]	1.50
229-BP-W-D-LB-002	Breached Pond	Largemouth Bass	Discrete	07-20-94	Gill Net	108	19	1.51	2.56	5.80	ND	5.80
229-BP-W-C-BG-001	Breached Pond	Bluegill	Composite	07-20-94	Gill Net	67	6	1.99	3.62	1.20	ND	1.20
		Pumpkinseed	Composite	07-20-94	Gill Net	85	14	2.28				
		Bluegill	Composite	07-20-94	Gill Net	69	7	2.13				
		Bluegill	Composite	07-20-94	Gill Net	69	6	1.83				
		Bluegill	Composite	07-20-94	Gill Net	64	5	1.91				
		Bluegill	Composite	07-20-94	Gill Net	65	5	1.82				
		Bluegill	Composite	07-20-94	Gill Net	63	5	2.00				
229-BP-W-C-BG-002	Breached Pond	Bluegill	Composite	07-20-94	Gill Net	63	6	2.40	4.07	1.50	ND	1.50
229-BP-W-C-BG-002A		Bluegill	Composite	07-20-94	Gill Net	71	8	2.24	3.92	1.40	ND	1.40
		Bluegill	Composite	07-20-94	Gill Net	67	7	2.33				
		Bluegill	Composite	07-20-94	Gill Net	65	6	2.18				
		Bluegill	Composite	07-20-94	Gill Net	70	7	2.04				
		Bluegill	Composite	07-20-94	Gill Net	66	6	2.09				
		Bluegill	Composite	07-20-94	Gill Net	65	6	2.18				
		Bluegill	Composite	07-20-94	Gill Net	63	6	2.40				
		Bluegill	Composite	07-20-94	Gill Net	65	6	2.18				
		Bluegill	Composite	07-20-94	Gill Net	64	6	2.29				
229-BP-W-C-BG-003	Breached Pond	Bluegill	Composite	07-20-94	Gill Net	84	12	2.02	3.50	2.20	ND	2.20
		Bluegill	Composite	07-20-94	Gill Net	67	7	2.33				
		Bluegill	Composite	07-20-94	Gill Net	63	5	2.00				
		Bluegill	Composite	07-20-94	Gill Net	60	4	1.85				
		Bluegill	Composite	07-20-94	Gill Net	65	6	2.18				
		Bluegill	Composite	07-20-94	Gill Net	65	6	2.18				
		Bluegill	Composite	07-20-94	Gill Net	65	6	2.18				

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TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-BP-W-C-BG-003	Breached Pond	Bluegill	Composite	07-20-94	Gill Net	66	6	2.09				
		Bluegill	Composite	07-20-94	Gill Net	63	5	2.00				
229-BP-W-D-CB-001	Breached Pond	Creek Chub	Discrete	07-20-94	Gill Net	135	28	1.14	3.67	0.80	ND	0.80
229-BP-W-C-CB-002	Breached Pond	Creek Chub	Composite	07-20-94	Gill Net	112	18	1.28	4.91	1.30	ND	1.30
		Creek Chub	Composite	07-20-94	Gill Net	105	17	1.43				
		Creek Chub	Composite	07-20-94	Gill Net	111	17	1.24				
		Creek Chub	Composite	07-20-94	Gill Net	104	13	1.16				
229-BP-W-C-CB-003	Breached Pond	Creek Chub	Composite	07-20-94	Gill Net	113	20	1.39	5.98	1.50	ND	1.50
		Creek Chub	Composite	07-20-94	Gill Net	116	20	1.28				
		Creek Chub	Composite	07-20-94	Gill Net	104	15	1.33				
229-BP-W-C-CB-004	Breached Pond	Creek Chub	Composite	07-20-94	Gill Net	95	11	1.28	6.31	2.10	ND	2.10
		Creek Chub	Composite	07-20-94	Gill Net	105	16	1.38				
		Creek Chub	Composite	07-20-94	Gill Net	92	11	1.41				
		Creek Chub	Composite	07-20-94	Gill Net	100	11	1.10				
229-BP-W-C-CB-005	Breached Pond	Creek Chub	Composite	07-21-94	Gill Net	113	17	1.18	6.22	1.70	ND	1.70
	Breached Pond	Creek Chub	Composite	07-21-94	Gill Net	95	12	1.40				
TRIBUTARY												
220-TR-W-C-CB-001	Pool 1	Creek Chub	Composite	07-20-94	Electrofishing	119	18	1.07	5.6	1.70	ND	1.70
		Creek Chub	Composite	07-20-94	Electrofishing	96	11	1.24				
		Creek Chub	Composite	07-20-94	Electrofishing	83	8	1.40				
		Creek Chub	Composite	07-20-94	Electrofishing	79	6	1.22				
229-TR-W-C-CB-002	Pool 3	Creek Chub	Composite	07-20-94	Electrofishing	103	15	1.37	7.08	1.60	ND	1.60
		Creek Chub	Composite	07-20-94	Electrofishing	87	10	1.52				
		Creek Chub	Composite	07-20-94	Electrofishing	76	5	1.14				
229-TR-W-D-CB-003	Pool 4	Creek Chub	Discrete	07-20-94	Electrofishing	154	49	1.34	4.86	1.50	ND	1.50
229-TR-W-C-CB-004	Pool 4	Creek Chub	Composite	07-20-94	Electrofishing	122	22	1.21	7.13	2.10	ND	2.10

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-CB-004	Pool 4	Creek Chub	Composite	07-20-94	Electrofishing	111	16	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	102	12	1.13				
		Creek Chub	Composite	07-20-94	Electrofishing	110	16	1.20				
		Creek Chub	Composite	07-20-94	Electrofishing	93	9	1.12				
		Creek Chub	Composite	07-20-94	Electrofishing	93	9	1.12				
		Creek Chub	Composite	07-20-94	Electrofishing	74	4	0.99				
229-TR-W-D-CB-005	Pool 5	Creek Chub	Discrete	07-20-94	Electrofishing	145	39	1.28	9.07	1.60	ND	1.60
229-TR-W-D-CB-006	Pool 5	Creek Chub	Discrete	07-20-94	Electrofishing	139	35	1.30	4.64	1.40	ND	1.40
229-TR-W-C-CB-007	Pool 5	Creek Chub	Composite	07-20-94	Electrofishing	127	25	1.22	5.75	1.10	ND	1.10
229-TR-W-C-CB-007A		Creek Chub	Composite	07-20-94	Electrofishing	121	21	1.19	5.72	1.10	ND	1.10
		Creek Chub	Composite	07-20-94	Electrofishing	111	20	1.46				
		Creek Chub	Composite	07-20-94	Electrofishing	99	13	1.34				
229-TR-W-C-CB-008	Pool 6	Creek Chub	Composite	07-20-94	Electrofishing	100	12	1.20	7.26	2.30	ND	2.30
		Creek Chub	Composite	07-20-94	Electrofishing	95	10	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	80	6	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	67	4	1.33				
229-TR-W-D-CB-009	Pool 7	Creek Chub	Discrete	07-20-94	Electrofishing	131	32	1.42	6.21	1.50	ND	1.50
229-TR-W-C-CB-010	Pool 7	Creek Chub	Composite	07-20-94	Electrofishing	99	12	1.24	8.06	2.30	ND	2.30
		Creek Chub	Composite	07-20-94	Electrofishing	110	17	1.28				
		Creek Chub	Composite	07-20-94	Electrofishing	107	14	1.14				
		Creek Chub	Composite	07-20-94	Electrofishing	101	10	0.97				
		Creek Chub	Composite	07-20-94	Electrofishing	83	6	1.05				
		Creek Chub	Composite	07-20-94	Electrofishing	77	5	1.10				
		Creek Chub	Composite	07-20-94	Electrofishing	74	5	1.23				
		Creek Chub	Composite	07-20-94	Electrofishing	71	4	1.12				
229-TR-W-C-CB-011	Pool 8	Creek Chub	Composite	07-20-94	Electrofishing	104	12	1.07	7.37	2.30	ND	2.30
		Creek Chub	Composite	07-20-94	Electrofishing	107	14	1.14				

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-CB-011	Pool 8	Creek Chub	Composite	07-20-94	Electrofishing	95	10	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	88	8	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	84	7	1.18				
		Creek Chub	Composite	07-20-94	Electrofishing	87	7	1.06				
		Creek Chub	Composite	07-20-94	Electrofishing	77	6	1.31				
229-TR-W-C-CB-012	Pool 9	Creek Chub	Composite	07-20-94	Electrofishing	103	13	1.19	7.47	1.70	ND	1.70
		Creek Chub	Composite	07-20-94	Electrofishing	101	11	1.07				
		Creek Chub	Composite	07-20-94	Electrofishing	90	8	1.10				
		Creek Chub	Composite	07-20-94	Electrofishing	72	4	1.07				
		Creek Chub	Composite	07-20-94	Electrofishing	65	3	1.09				
229-TR-W-D-CB-013	Pool 10	Creek Chub	Discrete	07-20-94	Electrofishing	131	28	1.25	5.85	0.88	ND	0.88
229-TR-W-D-CB-014	Pool 10	Creek Chub	Discrete	07-20-94	Electrofishing	142	41	1.43	5.53	2.90	ND	2.90
229-TR-W-D-CB-015	Pool 10	Creek Chub	Discrete	07-20-94	Electrofishing	147	39	1.23	3.26	1.40	ND	1.40
229-TR-W-D-CB-016	Pool 10	Creek Chub	Discrete	07-20-94	Electrofishing	150	42	1.24	5.61	1.60	ND	1.60
229-TR-W-C-CB-017	Pool 11	Creek Chub	Composite	07-20-94	Electrofishing	122	22	1.21	7.55	1.80	ND	1.80
		Creek Chub	Composite	07-20-94	Electrofishing	95	10	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	106	15	1.26				
		Creek Chub	Composite	07-20-94	Electrofishing	110	16	1.20				
		Creek Chub	Composite	07-20-94	Electrofishing	117	19	1.19				
		Creek Chub	Composite	07-20-94	Electrofishing	106	13	1.09				
229-TR-W-D-CB-018	Pool 12	Creek Chub	Discrete	07-20-94	Electrofishing	145	36	1.18	6.64	1.60	ND	1.60
229-TR-W-D-CB-019	Pool 12	Creek Chub	Discrete	07-20-94	Electrofishing	137	33	1.28	5.87	1.10	ND	1.10
229-TR-W-C-CB-020	Pool 12	Creek Chub	Composite	07-20-94	Electrofishing	125	25	1.28	7.3	1.90	ND	1.90
		Creek Chub	Composite	07-20-94	Electrofishing	129	25	1.16				
		Creek Chub	Composite	07-20-94	Electrofishing	115	20	1.32				
		Creek Chub	Composite	07-20-94	Electrofishing	128	24	1.14				
229-TR-W-D-CB-021	Pool 12	Creek Chub	Discrete	07-20-94	Electrofishing	139	29	1.08	6.95	1.50	ND	1.50

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-D-CB-022	Pool 13	Creek Chub	Discrete	07-20-94	Electrofishing	137	31	1.21	5.58	1.80	ND	1.80
229-TR-W-C-CB-023	Pool 13	Creek Chub	Composite	07-20-94	Electrofishing	105	15	1.30	6.82	0.75	ND	0.75
		Creek Chub	Composite	07-20-94	Electrofishing	82	7	1.27				
		Creek Chub	Composite	07-20-94	Electrofishing	80	7	1.37				
		Creek Chub	Composite	07-20-94	Electrofishing	76	6	1.37				
		Creek Chub	Composite	07-20-94	Electrofishing	71	4	1.12				
229-TR-W-C-CB-024	Pool 14	Creek Chub	Composite	07-20-94	Electrofishing	112	18	1.28	5.68	1.80	ND	1.80
		Creek Chub	Composite	07-20-94	Electrofishing	117	20	1.25				
		Creek Chub	Composite	07-20-94	Electrofishing	111	17	1.24				
229-TR-W-C-CB-025	Pool 14	Creek Chub	Composite	07-20-94	Electrofishing	103	13	1.19	5.77	0.56	ND	0.56
229-TR-W-C-CB-025A		Creek Chub	Composite	07-20-94	Electrofishing	80	6	1.17	5.80	0.60	ND	0.60
		Creek Chub	Composite	07-20-94	Electrofishing	100	11	1.10				
		Creek Chub	Composite	07-20-94	Electrofishing	85	7	1.14				
		Creek Chub	Composite	07-20-94	Electrofishing	96	10	1.13				
		Creek Chub	Composite	07-20-94	Electrofishing	102	12	1.13				
229-TR-W-D-CB-026	Pool 15	Creek Chub	Discrete	07-20-94	Electrofishing	138	32	1.22	6.81	0.46	ND	0.46
229-TR-W-D-CB-027	Pool 15	Creek Chub	Discrete	07-20-94	Electrofishing	140	32	1.17	6.11	0.74	ND	0.74
229-TR-W-D-CB-028	Pool 15	Creek Chub	Discrete	07-20-94	Electrofishing	141	31	1.11	5.17	0.48	ND	0.48
229-TR-W-D-CB-029	Pool 16	Creek Chub	Discrete	07-20-94	Electrofishing	140	33	1.20	6.14	1.00	ND	1.00
229-TR-W-C-CB-030	Pool 16	Creek Chub	Composite	07-20-94	Electrofishing	129	27	1.26	5.66	1.10	ND	1.10
		Creek Chub	Composite	07-20-94	Electrofishing	122	20	1.10				
		Creek Chub	Composite	07-20-94	Electrofishing	126	20	1.00				
229-TR-W-C-CB-031	Pool 17	Creek Chub	Composite	07-20-94	Electrofishing	111	14	1.02	6.74	0.55	ND	0.55
		Creek Chub	Composite	07-20-94	Electrofishing	110	16	1.20				
		Creek Chub	Composite	07-20-94	Electrofishing	106	14	1.18				
		Creek Chub	Composite	07-20-94	Electrofishing	123	19	1.02				
229-TR-W-C-CB-032	Pool 17	Creek Chub	Composite	07-20-94	Electrofishing	115	18	1.18	5.88	0.80	ND	0.80

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-CB-032	Pool 17	Creek Chub	Composite	07-20-94	Electrofishing	123	20	1.07				
		Creek Chub	Composite	07-20-94	Electrofishing	122	18	0.99				
		Creek Chub	Composite	07-20-94	Electrofishing	124	22	1.15				
229-TR-W-D-CB-033	Pool 18	Creek Chub	Discrete	07-20-94	Electrofishing	135	30	1.22	6.57	0.57	ND	0.57
229-TR-W-D-CB-034	Pool 18	Creek Chub	Discrete	07-20-94	Electrofishing	141	35	1.25	6.14	0.55	ND	0.55
229-TR-W-C-CB-035	Pool 19	Creek Chub	Composite	07-20-94	Electrofishing	92	9	1.16	8.35	0.61	ND	0.61
		Creek Chub	Composite	07-20-94	Electrofishing	100	11	1.10				
		Creek Chub	Composite	07-20-94	Electrofishing	98	11	1.17				
		Creek Chub	Composite	07-20-94	Electrofishing	99	11	1.13				
		Creek Chub	Composite	07-20-94	Electrofishing	91	7	0.93				
		Creek Chub	Composite	07-20-94	Electrofishing	92	8	1.03				
		Creek Chub	Composite	07-20-94	Electrofishing	93	9	1.12				
229-TR-W-C-CB-036	Pool 19	Creek Chub	Composite	07-20-94	Electrofishing	112	15	1.07	5.49	0.69	ND	0.69
		Creek Chub	Composite	07-20-94	Electrofishing	121	16	0.90				
		Creek Chub	Composite	07-20-94	Electrofishing	115	18	1.18				
229-TR-W-D-CB-037	Pool 20	Creek Chub	Discrete	07-20-94	Electrofishing	136	28	1.11	6.21	0.71	ND	0.71
229-TR-W-C-CB-038	Pool 20	Creek Chub	Composite	07-20-94	Electrofishing	125	24	1.23	5.52	1.00	ND	1.00
		Creek Chub	Composite	07-20-94	Electrofishing	125	23	1.18				
		Creek Chub	Composite	07-20-94	Electrofishing	130	22	1.00				
		Creek Chub	Composite	07-20-94	Electrofishing	126	22	1.10				
229-TR-W-D-CB-039	Pool 21	Creek Chub	Discrete	07-20-94	Electrofishing	165	52	1.16	6.25	1.20	ND	1.20
229-TR-W-D-CB-040	Pool 21	Creek Chub	Discrete	07-20-94	Electrofishing	168	50	1.05	5.71	1.20	ND	1.20
229-TR-W-D-CB-041	Pool 21	Creek Chub	Discrete	07-20-94	Electrofishing	174	60	1.14	2.30	0.72	ND	0.72
229-TR-W-C-BD-001	Pool 8	Blacknose Dace	Composite	07-20-94	Electrofishing	87	6	0.91	6.46	2.60	ND	2.60
		Blacknose Dace	Composite	07-20-94	Electrofishing	82	6	1.09				
		Blacknose Dace	Composite	07-20-94	Electrofishing	80	5	0.98				
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	4	1.12				

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-BD-001	Pool 8	Blacknose Dace	Composite	07-20-94	Electrofishing	70	3	0.87				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	4	1.12				
		Blacknose Dace	Composite	07-20-94	Electrofishing	67	3	1.00				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	3	0.77				
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	4	1.17				
229-TR-W-C-BD-002	Pool 9	Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95	7.51	2.60	ND	2.60
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	3	0.71				
		Blacknose Dace	Composite	07-20-94	Electrofishing	80	5	0.98				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	4	1.03				
		Blacknose Dace	Composite	07-20-94	Electrofishing	74	4	0.99				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	3	0.77				
		Blacknose Dace	Composite	07-20-94	Electrofishing	67	3	1.00				
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	3	0.87				
229-TR-W-C-BD-003	Pool 11	Blacknose Dace	Composite	07-20-94	Electrofishing	86	6	0.94	5.31	3.10	ND	3.10
		Blacknose Dace	Composite	07-20-94	Electrofishing	79	5	1.01				
		Blacknose Dace	Composite	07-20-94	Electrofishing	78	5	1.05				
		Blacknose Dace	Composite	07-20-94	Electrofishing	80	6	1.17				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	4	0.88				
229-TR-W-C-BD-004	Pool 12	Blacknose Dace	Composite	07-20-94	Electrofishing	73	4	1.03	9.81	2.90	ND	2.90
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	4	1.17				

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Date Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-BD-004	Pool 12	Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	5	1.19				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	74	5	1.23				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	5	1.19				
		Blacknose Dace	Composite	07-20-94	Electrofishing	86	7	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	78	6	1.26				
229-TR-W-C-BD-005	Pool 13	Blacknose Dace	Composite	07-20-94	Electrofishing	80	6	1.17	6.39	2.00	ND	2.00
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	5	1.40				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	5	1.29				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	5	1.29				
		Blacknose Dace	Composite	07-20-94	Electrofishing	94	10	1.20				
229-TR-W-C-BD-006	Pool 13	Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14	7.70	1.60	ND	1.60
		Blacknose Dace	Composite	07-20-94	Electrofishing	65	4	1.46				
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	4	1.17				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	5	1.29				
		Blacknose Dace	Composite	07-20-94	Electrofishing	80	6	1.17				
		Blacknose Dace	Composite	07-20-94	Electrofishing	81	7	1.32				
229-TR-W-C-BD-007	Pool 14	Blacknose Dace	Composite	07-20-94	Electrofishing	63	3	1.20	8.96	1.50	ND	1.50
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	4	1.03				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	4	1.12				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Date Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-BD-007	Pool 14	Blacknose Dace	Composite	07-20-94	Electrofishing	75	5	1.19				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	4	1.03				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	5	1.40				
229-TR-W-C-BD-008	Pool 15	Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95	10.5	2.00	ND	2.00
229-TR-W-C-BD-008A		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07	8.83	1.70	ND	1.70
		Blacknose Dace	Composite	07-20-94	Electrofishing	78	5	1.05				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	5	1.29				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	69	4	1.22				
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	4	1.12				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	61	3	1.32				
		Blacknose Dace	Composite	07-20-94	Electrofishing	74	5	1.23				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	78	5	1.05				
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	4	1.17				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	60	2	0.93				
229-TR-W-C-BD-009	Pool 16	Blacknose Dace	Composite	07-20-94	Electrofishing	72	3	0.80	8.13	2.00	ND	2.00
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	4	1.17				
		Blacknose Dace	Composite	07-20-94	Electrofishing	70	4	1.17				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				

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TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-BD-009	Pool 16	Blacknose Dace	Composite	07-20-94	Electrofishing	70	3	0.87				
		Blacknose Dace	Composite	07-20-94	Electrofishing	77	5	1.10				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95				
		Blacknose Dace	Composite	07-20-94	Electrofishing	81	6	1.13				
		Blacknose Dace	Composite	07-20-94	Electrofishing	66	3	1.04				
		Blacknose Dace	Composite	07-20-94	Electrofishing	78	5	1.05				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	4	1.03				
229-TR-W-C-BD-010	Pool 20	Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07	9.63	1.90	ND	1.90
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	71	4	1.12				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	5	1.19				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	5	1.19				
		Blacknose Dace	Composite	07-20-94	Electrofishing	75	5	1.19				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	86	5	0.79				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	4	0.91				
		Blacknose Dace	Composite	07-20-94	Electrofishing	80	5	0.98				
		Blacknose Dace	Composite	07-20-94	Electrofishing	74	5	1.23				
229-TR-W-C-BD-011	Pool 21	Blacknose Dace	Composite	07-20-94	Electrofishing	80	5	0.98	8.95	2.40	ND	2.40
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	5	1.14				

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TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Data Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-BD-011	Pool 21	Blacknose Dace	Composite	07-20-94	Electrofishing	75	4	0.95				
		Blacknose Dace	Composite	07-20-94	Electrofishing	80	5	0.98				
		Blacknose Dace	Composite	07-20-94	Electrofishing	73	4	1.03				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	4	0.91				
		Blacknose Dace	Composite	07-20-94	Electrofishing	76	4	0.91				
		Blacknose Dace	Composite	07-20-94	Electrofishing	74	5	1.23				
		Blacknose Dace	Composite	07-20-94	Electrofishing	72	4	1.07				
		Blacknose Dace	Composite	07-20-94	Electrofishing	79	5	1.01				
229-TR-W-C-BG-001	Pool 12	Bluegill	Composite	07-20-94	Electrofishing	55	4	2.40	4.08	0.95	ND	0.95
		Bluegill	Composite	07-20-94	Electrofishing	55	4	2.40				
		Bluegill	Composite	07-20-94	Electrofishing	58	4	2.05				
		Bluegill	Composite	07-20-94	Electrofishing	49	2	1.70				
		Bluegill	Composite	07-20-94	Electrofishing	54	3	1.91				
		Bluegill	Composite	07-20-94	Electrofishing	47	2	1.93				
		Bluegill	Composite	07-20-94	Electrofishing	47	2	1.93				
		Bluegill	Composite	07-20-94	Electrofishing	48	2	1.81				
		Bluegill	Composite	07-20-94	Electrofishing	48	3	2.71				
229-TR-W-C-BG-002	Pool 21	Bluegill	Composite	07-20-94	Electrofishing	54	2	1.27	4.03	0.74	ND	0.74
		Bluegill	Composite	07-20-94	Electrofishing	63	5	2.00				
		Bluegill	Composite	07-20-94	Electrofishing	42	2	2.70				
		Bluegill	Composite	07-20-94	Electrofishing	50	2	1.60				
		Bluegill	Composite	07-20-94	Electrofishing	61	5	2.20				
		Bluegill	Composite	07-20-94	Electrofishing	63	5	2.00				
		Bluegill	Composite	07-20-94	Electrofishing	51	3	2.26				
		Bluegill	Composite	07-20-94	Electrofishing	50	3	2.40				
		Bluegill	Composite	07-20-94	Electrofishing	47	2	1.93				
		Bluegill	Composite	07-20-94	Electrofishing	50	3	2.40				

TABLE 3 (Continued)

PCB AND PERCENTAGE LIPID CONTENT OF WHOLE BODY FISH SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Fish Sample I.D. Number	Sampling Location	Fish Species	Sample Type	Date Collected	Method of Collection	Total Length (mm)	Total Weight (gr)	Condition Factor (K-TL)	Percentage Lipid Content (% wet wt.)	PCB Concentration (ppm) [1]		
										Aroclor 1254	Aroclor 1260	Total PCBs
229-TR-W-C-BG-002	Pool 21	Bluegill	Composite	07-20-94	Electrofishing	53	3	2.02				
		Bluegill	Composite	07-20-94	Electrofishing	43	2	2.52				
		Bluegill	Composite	07-20-94	Electrofishing	50	2	1.60				
		Bluegill	Composite	07-20-94	Electrofishing	51	2	1.51				

NOTES:

[1] The analytical detection limit for PCBs was 0.02 ppm.
[2] PCBs were not detected in the sample at a detection limit of 0.02 ppm.

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TABLE 4

SUMMARY OF TOTAL PCB CONTENT OF WHOLE BODY FISH SAMPLES
FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK AND
FROM A BREACHED POND NEAR EDEN, NEW YORK DURING LATE JULY 1994

Sampling Location/Fish Species	Sample Size (Including Duplicates)	Total PCB Concentration (ppm) Mean	Minimum	Maximum	Percentage of Observations Between 1 and 3 ppm
BREACHED POND					
Largemouth Bass	2	3.65	1.50	5.80	0/2 = 0%
Bluegill	4	1.57	1.20	2.20	4/4 = 100%
Creek Chub	5	1.48	0.80	2.10	4/5 = 80%
Pond Subtotals	11	1.94	0.80	5.80	8/11 = 72.7%
TRIBUTARY (DOWNSTREAM FROM HIGHWAY 75)					
Creek Chub	43	1.27	0.46	2.90	28/43 = 65.1%
Blacknose Dace	12	2.19	1.50	3.10	11/12 = 91.7%
Bluegill	2	0.85	0.74	0.95	0/2 = 0%
Tributary Subtotals	57	1.45	0.46	3.10	39/57 = 68.4%
OVERALL TOTALS	68[1]	1.53	0.46	5.80	47/68 = 69.1%

NOTES: [1] Includes 4 duplicate samples.

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TABLE 5

PCB CONCENTRATIONS AND TOTAL ORGANIC CARBON CONTENT OF SEDIMENT SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK NEAR EDEN, NEW YORK DURING LATE JULY 1994

Sampling Location	Location of Sample on Transect	Sediment Sample I.D. Number	Total PCB Concentration (ppm)[1]	Total Organic Carbon Content (%)[2]
HIGHWAY75 BRIDGE				
Pool 1	North	229-SD-PCB-001	< 0.1	1.21, 1.34
	Middle	229-SD-PCB-002	< 0.1	1.92, 2.20
	South	229-SD-PCB-003	< 0.1	1.34, 1.71
Pool 3	North	229-SD-PCB-004	< 0.1	1.02, 0.88
	Middle	229-SD-PCB-005	< 0.1	1.03, 1.18
	South	229-SD-PCB-006	< 0.1	1.81, 1.51
Pool 4	North	229-SD-PCB-007	< 0.1	1.23, 0.71
	Middle	229-SD-PCB-008	< 0.1	1.03, 0.86
	South	229-SD-PCB-009	< 0.1	1.35, 0.10
Pool 5	North	229-SD-PCB-010	< 0.1	0.81, 0.84
	Middle	229-SD-PCB-011	< 0.1	1.15, 0.90
	South	229-SD-PCB-012	< 0.1	1.11, 1.08
Pool 6	North	229-SD-PCB-013	< 0.1	1.04, 0.071
	Middle	229-SD-PCB-014	< 0.1	2.11, 1.68
	Middle	229-SD-PCB-014A	< 0.1	2.30, 1.73
	South	229-SD-PCB-015	< 0.1	0.87, 0.99
Pool 7	North	229-SD-PCB-016	< 0.1	0.77, 1.29
	Middle	229-SD-PCB-017	< 0.1	0.90, 1.01
	South	229-SD-PCB-018	< 0.1	0.73, 0.42
Pool 8	North	229-SD-PCB-019	< 0.1	1.11, 0.50
	Middle	229-SD-PCB-020	< 0.1	1.63, 1.70
	South	229-SD-PCB-021	< 0.1	1.20, 1.74
Pool 9	North	229-SD-PCB-022	< 0.1	1.11, 1.17
	Middle	229-SD-PCB-023	< 0.1	2.72, 1.35
	South	229-SD-PCB-024	< 0.1	0.96, 1.14
Pool 10	North	229-SD-PCB-025	< 0.1	1.58, 1.66
	Middle	229-SD-PCB-026	< 0.1	1.22, 0.75
	South	229-SD-PCB-027	< 0.1	1.71, 0.95
Pool 11	North	229-SD-PCB-028	< 0.1	2.17, 0.36
	Middle	229-SD-PCB-029	< 0.1	1.22, 1.00
	South	229-SD-PCB-030	< 0.1	0.30, 0.12
Pool 12	North	229-SD-PCB-031	< 0.1	0.50, 1.15
	Middle	229-SD-PCB-032	< 0.1	1.99, 1.73
	South	229-SD-PCB-033	< 0.1	1.20, 1.00

TABLE 5 (Continued)

PCB CONCENTRATIONS AND TOTAL ORGANIC CARBON CONTENT OF SEDIMENT SAMPLES FROM A REACH OF AN UNNAMED TRIBUTARY OF EIGHTEENMILE CREEK NEAR EDEN, NEW YORK DURING LATE JULY 1994

Sampling Location	Location of Sample on Transect	Sediment Sample I.D. Number	Total PCB Concentration (ppm)[1]	Total Organic Carbon Content (%)[2]
HIGHWAY75 BRIDGE				
Pool 13	North	229-SD-PCB-034	< 0.1	1.03, 1.02
	Middle	229-SD-PCB-035	< 0.1	0.90, 0.91
	South	229-SD-PCB-036	< 0.1	1.09, 1.04
	South	229-SD-PCB-036A	< 0.1[3]	-------
Pool 15	North	229-SD-PCB-037	< 0.1	1.19, 1.08
	Middle	229-SD-PCB-038	< 0.1	1.02, 1.48
	Middle	229-SD-PCB-038A	---	1.36, 1.12[3]
	South	229-SD-PCB-039	< 0.1	1.26, 1.21
Pool 16	North	229-SD-PCB-040	< 0.1	1.39, 1.37
	Middle	229-SD-PCB-041	< 0.1	1.12, 1.04
	South	229-SD-PCB-042	< 0.1	1.78, 1.17
Pool 17	North	229-SD-PCB-043	< 0.1	1.13, 1.25
	Middle	229-SD-PCB-044	< 0.1	0.88, 0.67
	South	229-SD-PCB-045	< 0.1	1.57, 1.64
	South	229-SD-PCB-045A	< 0.1[4]	1.67, 1.72
Pool 18	North	229-SD-PCB-046	< 0.1	1.29, 0.95
	Middle	229-SD-PCB-047	< 0.1	1.74, 0.85
	South	229-SD-PCB-048	< 0.1	1.15, 0.79
Pool 19	North	229-SD-PCB-049	< 0.1[4]	1.27, 1.00
	Middle	229-SD-PCB-050	< 0.1	0.96, 1.32
	South	229-SD-PCB-051	< 0.1	1.97, 2.33
Pool 20	North	229-SD-PCB-052	0.186	2.08, 1.89
	Middle	229-SD-PCB-053	< 0.1	1.40, 2.87
	South	229-SD-PCB-054	< 0.1	1.50, 2.21
Pool 21	North	229-SD-PCB-055	< 0.1	2.81, 1.34
	Middle	229-SD-PCB-056	< 0.1	1.37, 1.61
	South	229-SD-PCB-057	< 0.1	1.90, 0.88
HIGHWAY62 BRIDGE				

NOTES:
[1] The analytical reporting limit for PCBs was 0.1 ppm wet weight.
[2] Two separate analyses were performed on each sample.
[3] Duplicate analyses.
[4] Estimated concentration due to low surrogate recoveries.

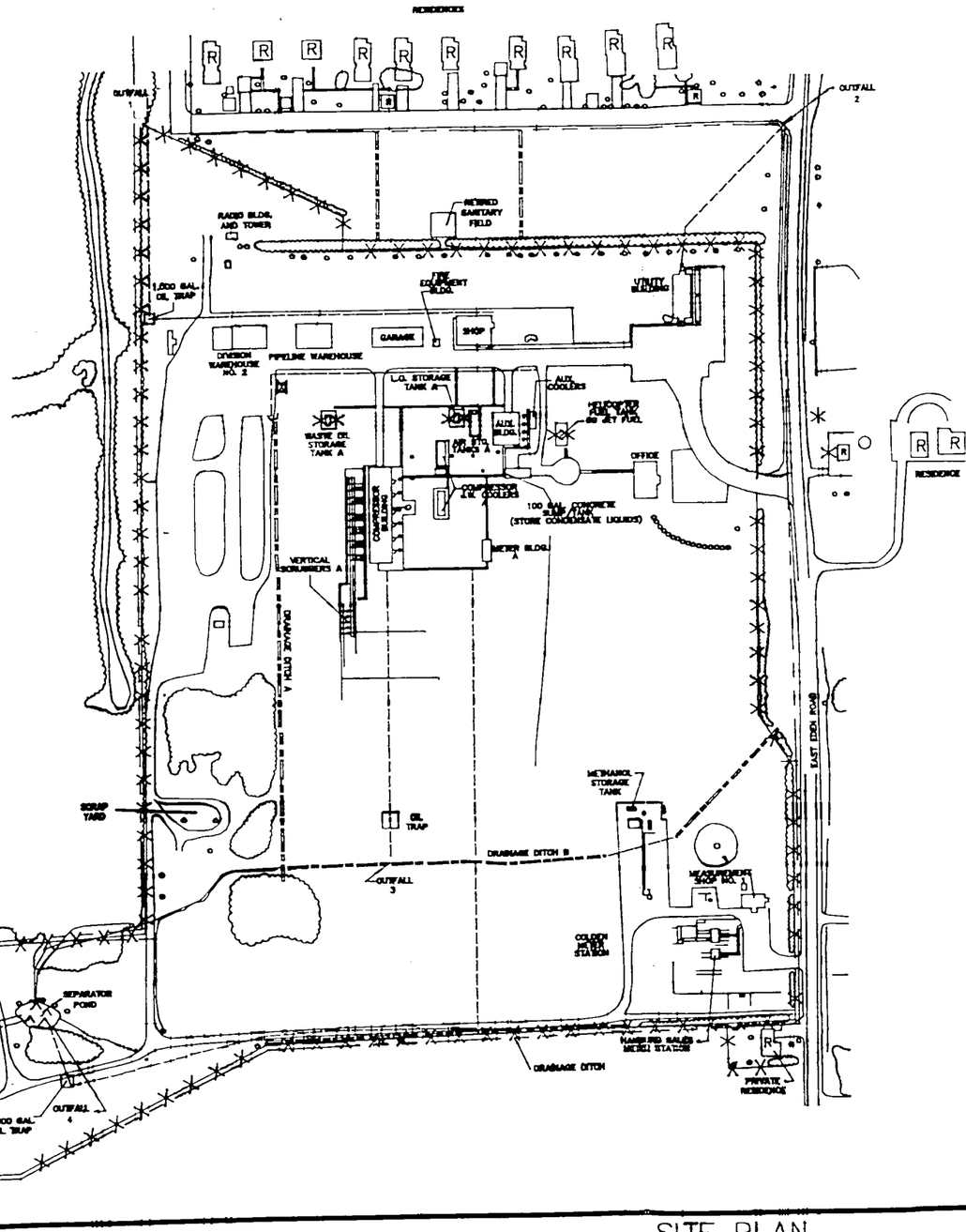
FIGURES

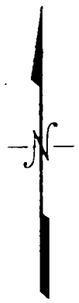
FIGURE 1

APPROX. SCALE : 1" = 533'

SITE VICINITY MAP NEAR
TENNESSEE GAS COMPRESSOR STATION 229
NEAR EDEN, NEW YORK

NORTH BOSTON ROAD





0 250 500

Scale in Feet

PROPERTY BOUNDARY

SITE FENCE

WATER BODY

DRAIN

DRAINAGE DITCH

[R] RESIDENCE

F:\021119A\1119AB01 08/02/91 JWH

Woodward–Clyde Consultants
Consulting Engineers, Geologists and Environmental Scientists
Baton Rouge, Louisiana

ENVIRON
Counsel in Health and Environmental Science

SITE PLAN
TENNESSEE GAS PIPELINE COMPANY, COMPRESSOR STATION 229
EDEN, NEW YORK

Figure 2

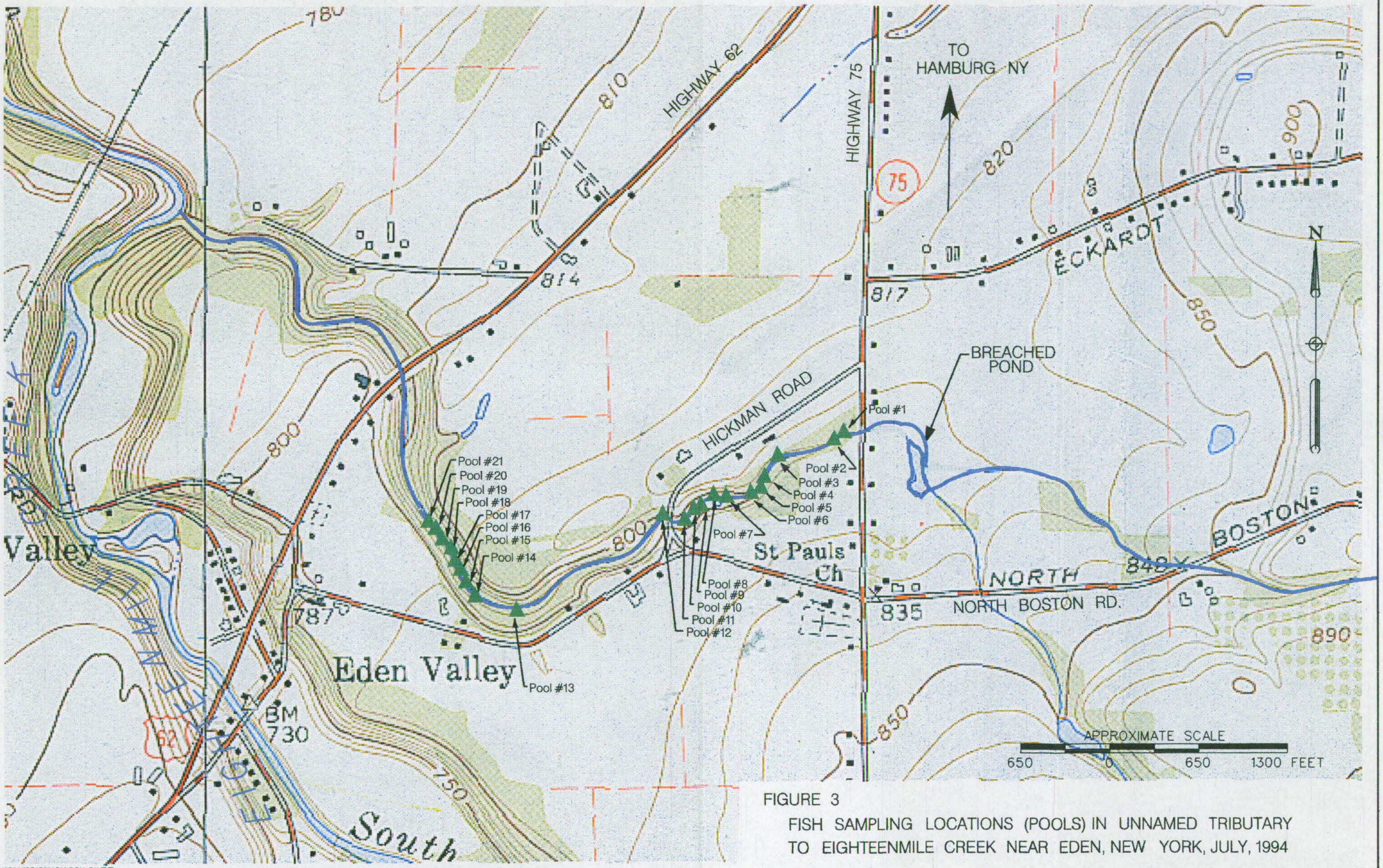


FIGURE 3

FISH SAMPLING LOCATIONS (POOLS) IN UNNAMED TRIBUTARY TO EIGHTEENMILE CREEK NEAR EDEN, NEW YORK, JULY, 1994

/USR3/MISC/1B650C02.DGN B11.EXT

APPENDIX A

ANALYTICAL DATA PACKAGE FROM HAZELTON ENVIRONMENTAL SERVICES FOR FISH TISSUE SAMPLES COLLECTED FROM A TRIBUTARY AND BREACHED POND NEAR TENNESSEE GAS COMPRESSOR STATION 229 NEAR EDEN, NEW YORK DURING JULY 1994

DATE: October 5, 1994

TO: Douglas R. Hahn

FROM: Charlie Westerman and Anna Saucier

SUBJECT: Analytical Data Review for Fish Samples
Tennessee Gas Pipeline Station 229
Eden, New York
July 1994
File: 91B650C-A

Introduction

This analytical data review applies to fish samples collected by Woodward-Clyde Consultants (WCC) July 20 and 21, 1994 from a reach of an unnamed tributary of Eighteenmile Creek and from a breached pond near the Tennessee Gas Pipeline Compressor Station 229 near Eden, New York. The analytical results were provided as four individual sample delivery groups (SDGs) or data reports.

Aroclor PCB data were acquired according to analytical protocols similar to that presented in the U. S. EPA Method 3500 Organic Extraction and Sample Preparation, EPA Method 3510 Separatory Funnel Liquid-Liquid Extraction, EPA Method 3540 Soxhlet Extraction, EPA Method 3620 Florisil Column Cleanup, EPA Method 8000 Gas Chromatography and EPA Method 8080 Organochlorine Pesticides and PCBs in Test Methods for Evaluating Solid Waste (SW-846, Third Edition, Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, Washington, D. C., November, 1986). (aka SW-846).

The modifications to these protocols are summarized in the following discussion. The surrogate, decachlorobiphenyl (DCB), replaced the specified surrogates, 2,4,5,6-tetrachloro-m-xylene (TMX) and dibutylchlorendate (DBC). The Aroclor PCBs were eluted from the Florisil column with petroleum ether/ethyl ether in a single fraction. The various single component pesticide quality control criteria were deleted. All analytical determinations were performed on the single chromatographic stationary

phase SP-2100. The specified five point initial calibration with 20 percent or less relative standard deviation (%RSD) was restricted to three-points with 15 percent or less RSD for Aroclors 1016, 1242, 1248, 1254 and 1260 and to a single point for the remaining Aroclors 1221 and 1232. All quantitations were performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three. None of these modifications should be deleterious to the technical quality of the data. The use of the single chromatographic stationary phase may have increased the potential for reporting false positive results with some low level sample concentrations near the reporting limits. To achieve the required 20 ug/kg Aroclor reporting limits, the solvent extracts were concentrated by a factor of 2.5 times greater than that routinely employed by the laboratory.

Percentage lipids determinations were performed, and the results were reported on an as-received basis for all fish samples.

Validation of these data were performed according to applicable criteria in the Quality Assurance Plan, Tennessee Gas Compressor Station Sites (Woodward-Clyde Consultants, Baton Rouge, Louisiana, June 1989) and the draft Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D. C., 1990, Revised February 1, 1988). (aka QAP and Organic Functional Guidelines, respectively).

The following areas were reviewed during the data validation process:

Holding Times

Calibrations

Blanks

Surrogate Recoveries

Matrix Spike/Matrix Spike Duplicate Recoveries

Laboratory Control Sample Recoveries

Field Duplicates

Aroclor Identification

Aroclor Quantitation and Quantitation Limits

Overall Assessment of Data

Documentation

All laboratory results were either accepted (unqualified), qualified, or rejected. Accepted (unqualified) results are valid with respect to the specified procedures, and may be used without reservation. Qualified results are usable with the indicated limitation. Rejected results are unusable, and the analyte may or may not be present. Resampling and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

Qualified and rejected results were annotated according to Functional Guidelines conventions employing the following codes:

U	-	The analyte was analyzed for, but was not detected above the associated numerical value.
J	-	The associated numerical value was an estimated quantity.
R	-	The data were unusable. The presence or absence of the analyte could not be verified from the existing data. Resampling and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.
N	-	There was presumptive evidence to make a tentative identification.
NJ	-	There was presumptive evidence to make a tentative identification, and the associated numerical value was an estimated quantity.

UJ - The analyte was analyzed for, but was not detected above the reported value. The associated numerical value was an estimate.

SDG 1

This report applies to the analytical data associated with 19 fish samples collected by WCC from a reach of an unnamed tributary of Eighteenmile Creek near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 20, 1994. Associated field quality control consisted of one field duplicate.

The samples were relinquished by WCC on April 21, 1994 under documented chain-of-custody for transport to Hazleton Environmental Services (Hazleton) in Madison, Wisconsin.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection until receipt in the laboratory with the exception of the brief period of time that the fish were being processed in the field. The fish were maintained frozen from the time of receipt in the laboratory until the time the individual fish tissue samples were homogenized and Soxhlet extracted. Remaining portions of the fish samples were archived frozen.

There are not any applicable EPA-specified holding times for fish samples. All fish samples were extracted within 8 days from the date of collection. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

CALIBRATIONS

Each GC/ECD and each GC column employed for samples or associated quality control samples were calibrated initially at three concentration levels for Aroclors 1016, 1248, 1254, and 1260, two concentrations for Aroclor 1242, and at single concentrations for Aroclors 1221 and 1232. The percentage relative standard deviation (%RSD) for the Aroclors 1254 and 1260 were 15 percent or less. The %RSD for Aroclor 1016 were not reported. Aroclor 1016 was not reported present in any of the field samples.

The calibrations for each GC/ECD and each GC column were verified at least once for Aroclors 1016, 1248, 1254, and 1260 during the ensuing analytical run sequence. The percentage differences (%Ds) for the continuing calibrations were 15 percent or less.

All sample Aroclor quantitations for samples were performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three.

None of the data were qualified as estimated or rejected as unusable due to the calibration data.

BLANKS

Method blanks were processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed or each time a new batch of reagents or solvents was employed.

Aroclor PCBs were not reported with the associated method blanks.

A rinsate sample was not associated with this investigation.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE RECOVERIES

DCB was employed as a surrogate rather than the specified TMX and DBC. Surrogate recovery control limits for fish were not specified in the QAP. DCB surrogate recovery control limits were not specified in SW-846.

All surrogate percentage recoveries (%Rs), with the exception of that for sample 229-TR-W-C-CB-001, were within the laboratory-quoted advisory control limits of 74 to 130 percent for all fish solvent extracts which were analyzed undiluted.

All reported Aroclor analyses other than those for the method blank and the laboratory control sample required dilutions by factors of 7 to 25. Organic Functional Guidelines does not adequately assess the impact of solvent extract dilution on surrogate spike

recovery. Surrogate recoveries were calculated from the more concentrated analytical runs.

None of the data were qualified as estimated or rejected as unusable based on surrogate recoveries.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

One matrix spike/matrix spike duplicate (MS/MSD) sample pair, 229-TR-W-C-CB-017MS and 229-TR-W-C-CB-017MSD, spiked with Aroclor 1254 at 2000 ug/kg, was associated with these samples.

The MS/MSD %Rs were 75 percent. The relative percentage difference (RPD) was zero.

MS %R and RPD control limits were not specified in QAP. All %Rs were within the laboratory-quoted 37 to 134 percent quality control limits.

None of the data were qualified as estimated or rejected as unusable based on MS/MSD %Rs or RPDs.

LABORATORY CONTROL SAMPLES

Laboratory control samples (LCSs), consisting of commercial tuna fish spiked with Aroclor 1254 at 250 ug/kg, were processed and analyzed normally at a frequency of one per 20 or fewer samples each time sample preparation was performed. The LCS %R of 80 percent was within the laboratory-quoted 64 to 119 percent control limits.

None of the data were qualified as estimated or rejected as unusable based on LCS recoveries.

FIELD DUPLICATES

One sample/field duplicate sample pair was associated with these samples. The detects for 229-TR-W-C-CB-007 and 229-TR-W-C-CB-007A are summarized as follows:

Compound	Concentration µg/kg		RPD
	Sample	Field Duplicate	
Aroclor 1254	1100	1100	0

Although field duplicates are often employed to assess the overall precision of the field sampling and laboratory analysis, there are not any established EPA control limits for field duplicates. RPD control limits for fish were not specified in the QAP. None of the data were qualified as estimated or rejected as unusable based on field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data. None of the Aroclors were confirmed by a second column or by mass spectrometry.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The customary 50 ug/kg Aroclor PCB reporting limits achieved by Hazleton for fish tissues are associated with 10.0 milliliter final solvent extract volumes for 20.0 gram sample aliquots. The 20 ug/kg Aroclor PCB reporting limits, utilized for the present investigation, were achieved by reducing the final solvent extract volumes to 4.0 milliliters for 20.0 gram sample aliquots.

All solvent extracts for SDG 1 required dilutions by factors ranging from 7 to 20 for the unspiked samples and by a factor of 25 for the spiked samples.

The laboratory generally attempted to utilize the maximum undistorted and/or interfered portion of the Aroclor patterns to obtain sample concentrations.

OVERALL ASSESSMENT

None of the Aroclor data for this SDG were qualified as estimated or rejected as unusable. Aroclor 1254 was reported present in all associated samples and ranged from 880 to 2900 ug/kg. Aroclor 1260 was not reported present in any associated samples.

Aroclors were not reported present in samples when the concentrations were below the quoted reporting limits.

Multiple analytical runs for a given sample arose as a result of dilution and reanalysis. Raw data, consisting of chromatograms and quantitation reports, were provided in the data package for all analytical runs. The laboratory provided Aroclor concentration calculation sheets for only the analytical runs associated with the final reported Aroclor concentrations. Surrogate recoveries were calculated from the more concentrated analytical run.

Concerns other than those discussed were not encountered during the data validation process.

The final PCB Analysis Summary forms following data validation are appended.

DOCUMENTATION

The completed field Chain-of-Custody (COC) record is appended.

SDG 2

This report applies to the analytical data associated with 19 fish samples collected by WCC from a reach of an unnamed tributary of Eighteenmile Creek near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 20, 1994. Associated field quality control consisted of one field duplicate.

The samples were relinquished by WCC on July 21, 1994 under documented chain-of-custody for overnight transport to Hazleton.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection until receipt in the laboratory with the exception of the brief period of time that the fish were being processed in the field. The fish were maintained frozen from the time of receipt in the laboratory until the time the individual fish tissue samples were homogenized and Soxhlet extracted. Remaining portions of the fish samples were archived frozen.

There are not any applicable EPA-specified holding times for fish samples. All fish samples were extracted within 12 days from the date of collection. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

CALIBRATIONS

Each GC/ECD and each GC column employed for samples or associated quality control samples were calibrated initially at three concentration levels for Aroclors 1016, 1242, 1248, 1254, and 1260 and at a single concentration for Aroclors 1221 and 1232. The %RSD for the multipoint calibrations, other than Aroclor 1016, were 15 percent or less. The %RSDs for Aroclor 1016 were not reported.

The calibrations for each GC/ECD and each GC column were verified at least once for Aroclors 1016, 1242, 1248, 1254, and 1260 during the ensuing analytical run sequence. The %Ds for Aroclor 1016 were not reported. Aroclor 1016 was not reported present

in any of the field samples. The remaining continuing calibration %Ds were 15 percent or less.

All sample Aroclor quantitations for samples were performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three.

None of the data were qualified as estimated or rejected as unusable due to the calibration data.

BLANKS

Method blanks were processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed or each time a new batch of reagents or solvents was employed.

Aroclor PCBs were not reported with the associated method blank.

A rinsate sample was not associated with this investigation.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE RECOVERIES

DCB was employed as a surrogate rather than the specified TMX and DBC. Surrogate recovery control limits for fish were not specified in the QAP. DCB surrogate recovery control limits were not specified in SW-846.

All surrogate %Rs were within the laboratory-quoted advisory control limits of 74 to 130 percent for all fish solvent extracts which were analyzed undiluted.

All reported Aroclor analyses other than those for the method blank and the laboratory control sample required dilutions by factors of 3 to 15. Organic Functional Guidelines does not adequately assess the impact of solvent extract dilution on surrogate spike recovery. Surrogate recoveries were calculated from the more concentrated analytical runs.

None of the data were qualified as estimated or rejected as unusable based on surrogate recoveries.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

One MS/MSD sample pair, 229-TR-W-C-CB-038MS and 229-TR-W-C-CB-038MSD, spiked with Aroclor 1254 at 2000 ug/kg, was associated with these samples.

The MS/MSD %Rs were 75 and 70 percent, respectively. The RPD was 6.9 percent.

MS %R and RPD control limits were not specified in QAP. All %Rs were within the laboratory-quoted 37 to 134 percent quality control limits.

None of the data were qualified as estimated or rejected as unusable based on MS/MSD percentage recoveries or relative percentage differences.

LABORATORY CONTROL SAMPLES

LCSs, consisting of commercial tuna fish spiked with Aroclor 1254 at 250 ug/kg were normally processed and analyzed at a frequency of one per 20 or fewer samples each time sample preparation was performed. The LCS %R of 80 percent was within the laboratory-quoted 64 to 119 percent control limits.

None of the data were qualified as estimated or rejected as unusable based on LCS recoveries.

FIELD DUPLICATES

One sample/field duplicate sample pair, 229-TR-W-C-CB-025 and 229-TR-W-C-CB-025A, was associated with these samples and the results were summarized as follows:

Compound	Concentration µg/kg		RPD
	Sample	Field Duplicate	
Aroclor 1254	560	600	6.9

Although field duplicates are often employed to assess the overall precision of the field sampling and laboratory analysis, there are not any established EPA control limits for field duplicates. RPD control limits for fish were not specified in the QAP. None of the data were qualified as estimated or rejected as unusable based on field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data. None of the Aroclors were confirmed by a second column or by mass spectrometry.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The customary 50 ug/kg Aroclor PCB reporting limits achieved by Hazleton for fish tissues are associated with 10.0 milliliter final solvent extract volumes for 20.0 gram sample aliquots. The 20 ug/kg Aroclor PCB reporting limits, utilized for the present investigation, were achieved by reducing the final solvent extract volumes to 4.0 milliliters for 20.0 gram sample aliquots.

All solvent extracts for SDG 2 required dilutions by factors ranging from 3 to 11 for the unspiked samples and by a factor of 15 for the spiked samples.

The laboratory generally attempted to utilize the maximum undistorted and/or interfered portion of the Aroclor patterns to obtain sample concentrations.

OVERALL ASSESSMENT

None of the Aroclor data for this SDG were qualified as estimated or rejected as unusable. Aroclor 1254 was reported in all associated samples and ranged from 460 to 1900 ug/kg. Aroclor 1260 was not reported present in any associated samples. Aroclors were not reported present in samples when the concentrations were below the quoted reporting limits.

Multiple analytical runs for a given sample as a result of dilution and reanalysis. Raw data, consisting of chromatograms and quantitation reports, were provided in the data package for all analytical runs. The laboratory provided Aroclor concentration calculation sheets for only the analytical runs associated with the final reported Aroclor concentrations. Surrogate recoveries were calculated from the more concentrated analytical run.

Concerns other than those discussed were not encountered during the data validation process.

The final PCB Analysis Summary forms following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

SDG 3

This report applies to the analytical data associated with 19 fish samples collected by WCC from a reach of an unnamed tributary of Eighteenmile Creek near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 20, 1994. Associated field quality control consisted of one field duplicate.

The samples were relinquished by WCC on July 21, 1994 under documented chain-of-custody for transport to Hazleton.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection until receipt in the laboratory with the exception of the brief period of time that the fish were being processed in the field. The fish were maintained frozen from the time of receipt in the laboratory until the time the individual fish tissue samples were homogenized and Soxhlet extracted. Remaining portions of the fish samples were archived frozen.

There are not any applicable EPA-specified holding times for fish samples. All fish samples were extracted within 25 days from the date of collection. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

CALIBRATIONS

Each GC/ECD and each GC column employed for samples or associated quality control samples were calibrated initially at three concentration levels for Aroclors 1016, 1242, 1248, 1254, and 1260 and at a single concentration for Aroclors 1221 and 1232. The %RSD for the multipoint calibrations, other than Aroclor 1016, were 15 percent or less. The %RSDs for Aroclor 1016 were not reported.

The calibrations for each GC/ECD and each GC column were verified at least once for Aroclors 1016, 1242, 1248, 1254, and 1260 during the ensuing analytical run sequence.

The %Ds for the continuing calibrations other than Aroclor 1016 and Aroclor 1260 were 15 percent or less. The %D for Aroclor 1016 was not reported.

All sample Aroclor quantitations for samples were performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three.

None of the data were qualified as estimated or rejected as unusable due to the calibration data.

BLANKS

Method blanks were processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed or each time a new batch of reagents or solvents was employed.

Aroclor PCBs were not reported with the associated method blank.

A rinsate sample was not associated with this investigation.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE RECOVERIES

DCB was employed as a surrogate rather than the specified TMX and DBC. Surrogate recovery control limits for fish were not specified in the QAP. DCB surrogate recovery control limits were not specified in SW-846.

All surrogate %Rs were within the laboratory-quoted advisory control limits of 74 to 130 percent for all fish solvent extracts which were analyzed undiluted.

All reported Aroclor analyses other than those for the method blank and the laboratory control sample required dilutions by factors of 6 to 30. Organic Functional Guidelines does not adequately address the impact of solvent extract dilution on surrogate spike recovery. Surrogate recoveries were calculated from the more concentrated analytical runs.

None of the data were qualified as estimated or rejected as unusable based on surrogate recoveries.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

Insufficient sample quantity were available to permit the analysis of a MS/MSD sample pair. Two MS samples, 229-TR-W-C-BD-010MS and 229-TR-W-C-BD-011MS, spiked with Aroclor 1254 at 2000 ug/kg, were associated with these samples.

The MS %Rs were 90 and 75 percent, respectively.

MS %R and RPD control limits were not specified in QAP. All %Rs were within the laboratory-quoted 37 to 134 percent quality control limits.

None of the data were qualified as estimated or rejected as unusable based on MS %Rs or the absence of RPD data.

LABORATORY CONTROL SAMPLES

LCSs, consisting of commercial tuna fish spiked with Aroclor 1254 at 250 ug/kg, were processed and analyzed normally at a frequency of one per 20 or fewer samples each time sample preparation was performed. The LCS %R of 92 percent was within the laboratory-quoted 64 to 119 percent control limits.

None of the data were qualified as estimated or rejected as unusable based on LCS recoveries.

FIELD DUPLICATES

One sample/field duplicate sample pair were associated with these samples. The sample associated with the field duplicate was reported in SDG 3. The detects for 229-TR-W-C-BD-008 and 229-TR-W-C-BD-008A were summarized as follows:

Compound	Concentration µg/kg		RPD
	Sample	Field Duplicate	
Aroclor 1254	2000	1700	16.2

Although field duplicates are often employed to assess the overall precision of the field sampling and laboratory analysis, there are not any established EPA control limits for field duplicates. RPD control limits for fish were not specified in the QAP. None of the data were qualified as estimated or rejected as unusable based on field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data. None of the Aroclors were confirmed by a second column or by mass spectrometry.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The customary 50 ug/kg Aroclor PCB reporting limits achieved by Hazleton for fish tissues are associated with 10.0 milliliter final solvent extract volumes for 20.0 gram sample aliquots. The 20 ug/kg Aroclor PCB reporting limits, utilized for the present investigation, were achieved by reducing the final solvent extract volumes to 4.0 milliliters for 20.0 gram sample aliquots.

All solvent extracts for SDG 3 required dilutions by factors ranging from 6 to 30 for the unspiked samples and by a factor of 15 for the spiked samples.

The laboratory generally attempted to utilize the maximum undistorted and/or interfered portion of the Aroclor patterns to obtain sample concentrations.

OVERALL ASSESSMENT

None of the Aroclor data for this SDG were qualified as estimated or rejected as unusable. Aroclor 1254 was reported in all associated samples and ranged from 720 to 5800 ug/kg. Aroclor 1260 was not reported present in any associated samples. Aroclors were not reported present in samples when the concentrations were below the quoted reporting limits.

Multiple analytical runs for a given sample arose as a result of dilution and reanalysis. Raw data, consisting of chromatograms and quantitation reports, were provided in the data package for all analytical runs. The laboratory provided Aroclor concentration calculation sheets for only the analytical runs associated with the final reported Aroclor concentrations. Surrogate recoveries were calculated from the more concentrated analytical run.

Concerns other than those discussed were not encountered during the data validation process.

The final PCB Analysis Summary forms following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

SDG 4

This report applies to the analytical data associated with 7 fish samples collected by WCC from a breached pond near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 20 and 21, 1994. Associated field quality control consisted of one field duplicate.

The samples were relinquished by WCC on July 21, 1994 under documented chain-of-custody for transport to Hazleton.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection until receipt in the laboratory with the exception of the brief period of time that the fish were being processed in the field. The fish were maintained frozen from the time of receipt in the laboratory until the time the individual fish tissue samples were homogenized and Soxhlet extracted. Remaining portions of the fish samples were archived frozen.

There are not any applicable EPA-specified holding times for fish samples. All fish samples were extracted within 28 days from the date of collection. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

CALIBRATIONS

Each GC/ECD and each GC column employed for samples or associated quality control samples were calibrated initially at three concentration levels for Aroclors 1016, 1242, 1248, 1254, and 1260 and at a single concentration for Aroclors 1221 and 1232. The %RSD for the multipoint calibrations, other than Aroclor 1016, were 15 percent or less. The %RSDs for Aroclor 1016 were not reported.

The calibration for GC/ECD L7737 were verified at least once for Aroclors 1016, 1242, 1248, and 1260 during the ensuing analytical run sequence. A continuing calibration for

Aroclor 1254 was not performed. The %Ds for Aroclor 1016 were not reported. The remaining continuing calibration %Ds were 15 percent or less.

The calibration for GC/ECD M1386 was verified at least once for Aroclors 1248 and 1254 during the ensuing analytical run sequence. The %Ds for Aroclor 1016 were not reported. The remaining continuing calibration %Ds were 15 percent or less.

All sample Aroclor quantitations for samples were performed in terms of the calibration factor for the midpoint initial calibration standard rather than the average of the three.

None of the data were qualified as estimated or rejected as unusable due to the calibration data.

BLANKS

Method blanks were processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed or each time a new batch of reagents or solvents was employed.

Aroclor PCBs were not reported with the associated method blank.

A rinsate sample was not associated with this investigation.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE RECOVERIES

DCB was employed as a surrogate rather than the specified TMX and DBC. Surrogate recovery control limits for fish were not specified in the QAP. DCB surrogate recovery control limits were not specified in SW-846.

All surrogate %Rs were within the laboratory-quoted advisory control limits of 74 to 130 percent for all fish solvent extracts which were analyzed undiluted.

All analyses other than those for the method blank and the laboratory control sample required dilutions by factors of 6 to 30. Organic Functional Guidelines does not

adequately address the impact of solvent extract dilution on surrogate spike recovery. Surrogate recoveries were calculated from the more concentrated analytical runs.

None of the data were qualified as estimated or rejected as unusable based on surrogate recoveries.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

Insufficient sample quantity were available to permit the analysis of a MS/MSD sample pair. Two MS samples, 229-BP-W-C-BG-003MS and 229-BP-W-C-CB-002MS, spiked with Aroclor 1254 at 2000 ug/kg, were associated with these samples.

The MS %Rs were 75 and 90 percent, respectively. Matrix Spike %R and RPD control limits were not specified in QAP. All %Rs were within the laboratory-quoted 37 to 134 percent quality control limits.

None of the data were qualified as estimated or rejected as unusable based on MS %Rs or the absence of a RPD.

LABORATORYCONTROL SAMPLES

LCSs, consisting of commercial tuna fish spiked with Aroclor 1254 at 250 ug/kg, were processed and analyzed normally at a frequency of one per 20 or fewer samples each time sample preparation was performed. The LCS %R of 80 percent was within the laboratory-quoted 64 to 119 percent control limits.

None of the data were qualified as estimated or rejected as unusable based on LCS recoveries.

FIELD DUPLICATES

One sample/field duplicate sample pair were associated with these samples. The detects for 229-BP-W-C-BG-002 and 229-BP-W-C-BG-002A were summarized as follows:

Compound	Concentration µg/kg		RPD
	Sample	Field Duplicate	
Aroclor 1254	1500	1400	6.9

Although field duplicates are often employed to assess the overall precision of the field sampling and laboratory analysis, there are not any established EPA control limits for field duplicates. RPD control limits for fish were not specified in the QAP. None of the data were qualified as estimated or rejected as unusable based on field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data.

None of the Aroclors were confirmed by a second column or by mass spectrometry.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The customary 50 ug/kg Aroclor PCB reporting limits achieved by Hazleton for fish tissues are associated with 10.0 milliliter final solvent extract volumes for 20.0 gram sample aliquots. The 20 ug/kg Aroclor PCB reporting limits, utilized for the present investigation, were achieved by reducing the final solvent extract volumes to 4.0 milliliters for 20.0 gram sample aliquots.

All solvent extracts for SDG 4 required dilutions by factors ranging from 9 to 20 for the unspiked samples and by factors of up to 25 for the spiked samples.

The laboratory generally attempted to utilize the maximum undistorted and/or interfered portion of the Aroclor patterns to obtain sample concentrations.

OVERALL ASSESSMENT

None of the Aroclor data for this SDG were qualified as estimated or rejected as unusable. Aroclor 1254 was reported in all associated samples and ranged from 1200 to 2200 ug/kg. Aroclor 1260 was not reported present in any associated samples. Aroclors were not reported present in samples when the concentrations were below the quoted reporting limits.

Multiple analytical runs for a given sample arose as a result of dilution and reanalysis. Raw data, consisting of chromatograms and quantitation reports, were provided in the data package for all analytical runs. The laboratory provided Aroclor concentration calculation sheets for only the analytical runs associated with the final reported Aroclor concentrations. Surrogate recoveries were calculated from the more concentrated analytical run.

Concerns other than those discussed were not encountered during the data validation process.

The final PCB Analysis Summary forms following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

SDG 1

PCB ANALYSIS SUMMARY

Lab Name : Hazleton Environmental Services
Client : Woodward-Clyde Baton Rouge
Project #: 918650C

GC Column ID : 3% SP-2100
Instrument ID : HP008A
Matrix : Fish

Lab ID	Sample Number	Date Received	Date Extracted	% Lipid	PCB 1016 ug/Kg	PCB 1221 ug/Kg	PCB 1242 ug/Kg	PCB 1248 ug/Kg	PCB 1254 ug/Kg	PCB 1260 ug/Kg	Total PCB ug/Kg
Blank 0728	----------	----------	07/28/94	0.00	< 20	< 20	< 20	< 20	< 20	< 20	< 20
C.S. 0728	----------	----------	07/28/94	1.20	< 20	< 20	< 20	< 20	200	< 20	200
40700962	229-TR-W-C-CB-001	07/22/94	07/28/94	5.60	< 240	< 240	< 240	< 240	1700	< 240	1700
40700963	229-TR-W-C-CB-002	07/22/94	07/28/94	7.08	< 220	< 220	< 220	< 220	1600	< 220	1600
40700964	229-TR-W-D-CB-003	07/22/94	07/28/94	4.86	< 220	< 220	< 220	< 220	1500	< 220	1500
40700965	229-TR-W-C-CB-004	07/22/94	07/28/94	7.13	< 280	< 280	< 280	< 280	2100	< 280	2100
40700966	229-TR-W-D-CB-005	07/22/94	07/28/94	9.07	< 220	< 220	< 220	< 220	1600	< 220	1600
40700967	229-TR-W-D-CB-006	07/22/94	07/28/94	4.64	< 200	< 200	< 200	< 200	1400	< 200	1400
40700968	229-TR-W-C-CB-007	07/22/94	07/28/94	5.75	< 160	< 160	< 160	< 160	1100	< 160	1100
40700969	229-TR-W-C-CB-008	07/22/94	07/28/94	7.26	< 300	< 300	< 300	< 300	2300	< 300	2300
40700970	229-TR-W-D-CB-009	07/22/94	07/28/94	6.21	< 200	< 200	< 200	< 200	1500	< 200	1500
40700971	229-TR-W-C-CB-010	07/22/94	07/28/94	8.06	< 300	< 300	< 300	< 300	2300	< 300	2300
40700972	229-TR-W-C-CB-011	07/22/94	07/28/94	7.37	< 300	< 300	< 300	< 300	2300	< 300	2300
40700973	229-TR-W-C-CB-012	07/22/94	07/28/94	7.47	< 240	< 240	< 240	< 240	1700	< 240	1700
40700974	229-TR-W-D-CB-013	07/22/94	07/28/94	5.85	< 140	< 140	< 140	< 140	880	< 140	880
40700975	229-TR-W-D-CB-014	07/22/94	07/28/94	5.53	< 400	< 400	< 400	< 400	2900	< 400	2900
40700976	229-TR-W-D-CB-015	07/22/94	07/28/94	3.26	< 200	< 200	< 200	< 200	1400	< 200	1400
40700977	229-TR-W-D-CB-016	07/22/94	07/28/94	5.61	< 220	< 220	< 220	< 220	1600	< 220	1600
40700978	229-TR-W-C-CB-017	07/22/94	07/28/94	7.55	< 260	< 260	< 260	< 260	1800	< 260	1800
40700979	229-TR-W-D-CB-018	07/22/94	07/28/94	6.64	< 240	< 240	< 240	< 240	1600	< 240	1600
40700980	229-TR-W-D-CB-019	07/22/94	07/28/94	5.87	< 180	< 180	< 180	< 180	1100	< 180	1100
40700982 MS	229-TR-W-C-CB-017MS	07/22/94	07/28/94	6.84	< 500	< 500	< 500	< 500	3300	< 500	3300
40700983 MSD	229-TR-W-C-CB-017MSD	07/22/94	07/28/94	7.02	< 500	< 500	< 500	< 500	3300	< 500	3300
40701117	229-TR-W-C-CB-007A	07/22/94	07/28/94	5.72	< 180	< 180	< 180	< 180	1100	< 180	1100

Note: Aroclors 1221, 1232, 1016, & 1242 were not present in any of the samples.

SPIKE RECOVERIES

Lab ID	Sample Number	Amount PCB 1254 Spiked ug/Kg	Amount PCB 1260 Spiked ug/Kg	Sample Results for PCB's 1254 ug/Kg	Sample Results for PCB's 1260 ug/Kg	Spiked Results for PCB's 1254 ug/Kg	Spiked Results for PCB's 1260 ug/Kg	% Recovery for PCB's 1254 ug/Kg	% Recovery for PCB's 1260 ug/Kg
C.S. 0511	----------	250				200		80%	
40700982 MS	229-TR-W-C-CB-017MS	2000		1800		3300		75%	
40700983 MSD	229-TR-W-C-CB-017MSD	2000		1800		3300		75%	

(72)

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-TR-W-C-CB-001	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-002	"	"		"		"	1	✓
229-TR-W-D-CB-003	"	"		"		"	1	✓
229-TR-W-C-CB-004	"	"		"		"	1	✓
229-TR-W-D-CB-005	"	"		"		"	1	✓
229-TR-W-D-CB-006	"	"		"		"	1	✓
229-TR-W-C-CB-007	"	"		"		"	1	✓
229-TR-W-C-CB-008	"	"		"		Condition Cold Storage WIC	1	✓
229-TR-W-D-CB-009	"	"		"		Acct # 2984 Attnv WCBE	1	✓
229-TR-W-C-CB-010	"	"		"		" UMK	1	✓
229-TR-W-C-CB-011	"	"		"		Smpl Recv'd JUL 22 1994 UMK	1	✓
229-TR-W-C-CB-012	"	"		"		" 7-25-94	1	✓
229-TR-W-D-CB-013	"	"		"		Date Entered " 4070 0962	1	1083✓
229-TR-W-D-CB-014	"	"		"		Labels "	1	✓
229-TR-W-D-CB-015	"	"		"		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York

LOCATION OF SAMPLE: Tennessee Gas Compressor Station

TEAM LEADER: Hunt TELEPHONE: (504) 751-1873

COMPANY Name: Woodward-Clyde Consultants (WCC)

ADDRESS: 4172 Neal Lane Baton Rouge, LA 70816

WITNESS: [illegible] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES (MATRIX): FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) OTHER (SPECIFY) SOIL (SO)

FIELD NOTES: Sample Processing Time is noted in Label. Collection Times are Noted in the Log Book

TRANSPORTER: Fed Ex AIRBILL/INVOICE: 819627234 4 DESTINATION: Hazleton Laborat 515 Science Drive Madison, WI 53711

NAT

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	Ted A. [illegible]	7/21/94	Samples received on	
	COMPANY:	Woodward-Clyde	1023	ice and in good	
2	NAME:			condition UMK	
	COMPANY:				
3	NAME:			Lynn Kobler	7-22-94
	COMPANY:			THES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-TR-W-D-CB-016	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-017	"	"		"		"	1	✓
229-TR-W-D-CB-018	"	"		"		"	1	✓
229-TR-W-D-CB-019	"	"		"		"	1	✓
229-TR-W-C-CB-020	"	"		"		"	1	✓
229-TR-W-D-CB-021	"	"		"		"	1	✓
229-TR-W-D-CB-022	"	"		"		"	1	✓
229-TR-W-D-C-CB-023	"	"		"		"	1	✓
229-TR-W-C-CB-024	"	"		"		"	1	✓
229-TR-W-C-CB-025	"	"		"		"	1	✓
229-TR-W-D-CB-026	"	"		"		"	1	✓
229-TR-W-D-CB-027	"	"		"		"	1	✓
229-TR-W-D-CB-028	"	"		"		"	1	✓
229-TR-W-D-CB-029	"	"		"		"	1	✓
229-TR-W-C-CB-030	"	"		"		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2882 O'Neal Lane Baton Rouge, LA 70816
WITNESS: [signature] COMPANY NAME: WOODWARD-CLYDE

FIELD INFORMATION:

TYPES OF SAMPLES: (MATRIX) FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) OTHER (SPECIFY) SOIL (SO)

FIELD NOTES: Sample Process and Times are noted on Sample Labels. Collection Times are noted in Log Book

TRANSPORTER: Fed Ex. AIRBILL/INVOICE: 819627344 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	7/21/94	Samples iced on	
	COMPANY:	WOODWARD-CLYDE	1023	ice and in good	
2	NAME:			condition	
	COMPANY:				
3	NAME:			Lynn Bobler	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: DATE: TIME:
COMPANY NAME:
SAMPLE DISPOSITION: STORAGE DISPOSAL OTHER

SDG 2

PCB ANALYSIS SUMMARY

Lab Name : Hazleton Environmental Services
Client : Woodward-Clyde Baton Rouge
Project #: 91B650C

GC Column ID : 3% SP-2100
Instrument ID : HP008A
Matrix : Fish

Lab ID	Sample Number	Date Received	Date Extracted	% Lipid	PCB 1016 ug/Kg	PCB 1221 ug/Kg	PCB 1242 ug/Kg	PCB 1248 ug/Kg	PCB 1254 ug/Kg	PCB 1260 ug/Kg	Total PCB ug/Kg
Blank 0801	----------	----------	08/01/94	0.01	< 20	< 20	< 20	< 20	< 20	< 20	< 20
C.S. 0801	----------	----------	08/01/94	1.43	< 20	< 20	< 20	< 20	200	< 20	200
40700981	229-TR-W-C-CB-020	07/22/94	08/01/94	7.30	< 220	< 220	< 220	< 220	1900	< 220	1900
40700984	229-TR-W-D-CB-021	07/22/94	08/01/94	6.95	< 160	< 160	< 160	< 160	1500	< 160	1500
40700985	229-TR-W-D-CB-022	07/22/94	08/01/94	5.58	< 200	< 200	< 200	< 200	1800	< 200	1800
40700986	229-TR-W-C-CB-023	07/22/94	08/01/94	6.82	< 100	< 100	< 100	< 100	750	< 100	750
40700987	229-TR-W-C-CB-024	07/22/94	08/01/94	5.68	< 220	< 220	< 220	< 220	1800	< 220	1800
40700988	229-TR-W-C-CB-025	07/22/94	08/01/94	5.77	< 80	< 80	< 80	< 80	560	< 80	560
40700989	229-TR-W-D-CB-026	07/22/94	08/01/94	6.81	< 80	< 80	< 80	< 80	460	< 80	460
40700990	229-TR-W-D-CB-027	07/22/94	08/01/94	4.11	< 100	< 100	< 100	< 100	740	< 100	740
40700991	229-TR-W-D-CB-028	07/22/94	08/01/94	5.17	< 60	< 60	< 60	< 60	480	< 60	480
40700992	229-TR-W-D-CB-029	07/22/94	08/01/94	6.14	< 120	< 120	< 120	< 120	1000	< 120	1000
40700993	229-TR-W-C-CB-030	07/22/94	08/01/94	5.66	< 140	< 140	< 140	< 140	1100	< 140	1100
40700994	229-TR-W-D-CB-033	07/22/94	08/01/94	6.57	< 80	< 80	< 80	< 80	570	< 80	570
40700995	229-TR-W-C-CB-031	07/22/94	08/01/94	6.74	< 80	< 80	< 80	< 80	550	< 80	550
40700996	229-TR-W-C-CB-032	07/22/94	08/01/94	5.88	< 100	< 100	< 100	< 100	800	< 100	800
40700997	229-TR-W-D-CB-034	07/22/94	08/01/94	6.14	< 80	< 80	< 80	< 80	550	< 80	550
40700998	229-TR-W-C-CB-035	07/22/94	08/01/94	8.35	< 80	< 80	< 80	< 80	610	< 80	610
40700999	229-TR-W-C-CB-036	07/22/94	08/01/94	5.49	< 100	< 100	< 100	< 100	690	< 100	690
40701000	229-TR-W-D-CB-037	07/22/94	08/01/94	6.21	< 100	< 100	< 100	< 100	710	< 100	710
40701001	229-TR-W-C-CB-038	07/22/94	08/01/94	5.52	< 140	< 140	< 140	< 140	1000	< 140	1000
40701004 MS	229-TR-W-C-CB-038MS	07/22/94	08/01/94	6.56	< 300	< 300	< 300	< 300	2500	< 300	2500
40701005 MSD	229-TR-W-C-CB-038MSD	07/22/94	08/01/94	6.57	< 300	< 300	< 300	< 300	2400	< 300	2400
40701118 DUP	229-TR-W-C-CB-025A	07/22/94	08/01/94	5.80	< 80	< 80	< 80	< 80	600	< 80	600

Note: Aroclors 1221, 1232, 1016, & 1242 were not present in any of the samples.

SPIKE RECOVERIES

Lab ID	Sample Number	Amount PCB 1254 Spiked ug/Kg	Amount PCB 1260 Spiked ug/Kg	Sample Results for PCB's 1254 ug/Kg	Sample Results for PCB's 1260 ug/Kg	Spiked Results for PCB's 1254 ug/Kg	Spiked Results for PCB's 1260 ug/Kg	% Recovery for PCB's 1254 ug/Kg	% Recovery for PCB's 1260 ug/Kg
C.S. 0511	----------	250				200		80%	
40701004 MS	229-TR-W-C-CB-038MS	2000		1000		2500		75%	
40701005 MSD	229-TR-W-C-CB-038MSD	2000		1000		2400		70%	

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-TR-W-D-CB-016	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-017	"	"		"		"	1	✓
229-TR-W-D-CB-018	"	"		"		"	1	✓
229-TR-W-D-CB-019	"	"		"		"	1	✓
229-TR-W-C-CB-020	"	"		"		"	1	✓
229-TR-W-D-CB-021	"	"		"		"	1	✓
229-TR-W-D-CB-022	"	"		"		"	1	✓
229-TR-W-D-C-CB-023	"	"		"		"	1	✓
229-TR-W-C-CB-024	"	"		"		"	1	✓
229-TR-W-C-CB-025	"	"		"		"	1	✓
229-TR-W-D-CB-026	"	"		"		"	1	✓
229-TR-W-D-CB-027	"	"		"		"	1	✓
229-TR-W-D-CB-028	"	"		"		"	1	✓
229-TR-W-D-CB-029	"	"		"		"	1	✓
229-TR-W-C-CB-030	"	"		"		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2882 O'Neal Lane Baton Rouge, LA 70816
WITNESS: [signature] COMPANY NAME: WOODWARD-CLYDE

FIELD INFORMATION:

TYPES OF SAMPLES: (MATRIX) FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) OTHER (SPECIFY) SOIL (SO)
FIELD NOTES: Sample Process. Times are noted on sample labels. Collection times are noted in Log Book
TRANSPORTER: Fed Ex. AIRBILL/INVOICE: 819627344 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	7/21/94	Samples received on	
	COMPANY:	WOODWARD-CLYDE	1023	ice and in good	
2	NAME:			condition	
	COMPANY:				
3	NAME:			Lynn Kobler	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____
COMPANY NAME: _____
SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-TR-W-D-CB-033	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-031	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-032	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-034	FI	07/20		07/20		"	1	✓
229-TR-W-C-CB-035	FI	07/20		07/20		"	1	✓
229-TR-W-C-CB-036	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-037	FI	07/20		07/20		"	1	✓
229-TR-W-C-CB-038	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-039	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-040	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-041	FI	07/20		07/20		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816
WITNESS: [signature] COMPANY NAME: WOODWARD-CLYDE

FIELD INFORMATION:

TYPES OF SAMPLES: FISH (FI) LIQUID (LI) SEDIMENT (SE) SOIL (SO)
(MATRIX) SLUDGE (SL) WIPE (WI) OTHER (SPECIFY)
FIELD NOTES: Sample Processing Times are noted on Labels; Collection Times are noted in Log Book
TRANSPORTER: Fed. Ex AIRBILL/INVOICE: 819631234 4 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	Todd H. Hunt	7/21/94	Samples rec'd on	
	COMPANY:	Woodward-Clyde	1323	ice and in good	
2	NAME:			condition	
	COMPANY:				
3	NAME:			Lynn Kobler	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____
COMPANY NAME: _____
SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

SDG 3

PCB ANALYSIS SUMMARY

Lab Name : Hazleton Environmental Services
Client : Woodward-Clyde Baton Rouge
Project #: 91B650C

GC Column ID : 3% SP-2100
Instrument ID : HP008A
Matrix : Fish

Lab ID	Sample Number	Date Received	Date Extracted	% Lipid	PCB 1016 ug/Kg	PCB 1221 ug/Kg	PCB 1242 ug/Kg	PCB 1248 ug/Kg	PCB 1254 ug/Kg	PCB 1260 ug/Kg	Total PCB ug/Kg
Blank 0813	----------	----------	08/14/94	0.00	< 20	< 20	< 20	< 20	< 20	< 20	< 20
C.S. 08013	----------	----------	08/14/94	0.89	< 20	< 20	< 20	< 20	230	< 20	230
40701002	229-TR-W-D-CB-039	07/22/94	08/14/94	6.25	< 180	< 180	< 180	< 180	1200	< 180	1200
40701003	229-TR-W-D-CB-040	07/22/94	08/14/94	5.71	< 180	< 180	< 180	< 180	1200	< 180	1200
40701006	229-TR-W-D-CB-041	07/22/94	08/14/94	2.30	< 120	< 120	< 120	< 120	720	< 120	720
40701007	229-TR-W-C-BD-001	07/22/94	08/14/94	6.46	< 400	< 400	< 400	< 400	2600	< 400	2600
40701008	229-TR-W-C-BD-002	07/22/94	08/14/94	7.51	< 400	< 400	< 400	< 400	2600	< 400	2600
40701009	229-TR-W-C-BD-003	07/22/94	08/14/94	5.31	< 400	< 400	< 400	< 400	3100	< 400	3100
40701010	229-TR-W-C-BD-004	07/22/94	08/14/94	9.81	< 400	< 400	< 400	< 400	2900	< 400	2900
40701011	229-TR-W-C-BD-005	07/22/94	08/14/94	6.39	< 220	< 220	< 220	< 220	2000	< 220	2000
40701012	229-TR-W-C-BD-006	07/22/94	08/14/94	7.70	< 220	< 220	< 220	< 220	1600	< 220	1600
40701013	229-TR-W-C-BD-007	07/22/94	08/14/94	8.96	< 240	< 240	< 240	< 240	1500	< 240	1500
40701014	229-TR-W-C-BD-008	07/22/94	08/14/94	10.5	< 300	< 300	< 300	< 300	2000	< 300	2000
40701015	229-TR-W-C-BD-009	07/22/94	08/14/94	8.13	< 300	< 300	< 300	< 300	2000	< 300	2000
40701016	229-TR-W-C-BD-010	07/22/94	08/14/94	9.63	< 300	< 300	< 300	< 300	1900	< 300	1900
40701017	229-TR-W-C-BD-011	07/22/94	08/14/94	8.95	< 400	< 400	< 400	< 400	2400	< 400	2400
40701018	229-TR-W-C-BG-001	07/22/94	08/14/94	4.08	< 140	< 140	< 140	< 140	950	< 140	950
40701019	229-TR-W-C-BG-002	07/22/94	08/14/94	4.03	< 120	< 120	< 120	< 120	740	< 120	740
40701020	229-BP-W-D-LB-001	07/22/94	08/14/94	2.19	< 240	< 240	< 240	< 240	1500	< 240	1500
40701021	229-BP-W-D-LB-002	07/22/94	08/14/94	2.56	< 750	< 750	< 750	< 750	5800	< 750	5800
40701022	229-BP-W-D-CB-001	07/22/94	08/14/94	3.67	< 120	< 120	< 120	< 120	800	< 120	800
40701026 MS	229-TR-W-C-BD-010MS	07/22/94	08/14/94	8.37	< 500	< 500	< 500	< 500	3700	< 500	3700
40701027 MS	229-TR-W-C-BD-011MS	07/22/94	08/14/94	7.67	< 500	< 500	< 500	< 500	3900	< 500	3900
40701119 DUP	229-TR-W-C-BD-008A	07/22/94	08/14/94	8.83	< 300	< 300	< 300	< 300	1700	< 300	1700

Note: Aroclors 1221, 1232, 1016, 1242, 1248, & 1260 were not present in any of the samples.

SPIKE RECOVERIES

Lab ID	Sample Number	Amount PCB 1254 Spiked ug/Kg	Amount PCB 1260 Spiked ug/Kg	Sample Results for PCB's 1254 ug/Kg	Sample Results for PCB's 1260 ug/Kg	Spiked Results for PCB's 1254 ug/Kg	Spiked Results for PCB's 1260 ug/Kg	% Recovery for PCB's 1254 ug/Kg	% Recovery for PCB's 1260 ug/Kg
C.S. 00813	----------	250				230		92%	
40701026 MS	229-TR-W-C-BD-010MS	2000		1900		3700		90%	
40701027 MS	229-TR-W-C-BD-011MS	2000		2400		3900		75%	

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-TR-W-D-CB-033	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-031	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-CB-032	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-034	FI	07/20		07/20		"	1	✓
229-TR-W-C-CB-035	FI	07/20		07/20		"	1	✓
229-TR-W-C-CB-036	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-037	FI	07/20		07/20		"	1	✓
229-TR-W-C-CB-038	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-039	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-040	FI	07/20		07/20		"	1	✓
229-TR-W-D-CB-041	FI	07/20		07/20		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816
WITNESS: [signature] COMPANY NAME: WOODWARD-CLYDE

FIELD INFORMATION:

TYPES OF SAMPLES: (MATRIX) FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) SOIL (SO) OTHER (SPECIFY) _____

FIELD NOTES: Sample Processing Times are given on Labels; Collection Times #86 Noted in Log Book

TRANSPORTER: Fed. Ex AIRBILL/INVOICE: 819627234 4 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	Todd H. Hunt	7/21/94	Samples rec'd on	
	COMPANY:	Woodward-Clyde	1023	ice and in good	
2	NAME:			condition	
	COMPANY:				
3	NAME:			Lynn Kohler	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____
COMPANY NAME: _____
SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-TR-W-C-BD-001	FI	07/20		07/20		TRIBUTARY	1	✓
229-TR-W-C-BD-002	"	"		"		"	1	✓
229-TR-W-C-BD-003	"	"		"		"	1	✓
229-TR-W-C-BD-004	"	"		"		"	1	✓
229-TR-W-C-BD-005	"	"		"		"	1	✓
229-TR-W-C-BD-006	"	"		"		"	1	✓
229-TR-W-C-BD-007	"	"		"		"	1	✓
229-TR-W-C-BD-008	"	"		"		"	1	✓
229-TR-W-C-BD-009	"	"		"		"	1	✓
229-TR-W-C-BD-010	"	"		"		"	1	✓
229-TR-W-C-BD-011	"	"		"		"	1	✓
229-TR-W-C-BG-001	"	"		"		"	1	✓
229-TR-W-C-BG-002	"	"		"		"	1	✓
229-BD-W-D-LB-001	"	"		"		BREACH POND	1	✓
229-BD-W-D-LB-002	"	"		"		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816
WITNESS: _____ COMPANY NAME: WOODWARD-CLYDE

FIELD INFORMATION:

TYPES OF SAMPLES: (MATRIX) FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) OTHER (SPECIFY) SOIL (SO)
FIELD NOTES: PROCESSING Times For Each Sample Noted On Sample Label
Collection Times Are Noted In Log Book
TRANSPORTER: FEDEX AIRBILL/INVOICE: 819627235 5 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-33

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	07/21/94	Samples received on	
	COMPANY:	WOODWARD-CLYDE	10:10	ice and in good	
2	NAME:			condition	
	COMPANY:				
3	NAME:			Lynn Kobler	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____
COMPANY NAME: _____
SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED		PROCESSED		SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
		YR: 94 DATE MM/DD	TIME	YR: 94 DATE MM/DD	TIME			
229-BD-W-D-CB-001	FT	07/20		07/20		Breach Pond	1	✓
229-BD-W-C-CB-002	"	"		"		"	1	✓
229-BD-W-C-CB-003	"	"		"		"	1	✓
229-BD-W-C-CB-004	"	"		"		"	1	✓
229-BD-W-C-CB-005	"	07/21		07/21	0700H	"	1	✓
229-BD-W-C-BG-001	"	07/20		07/20		"	1	✓
229-BD-W-C-BG-002	"	07/20		07/20		"	1	✓
229-BD-W-C-BG-003	"	07/20		07/20		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816
WITNESS: Lynn Kadlec COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: (MATRIX) FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) OTHER (SPECIFY) SOIL (SO)
FIELD NOTES: Sample Processing Time is noted on Sample Labels
Collection times are noted in Log Book
TRANSPORTER: FEDEX AIRBILL/INVOICE: 819872355 5 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times)

608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	Tim D. Hunt	07/21/94	Samples rec'd	
	COMPANY:	Woodward-Clyde	10:10	on ice and in	
2	NAME:			good condition. cmk	
	COMPANY:				
3	NAME:			Lynn Kadlec	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____
COMPANY NAME: _____
SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

SDG 4

PCB ANALYSIS SUMMARY

Lab Name : Hazleton Environmental Services
Client : Woodward-Clyde Baton Rouge
Project #: 91B650C

GC Column ID : 3% SP-2100
Instrument ID : HP008A
Matrix : Fish

Lab ID	Sample Number	Date Received	Date Extracted	% Lipid	PCB 1016 ug/Kg	PCB 1221 ug/Kg	PCB 1242 ug/Kg	PCB 1248 ug/Kg	PCB 1254 ug/Kg	PCB 1260 ug/Kg	Total PCB ug/Kg
Blank 0817	----------	----------	08/17/94	0.00	< 20	< 20	< 20	< 20	< 20	< 20	< 20
C.S. 08017	----------	----------	08/17/94	0.79	< 20	< 20	< 20	< 20	200	< 20	200
40701023	229-BP-W-C-CB-002	07/22/94	08/17/94	4.91	< 180	< 180	< 180	< 180	1300	< 180	1300
40701024	229-BP-W-C-CB-003	07/22/94	08/17/94	5.98	< 240	< 240	< 240	< 240	1500	< 240	1500
40701025	229-BP-W-C-CB-004	07/22/94	08/17/94	6.31	< 300	< 300	< 300	< 300	2100	< 300	2100
40701028	229-BP-W-C-CB-005	07/22/94	08/17/94	6.22	< 220	< 220	< 220	< 220	1700	< 220	1700
40701029	229-BP-W-C-BG-001	07/22/94	08/17/94	3.62	< 200	< 200	< 200	< 200	1200	< 200	1200
40701030	229-BP-W-C-BG-002	07/22/94	08/17/94	4.07	< 200	< 200	< 200	< 200	1500	< 200	1500
40701031	229-BP-W-C-BG-003	07/22/94	08/17/94	3.50	< 400	< 400	< 400	< 400	2200	< 400	2200
40701032MS	229-BP-W-C-BG-003MS	07/22/94	08/17/94	3.29	< 500	< 500	< 500	< 500	3700	< 500	3700
40701033MS	229-BP-W-C-CB-002MS	07/22/94	08/17/94	5.12	< 400	< 400	< 400	< 400	3100	< 400	3100
40701120DUP	229-BP-W-C-BG-002A	07/22/94	08/17/94	3.92	< 200	< 200	< 200	< 200	1400	< 200	1400

Note: Aroclors 1221, 1232, 1016, 1242, 1248, & 1260 were not present in any of the samples.

SPIKE RECOVERIES

Lab ID	Sample Number	Amount PCB 1254 Spiked ug/Kg	Amount PCB 1260 Spiked ug/Kg	Sample Results for PCB's 1254 ug/Kg	Sample Results for PCB's 1260 ug/Kg	Spiked Results for PCB's 1254 ug/Kg	Spiked Results for PCB's 1260 ug/Kg	% Recovery for PCB's 1254	% Recovery for PCB's 1260
C.S. 00813	----------	250				200		80%	
40701032MS	229-BP-W-C-BG-003MS	2000		2200		3700		75%	
40701033MS	229-BP-W-C-CB-002MS	2000	1300 1500			3100		80%	

cew/WCC
09/20/94

Woodward-Clyde Consultants

TENNESSEE GAS PIPELINE
CHAIN - OF - CUSTODY RECORD

STATION NO. 229

SAMPLE NO.	MATRIX	COLLECTED YR: 94 DATE MM/DD	COLLECTED TIME	PROCESSED YR: 94 DATE MM/DD	PROCESSED TIME	SAMPLE LOCATION	TOTAL NO. CONTAINERS	PCB % LIPID
229-BD-W-D-CB-001	ET	07/20		07/20		Breach Pond	1	✓
229-BD-W-C-CB-002	"	"		"		"	1	✓
229-BD-W-C-CB-003	"	"		"		"	1	✓
229-BD-W-C-CB-004	"	"		"		"	1	✓
229-BD-W-C-CB-005	"	07/21		07/21	0700H	"	1	✓
229-BD-W-C-B6-001	"	07/20		07/20		"	1	✓
229-BD-W-C-B6-002	"	07/20		07/20		"	1	✓
229-BD-W-C-B6-003	"	07/20		07/20		"	1	✓

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Station 229 Fish Sampling Eden, New York
LOCATION OF SAMPLE: Tennessee Gas Compressor Station
TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873
COMPANY NAME: Woodward-Clyde Consultants (WCC)
ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816
WITNESS: [illegible] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: (MATRIX) FISH (FI) SLUDGE (SL) LIQUID (LI) WIPE (WI) SEDIMENT (SE) OTHER (SPECIFY) SOIL (SO)

FIELD NOTES: Sample Processing Time is noted on Sample Labels
Collection times are noted in Log Book

TRANSPORTER: FEDEX AIRBILL/INVOICE: 919272355 DESTINATION: Hazleton Laborat
515 Science Drive Madison, WI 53711

SAMPLE TRANSFER (Original must be retained with sample at all times) 608-232-330

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	T. Hunt	07/21/94	Samples rec'd	
	COMPANY:	Woodward-Clyde	10:10	on ice and in	
2	NAME:			good condition. [illegible]	
	COMPANY:				
3	NAME:			Lynn Kobler	7-22-94
	COMPANY:			HES Inc	1000A

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____
COMPANY NAME: _____
SAMPLE DISPOSITION: STORAGE _____ DISPOSAL _____ OTHER _____

APPENDIX B

PCB ANALYTICAL DATA PACKAGE FROM PACE LABORATORIES FOR SEDIMENT SAMPLES COLLECTED FROM A TRIBUTARY NEAR TENNESSEE GAS COMPRESSOR STATION 229 NEAR EDEN, NEW YORK DURING JULY 1994

DATE: January 9, 1995

TO: Douglas R. Hahn

FROM: Charlie E. Westerman and Anna K. Saucier

SUBJECT: Analytical Data Review for Sediment Samples
Tennessee Gas Pipeline Station 229
Eden, New York
July 1994
File: 91B650C-A

Introduction

This analytical data review applies to sediment samples collected by Woodward-Clyde Consultants (WCC) July 21, 1994 from a reach of an unnamed tributary of Eighteenmile Creek near the Tennessee Gas Pipeline Compressor Station 229 near Eden, New York. The analytical results were provided as three individual sample delivery groups (SDGs) or data reports.

Aroclor PCB data were acquired according to analytical protocols similar to that presented in U. S. EPA Contract Laboratory Program Statement of Work for Organic Analysis Multi-Media Multi-Concentration (Document Number OLM01.0 with Revisions OLM01.1 through OLM01.8, Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D. C., 1991). (aka SOW OLM01.1). The modifications applied to these protocols are summarized in the following discussion. An additional sulfuric acid wash cleanup was performed on the solvent extracts during the sample preparation stage. An additional Aroclor 1254 continuing calibration verification standard was analyzed periodically throughout the analytical run sequence. Aroclor 1254 was substituted for the six single component pesticide analytes for the matrix spike/matrix spike duplicate samples. The Aroclor PCB reporting limits of 100 ug/kg on a wet weight basis were employed to be consistent with the Consent Order. All sample results were reported on a dry weight basis.

Sulfuric acid washes are frequently employed to remove many common organic interferences from solvent extracts prior to Aroclor PCB analyses. As Aroclor PCBs were the analytes of interest, utilization of Aroclor 1254 calibration standards and matrix spikes was appropriate.

Validation of the Aroclor PCB data were performed according to applicable criteria in the draft Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D. C., 1990, Revised February 1, 1988). (aka Organic Functional Guidelines, respectively).

SOWOLM01.0 provides only aqueous and soil analytical protocols. All samples were designated as either water or soil for reporting purposes. The sediment samples were reported as soils.

The following areas were reviewed during the data validation process:

Holding Times

GC/ECD Instrument Performance Checks

Initial Calibrations

Continuing Calibrations

Blanks

Surrogate Spikes

Matrix Spike/Matrix Spike Duplicates

Laboratory Control Samples

Regional Quality Assurance and Quality Control

Pesticide Cleanup Checks

Target Compound Identification

Aroclor Quantitation and Reported Quantitation Limits

Overall Assessment of Data

Documentation

All laboratory results were either accepted (unqualified), qualified, or rejected. Accepted (unqualified) results are valid with respect to the specified procedures and may be used without reservation. Qualified results are usable with the indicated limitation. Rejected results are unusable, and the analyte may or may not be present. Resampling and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

Qualified and rejected results were annotated according to Functional Guidelines conventions employing the following codes:

U - The analyte was analyzed for, but was not detected above the associated numerical value.

J - The associated numerical value was an estimated quantity.

R - The data were unusable. The presence or absence of the analyte could not be verified from the existing data. Resampling and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

N - There was presumptive evidence to make a tentative identification.

NJ - There was presumptive evidence to make a tentative identification, and the associated numerical value was an estimated quantity.

UJ - The analyte was analyzed for, but was not detected above the reported value. The associated numerical value was an estimate.

SDG 1

This report applies to the analytical data associated with 18 sediment samples collected by WCC from a reach of an unnamed tributary of Eighteenmile Creek near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 21, 1994. The samples were relinquished by WCC on July 22, 1994 under documented chain-of-custody (COC) for transport to Pace Incorporated (Pace) in New Orleans, Louisiana.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection. There are not any EPA-specified holding times for nonaqueous samples. All sediment samples, considered in the present validation report, were extracted within 64 days from the date of collection and 50 days beyond the customary 14-day holding time. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

The samples were initially extracted and analyzed within the specified holding times. However, many of the chromatograms for these solvent extracts exhibited broad unresolved chromatographic humps or elevated chromatographic baselines. These solvent extracts had been subjected to only a sulfuric acid cleanup. By the time the associated data were received and reviewed, the sample extracts were not available for further cleanup and reanalysis. WCC requested that the Pace reextract and reanalyze all the samples. The reextracted sample extracts were subjected to all mandatory cleanup steps specified in SOW OLM01.1, as well as the additional sulfuric acid cleanup and are considered the primary data. The original data were not subjected to data validation and are not included in the present report.

The 64-day period prior to solvent extraction of the samples is not expected to have any adverse impact on the reported Aroclor PCB concentrations as evidenced by the results of a recent EPA-sponsored interlaboratory study for the determination of PCBs in environmentally contaminated sediments. The results of this study (Analytical Chemistry, Volume 57, Number 13, pages 2452 through 2457, 1985) reported that the storage of the sediment samples for periods of months prior to analysis did not alter the Aroclor PCB composition. This study employed contaminated sediments from New Bedford Harbor which contained mixed Aroclor 1242 and Aroclor 1254 at total PCB concentrations ranging from approximately 0.2 to 50 mg/kg. The article stated that

"Some GC/MS analyses were not performed until 10 months after sample collection. Reanalysis of the sediment samples in the authors' laboratory (Ann L. Alford-Stevens, William L. Budde, and Thomas A Bellar) did not, however, indicate any change in Aroclor composition during 5 months of storage."

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

GC/ECD INSTRUMENT PERFORMANCE CHECKS

Compliant instrument performance was demonstrated with each column with each instrument utilized for standards, samples or associated quality control samples.

All two-column Aroclor PCB work was performed such that a single injection of each standard solution or sample extract into the gas chromatograph injection was split onto DB-608 and DB-1701 chromatographic columns to provide simultaneous analyses.

Chromatographic retention time checks and the 4,4'-DDT and endrin breakdown checks with the Performance Evaluation Mixture (PEM) were performed.

The chromatographic resolution achieved for each component of the Resolution Check Mixture (RCM) at the beginning of each initial calibration sequence provided a valley that was 60.0 percent or greater of the shorter of any two adjacent peaks.

Chromatographic retention time checks and the 4,4'-DDT and endrin breakdown checks with the Performance Evaluation Mixture (PEM) were performed. The absolute retention time for each single component pesticide and surrogate in the PEM fell within the retention time window established for the three-point initial calibration. The breakdown of 4,4'-DDT and endrin in the PEM individually was less than 20 percent, and the combined breakdown was less than 30 percent.

None of the data were qualified as estimated or rejected as unusable due to noncompliant instrument performance.

INITIAL CALIBRATIONS

The specified initial calibration sequence was followed. Each GC/ECD and each GC column employed for samples or associated quality control samples was calibrated at three concentration levels (low, medium and high) for the single component pesticides and a single concentration level for the multi-component analytes. The medium concentration level standard was 4 times that for the low and the high was 16 times that for the low. Each calibration standard contained the surrogate compounds, tetrachloro-meta-xylene (TMX) and decachlorobiphenyl (DCB).

The initial calibrations were summarized as follows:

GC/ECD Instrument ID	GC Column	Date	Time
GCI-A GCI-B	DB-608 DB-1701	09/30/94	1414

The results of the data validation procedure for the initial calibrations were summarized as follows:

The chromatographic resolution achieved for any two adjacent components of the RCM at the beginning of each initial calibration sequence was 60.0 percent or greater.

The chromatographic resolution achieved for any two adjacent components of the PEM at the beginning of each initial calibration sequence was 100 percent.

The chromatographic resolution achieved on each column for each component of the midpoint Individual Standard Mixtures A and B (Individual A and B) provided a valley that was 90.0 percent or greater of the shorter of any two adjacent peaks. None of the data were qualified as estimated or rejected as unusable due to the resolution achieved for this initial calibration.

All percent relative standard deviations (%RSDs) for the surrogates TMX and DCB were less than or equal to 30.0 percent. All percent relative standard deviations for

target compounds were less than or equal 30.0 percent with not more than two exceeding 20.0 percent.

None of the data were qualified as estimated or rejected as unusable due to this initial calibration.

CONTINUING CALIBRATIONS

The specified continuing calibration sequence was generally followed with the inclusion of an additional Aroclor 1254 standard following the appropriate specified Individual A or B or PEM Standard. The continuing calibration for each GC/ECD and each GC column was verified for each subsequent shift of 12 hours or less in which samples or associated quality control samples were analyzed. The continuing calibration verification was performed with the PEM or the midpoint Individual A and B and an Aroclor 1254 standard. Each calibration standard contained the surrogates, TMX and DCB.

The continuing calibrations for the initial calibration of instruments GCI-A and GCI-B starting on 09/30/94 were summarized as follows:

GC/ECD Instrument ID	GC Column	Date	Time
GCI-A	DB-608	10/01/94	0640
GCI-B	DB-1701	10/01/94	
GCI-A	DB-608	10/01/94	0714
GCI-B	DB-1701	10/01/94	
GCI-A	DB-608	10/01/94	0748
GCI-B	DB-1701	10/01/94	
GCI-A	DB-608	10/01/94	1358
GCI-B	DB-1701	10/01/94	
GCI-A	DB-608	10/02/94	1407
GCI-B	DB-1701	10/02/94	
GCI-A	DB-608	10/02/94	1441
GCI-B	DB-1701	10/02/94	
GCI-A	DB-608	10/02/94	1515
GCI-B	DB-1701	10/03/94	
GCI-A	DB-608	10/03/94	0310
GCI-B	DB-1701	10/03/94	

The results of the data validation procedure for the continuing calibrations were summarized as follows:

The chromatographic resolution achieved for each component of the midpoint Individual A and B provided a valley that was 90.0 percent or greater of the shorter of any two adjacent peaks. None of the data were qualified as estimated or rejected as unusable due to the resolution achieved for this continuing calibration.

The absolute retention time for each single component pesticide and the surrogates TMX and DCB in the Individual A and B fell within the retention time window established for the three-point initial calibration. The absolute retention time for Aroclor 1254 and the surrogates TMX and DCB in the Aroclor 1254 continuing calibration standard fell within the retention time window established for the initial calibration. None of the data were qualified as estimated or rejected as unusable due to retention time shifts.

All relative percent differences (RPDs) for target compound and the surrogates TMX and DCB amounts in the midpoint concentration Individual Standard Mixtures A and B and the Aroclor 1254 continuing calibration verification standard were less than or equal to 25.0 percent. None of the data were qualified as estimated or rejected as unusable due to RPDs for this continuing calibration.

None of the data were qualified as estimated or rejected as unusable due to for this continuing calibration.

BLANKS

A method blank was processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed.

The following method blank was associated with this SDG:

Blank ID	Matrix	Date Extracted	Instrument ID	Date	Time
PBLK01	Soil	09/23/94	GCI-A GCI-B	10/01/94	1510

None of the Aroclor PCBs were reported with this method blank.

A rinsate blank was not associated with these samples.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE SPIKES

All surrogate percent recoveries (%Rs) were within the specified 60 to 150 percent advisory quality control limits with the following exceptions:

Sample ID	Surrogate	GC Column	%R
229SDPCB049	TMX	DB-608	44
		DB-1701	38
	DCB	DB-608	50
		DB-1701	46

The Aroclor PCB data for sample 229SDPCB049 were qualified as estimated "UJ" based on the low surrogate recoveries. None of the other data were qualified as estimated or rejected as unusable based on surrogate recovery.

The TMX and DCB surrogate retention times for the PEM were within $\pm$0.10 minutes of the corresponding retention times established with the initial calibration.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

One matrix spike/matrix spike duplicate (MS/MSD) sample pair, 229SDPCB056MS and 229SDPCB056MSD, spiked with Aroclor 1254 at 490 ug/kg, was associated with these samples.

The MS/MSD %Rs for Aroclor 1254 were 84 and 100 percent, respectively. The RPD was 14 percent.

MS %R and RPD control limits for Aroclor PCBs were not specified in SOWOLM01.0. The reported MS %Rs and RPD were within the Pace-quoted control limits.

None of the data were qualified as estimated or rejected as unusable based on MS/MSD %Rs or RPDs.

LABORATORY CONTROL SAMPLES

Laboratory control samples (LCSs) were not employed.

None of the data were qualified as estimated or rejected as unusable based on the absence of LCS recoveries.

FIELD DUPLICATES

A sample/field duplicate sample pair was not associated with these samples.

One sample/laboratory duplicate or matrix duplicate (MD) sample pair, 229SDPCB036A and 229SDPCB036B, was associated with these samples and the Aroclor PCB results were all nondetects.

None of the data were qualified as estimated or rejected as unusable based on the absence of field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data. All reported Aroclor PCB results were confirmed on a second column.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The Aroclor PCB reporting limits were of 100 ug/kg on a wet weight basis were employed to be consistent with the Consent Order. The reported sample results were reported on a dry weight basis.

OVERALL ASSESSMENT

None of the Aroclor PCB data for this SDG, other than for sample 229SDPCB049, were qualified as estimated. The Aroclor PCB data for sample 229SDPCB049 were qualified estimated "UJ." None of the Aroclor PCB data for this SDG were qualified as estimated or rejected as unusable. Aroclor PCBs were not reported present in any associated samples. Aroclor PCBs were not reported present in samples when the concentrations were below the quoted reporting limits.

Concerns other than those discussed were not encountered during the data validation process.

The final Pesticide Organics Analysis Data Sheets following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

SDG 2

This report applies to the analytical data associated with 20 sediment samples collected by WCC from a reach of an unnamed tributary of Eighteenmile Creek near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 21, 1994. The samples were relinquished by WCC on July 22, 1994 under documented COC for transport to Pace in New Orleans, Louisiana.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection. There are not any EPA-specified holding times for nonaqueous samples. All sediment samples, considered in the present validation report, were extracted within 72 days from the date of collection and 58 days beyond the customary 14-day holding time. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

The samples were initially extracted and analyzed within the specified holding times. However, many of the chromatograms for these solvent extracts exhibited broad unresolved chromatographic humps or elevated chromatographic baselines. These solvent extracts had been subjected to only a sulfuric acid cleanup. By the time the associated data were received and reviewed, the sample extracts were not available for further cleanup and reanalysis. WCC requested that the Pace reextract and reanalyze all the samples. The reextracted sample extracts were subjected to all mandatory cleanup steps specified in SOW OLM01.1, as well as the additional sulfuric acid cleanup are considered the primary data. The original data were not subjected to data validation and are not included in the present report.

The 72-day period prior to solvent extraction of the samples is not expected to have any adverse impact on the reported Aroclor PCB concentrations as evidenced by the results of a recent EPA-sponsored interlaboratory study for the determination of PCBs in environmentally contaminated sediments. The results of this study (Analytical Chemistry, Volume 57, Number 13, pages 2452 through 2457, 1985) reported that the storage of the sediment samples for periods of months prior to analysis did not alter the Aroclor PCB composition. This study employed contaminated sediments from New Bedford Harbor which contained mixed Aroclor 1242 and Aroclor 1254 at total PCB concentrations ranging from approximately 0.2 to 50 mg/kg. The article stated that

"Some GC/MS analyses were not performed until 10 months after sample collection. Reanalysis of the sediment samples in the authors' laboratory (Ann L. Alford-Stevens, William L. Budde, and Thomas A Bellar) did not, however, indicate any change in Aroclor composition during 5 months of storage."

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

GC/ECD INSTRUMENT PERFORMANCE CHECK

Compliant instrument performance was demonstrated with each column with each instrument utilized for standards, samples or associated quality control samples.

All two-column Aroclor PCB work was performed such that a single injection of each standard solution or sample extract into the gas chromatograph injection was split onto DB-608 and DB-1701 chromatographic columns to provide simultaneous analyses.

Chromatographic retention time checks and the 4,4'-DDT and endrin breakdown checks with the PEM were performed.

The chromatographic resolution achieved for each component of the RCM at the beginning of each initial calibration sequence provided a valley that was 60.0 percent or greater of the shorter of any two adjacent peaks.

Chromatographic retention time checks and the 4,4'-DDT and endrin breakdown checks with the PEM were performed. The absolute retention time for each single component pesticide and surrogate in the PEM fell within the retention time window established for the three-point initial calibration. The breakdown of 4,4'-DDT and endrin in the PEM individually was less than 20 percent and the combined breakdown was less than 30 percent.

None of the data were qualified as estimated or rejected as unusable due to noncompliant instrument performance.

INITIAL CALIBRATIONS

The specified initial calibration sequence was followed. Each GC/ECD and each GC column employed for samples or associated quality control samples was calibrated at three concentration levels (low, medium and high) for the single component pesticides and a single concentration level for the multi-component analytes. The medium concentration level standard was 4 times that for the low and the high was 16 times that for the low. Each calibration standard contained the surrogate compounds, TMX and DCB.

The initial calibrations were summarized as follows:

GC/ECD Instrument ID	GC Column	Date	Time
GCI-A GCI-B	DB-608 DB-1701	10/04/94	1934

The results of the data validation procedure for the initial calibrations were summarized as follows:

The chromatographic resolution achieved for any two adjacent components of the RCM at the beginning of each initial calibration sequence was 60.0 percent or greater.

The chromatographic resolution achieved for any two adjacent components of the PEM at the beginning of each initial calibration sequence was 100 percent.

The chromatographic resolution achieved on each column for each component of the midpoint Individual A and B provided a valley that was 90.0 percent or greater of the shorter of any two adjacent peaks. None of the data were qualified as estimated or rejected as unusable due to the resolution achieved for this initial calibration.

All %RSDs for the surrogates TMX and DCB were less than or equal to 30.0 percent. All percent relative standard deviations for target compounds were less than or equal 30.0 percent with not more than two exceeding 20.0 percent.

None of the data were qualified as estimated or rejected as unusable due to this initial calibration.

CONTINUING CALIBRATION

The specified continuing calibration sequence was generally followed with the inclusion of an additional Aroclor 1254 standard following the appropriate specified Individual A or B or PEM Standard. The continuing calibration for each GC/ECD and each GC column was verified for each subsequent shift of 12 or fewer hours in which samples or associated quality control samples were analyzed. The continuing calibration verification was performed with the PEM or the midpoint Individual A and B and an Aroclor 1254 standard. Each calibration standard contained the surrogates, TMX and DCB.

The continuing calibrations for the initial calibration of instruments GCI-A and GCI-B starting on 10/04/94 were summarized as follows:

GC/ECD Instrument ID	GC Column	Date	Time
GCI-A	DB-608	10/05/94	1431
GCI-B	DB-1701	10/05/94	
GCI-A	DB-608	10/06/94	1503
GCI-B	DB-1701	10/06/94	
GCI-A	DB-608	10/06/94	1235
GCI-B	DB-1701	10/06/94	
GCI-A	DB-608	10/06/94	1308
GCI-B	DB-1701	10/06/94	
GCI-A	DB-608	10/07/94	1209
GCI-B	DB-1701	10/07/94	
GCI-A	DB-608	10/07/94	1620
GCI-B	DB-1701	10/07/94	
GCI-A	DB-608	10/08/94	0310
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	0340
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	0415
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	1425
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	2126
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	2159
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	2231
GCI-B	DB-1701	10/08/94	

The results of the data validation procedure for the continuing calibrations were summarized as follows:

The chromatographic resolution achieved for each component of the midpoint Individual A and B provided a valley that was 90.0 percent or greater of the shorter of any two adjacent peaks. None of the data were qualified as estimated or rejected as unusable due to the resolution achieved for this continuing calibration.

The absolute retention time for each single component pesticide and the surrogates TMX and DCB in the Individual A and B fell within the retention time window established for the three-point initial calibration. The absolute retention time for Aroclor 1254 and the surrogates TMX and DCB in the Aroclor 1254 continuing calibration standard fell within the retention time window established for the initial calibration. None of the data were qualified as estimated or rejected as unusable due to retention time shifts.

All RPDs for target compound and the surrogates TMX and DCB amounts in the midpoint concentration Individual Standard Mixtures A and B and the Aroclor 1254 continuing calibration verification standard were less than or equal to 25.0 percent. None of the data were qualified as estimated or rejected as unusable due to RPDs for this continuing calibration.

None of the data were qualified as estimated or rejected as unusable due to this continuing calibration.

BLANKS

A method blank was processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed.

The following method blanks were associated with this SDG:

Blank ID	Matrix	Date Extracted	Instrument ID	Date	Time
PBLK1	Soil	10/01/94	GCI-A GCI-B	10/07/94	1653
PBLK2	Soil	10/01/94	GCI-A GCI-B	10/08/94	1214

None of the Aroclor PCBs were reported with these method blanks.

A rinsate blank was not associated with these samples.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE SPIKES

All surrogate percent recoveries (%Rs) were within the specified 60 to 150 percent advisory quality control limits. None of the data were qualified as estimated or rejected as unuseable based on surrogate recovery.

The TMX and DCB surrogate retention times for the PEM were within ± 0.10 minutes of the corresponding retention times established with the initial calibration.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

One matrix spike/matrix spike duplicate (MS/MSD) sample pair, 229SDPCB016MS and 229SDPCB016MSD, spiked with Aroclor 1254 at 432 ug/kg, was associated with these samples.

The MS/MSD %Rs for Aroclor 1254 were 73 and 76 percent, respectively. The RPD was 4 percent.

MS %R and RPD control limits were not specified in SOWOLM01.0. The reported MS %Rs and RPD were within the Pace-quoted control limits.

None of the data were qualified as estimated or rejected as unusable based on MS/MSD %Rs or RPDs.

LABORATORY CONTROL SAMPLES

Laboratory control samples (LCSs) were not employed.

None of the data were qualified as estimated or rejected as unusable based on the absence of LCS recoveries.

FIELD DUPLICATES

A sample/field duplicate sample pair was not associated with these samples.

One sample/laboratory duplicate or matrix duplicate (MD) sample pair, 229SDPCB014A and 229SDPCB014B, was associated with these samples and the Aroclor PCB results were all nondetects.

None of the data were qualified as estimated or rejected as unusable based on the absence of field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data. All reported Aroclor PCB results were confirmed by a second column.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The Aroclor PCB reporting limits of 100 ug/kg on a wet weight basis were employed to be consistent with the Consent Order. The reported sample results were reported on a dry weight basis.

OVERALL ASSESSMENT

None of the Aroclor PCB data for this SDG were qualified as estimated or rejected as unusable. Aroclor 1254 was reported present in only one associated sample. Aroclor PCBs were not reported present in samples when the concentrations were below the quoted reporting limits.

Concerns other than those discussed were not encountered during the data validation process.

The final Pesticide Organics Analysis Data Sheets following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

SDG 3

This report applies to the analytical data associated with 19 sediment samples collected by WCC from a reach of an unnamed tributary of Eighteenmile Creek near Tennessee Gas Pipeline Compressor Station 229 near Eden, New York on July 21, 1994. The samples were relinquished by WCC on July 22, 1994 under documented COC for transport to Pace in New Orleans, Louisiana.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection. There are not any EPA-specified holding times for nonaqueous samples. All sediment samples, considered in the present validation report, were extracted within 84 days from the date of collection and 70 days beyond the customary 14-day holding time. The resulting solvent extracts were analyzed within a 40-day holding time from the date of extraction.

The samples were initially extracted and analyzed within the specified holding times. However, many of the chromatograms for these solvent extracts exhibited broad unresolved chromatographic humps or elevated chromatographic baselines. These solvent extracts had been subjected to only a sulfuric acid cleanup. By the time the associated data were received and reviewed, the sample extracts were not available for further cleanup and reanalysis. WCC requested that the Pace reextract and reanalyze all the samples. The reextracted sample extracts were subjected to all mandatory cleanup steps specified in SOW OLM01.1, as well as the additional sulfuric acid cleanup are considered the primary data. The original data were not subjected to data validation and are not included in the present report.

The 84-day period prior to solvent extraction of the samples is not expected to have any adverse impact on the reported Aroclor PCB concentrations as evidenced by the results of a recent EPA-sponsored interlaboratory study for the determination of PCBs in environmentally contaminated sediments. The results of this study (Analytical Chemistry, Volume 57, Number 13, pages 2452 through 2457, 1985) reported that the storage of the sediment samples for periods of months prior to analysis did not alter the Aroclor PCB composition. This study employed contaminated sediments from New Bedford Harbor which contained mixed Aroclor 1242 and Aroclor 1254 at total PCB concentrations ranging from approximately 0.2 to 50 mg/kg. The article stated that

"Some GC/MS analyses were not performed until 10 months after sample collection. Reanalysis of the sediment samples in the authors' laboratory (Ann L. Alford-Stevens, William L. Budde, and Thomas A Bellar) did not, however, indicate any change in Aroclor composition during 5 months of storage."

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

GC/ECD INSTRUMENT PERFORMANCE CHECK

Compliant instrument performance was demonstrated with each column with each instrument utilized for standards, samples or associated quality control samples.

All two-column Aroclor PCB work was performed such that a single injection of each standard solution or sample extract into the gas chromatograph injection was split onto DB-608 and DB-1701 chromatographic columns to provide simultaneous analyses.

Chromatographic retention time checks and the 4,4'-DDT and endrin breakdown checks with the PEM were performed.

The chromatographic resolution achieved for each component of the RCM at the beginning of each initial calibration sequence provided a valley that was 60.0 percent or greater of the shorter of any two adjacent peaks.

Chromatographic retention time checks and the 4,4'-DDT and endrin breakdown checks with the PEM were performed. The absolute retention time for each single component pesticide and surrogate in the PEM fell within the retention time window established for the three-point initial calibration. The breakdown of 4,4'-DDT and endrin in the PEM individually was less than 20 percent and the combined breakdown was less than 30 percent.

None of the data were qualified as estimated or rejected as unusable due to noncompliant instrument performance.

INITIAL CALIBRATIONS

The specified initial calibration sequence was followed. Each GC/ECD and each GC column employed for samples or associated quality control samples was calibrated at three concentration levels (low, medium and high) for the single component pesticides and a single concentration level for the multi-component analytes. The medium concentration level standard was 4 times that for the low and the high was 16 times that for the low. Each calibration standard contained the surrogate compounds, TMX and DCB.

The initial calibrations were summarized as follows:

GC/ECD Instrument ID	GC Column	Date	Time
GCI-A GCI-B	DB-608 DB-1701	10/04/94	1934

The results of the data validation procedure for the initial calibrations were summarized as follows:

The chromatographic resolution achieved for any two adjacent components of the RCM at the beginning of each initial calibration sequence was 60.0 percent or greater.

The chromatographic resolution achieved for any two adjacent components of the PEM at the beginning of each initial calibration sequence was 100 percent.

The chromatographic resolution achieved on each column for each component of the midpoint Individual A and B provided a valley that was 90.0 percent or greater of the shorter of any two adjacent peaks. None of the data were qualified as estimated or rejected as unusable due to the resolution achieved for this initial calibration.

All %RSDs for the surrogates TMX and DCB were less than or equal to 30.0 percent. All percent relative standard deviations for target compounds were less than or equal 30.0 percent with not more than two exceeding 20.0 percent.

None of the data were qualified as estimated or rejected as unusable due to this initial calibration.

CONTINUING CALIBRATION

The specified continuing calibration sequence was generally followed with the inclusion of an additional Aroclor 1254 standard following the appropriate specified Individual A or B or PEM Standard. The continuing calibration for each GC/ECD and each GC column was verified for each subsequent shift of 12 or fewer hours in which samples or associated quality control samples were analyzed. The continuing calibration verification was performed with the PEM or the midpoint Individual A and B and an Aroclor 1254 standard. Each calibration standard contained the surrogates, TMX and DCB.

The continuing calibrations for the initial calibration of instruments GCI-A and GCI-B starting on 10/04/94 were summarized as follows:

GC/ECD Instrument ID	GC Column	Date	Time
GCI-A	DB-608	10/05/94	1431
GCI-B	DB-1701	10/05/94	
GCI-A	DB-608	10/06/94	1503
GCI-B	DB-1701	10/06/94	
GCI-A	DB-608	10/06/94	1235
GCI-B	DB-1701	10/06/94	
GCI-A	DB-608	10/06/94	1308
GCI-B	DB-1701	10/06/94	
GCI-A	DB-608	10/07/94	1209
GCI-B	DB-1701	10/07/94	
GCI-A	DB-608	10/07/94	1620
GCI-B	DB-1701	10/07/94	
GCI-A	DB-608	10/08/94	0310
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	0342
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	0415
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	1424
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	2126
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	2159
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/08/94	2231
GCI-B	DB-1701	10/08/94	
GCI-A	DB-608	10/15/94	1000
GCI-B	DB-1701	10/15/94	
GCI-A	DB-608	10/15/94	2227
GCI-B	DB-1701	10/15/94	
GCI-A	DB-608	10/15/94	2300
GCI-B	DB-1701	10/15/94	

The results of the data validation procedure for the continuing calibrations were summarized as follows:

The chromatographic resolution achieved for each component of the midpoint Individual A and B provided a valley that was 90.0 percent or greater of the shorter of any two adjacent peaks. None of the data were qualified as estimated or rejected as unusable due to the resolution achieved for this continuing calibration.

The absolute retention time for each single component pesticide and the surrogates TMX and DCB in the Individual A and B fell within the retention time window established for the three-point initial calibration. The absolute retention time for Aroclor 1254 and the surrogates TMX and DCB in the Aroclor 1254 continuing calibration standard fell within the retention time window established for the initial calibration. None of the data were qualified as estimated or rejected as unusable due to retention time shifts.

All RPDs for target compound and the surrogates TMX and DCB amounts in the midpoint concentration Individual Standard Mixtures A and B and the Aroclor 1254 continuing calibration verification standard were less than or equal to 25.0 percent. None of the data were qualified as estimated or rejected as unusable due to RPDs for this continuing calibration.

None of the data were qualified as estimated or rejected as unusable due to this continuing calibration.

BLANKS

A method blank was processed with a frequency of one per 20 or fewer samples of a similar matrix or each time sample preparation was performed.

The following method blanks were associated with this SDG:

Blank ID	Matrix	Date Extracted	Instrument ID	Date	Time
PBLK1	Soil	10/01/94	GCI-A GCI-B	10/07/94	1653
PBLK2	Soil	10/01/94	GCI-A GCI-B	10/08/94	1214

None of the Aroclor PCBs were reported with these method blanks.

A rinsate blank was not associated with these samples.

None of the data were qualified as estimated or rejected as unusable based on blanks.

SURROGATE SPIKES

All surrogate percent recoveries (%Rs) were within the specified 60 to 150 percent advisory quality control limits with the following exceptions:

Sample ID	Surrogate	GC Column	%R
229SDPCB045A	TMX	DB-608	48
		DB-1701	45
	DCB	DB-608	58
		DB-1701	52

The Aroclor PCB data for sample 229SDPCB045A were qualified as estimated "UJ" based on the low surrogate recoveries. None of the other data were qualified as estimated or rejected as unusable based on surrogate recovery. There was no apparent explanation for the low surrogate %Rs as those for the associated matrix duplicate, MD, 229SDPCB045B, were all within the advisory control limits.

The TMX and DCB surrogate retention times for the PEM were within $\pm$0.10 minutes of the corresponding retention times established with the initial calibration.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

One matrix spike/matrix spike duplicate (MS/MSD) sample pair, 229SDPCB056MS and 229SDPCB056MSD, spiked with Aroclor 1254 at 420 ug/kg, was associated with these samples.

The MS/MSD %Rs for Aroclor 1254 were 76 and 91 percent, respectively. The RPD was 17 percent.

MS %R and RPD control limits for Aroclor PCBs were not specified in SOWOLM01.0. The reported MS %Rs and RPD were within the Pace-quoted control limits.

None of the data were qualified as estimated or rejected as unusable based on MS/MSD %Rs or RPDs.

LABORATORY CONTROL SAMPLES

Laboratory control samples (LCSs) were not employed.

None of the data were qualified as estimated or rejected as unusable based on the absence of LCS recoveries.

FIELD DUPLICATES

A sample/field duplicate sample pair was not associated with these samples.

One sample/matrix duplicate (MD) sample pair, 229SDPCB045A and 229SDPCB045B, was associated with these samples and the Aroclor PCB results were all nondetects.

None of the data were qualified as estimated or rejected as unusable based on the absence of field duplicate results.

TARGET COMPOUND IDENTIFICATION

All Aroclor identifications were acceptable with regard to the supporting data. All reported Aroclor PCB results were confirmed on a second column.

AROCLOR QUANTITATION AND REPORTED QUANTITATION LIMITS

All Aroclor compound quantitations were acceptable with regard to the supporting data.

The Aroclor PCB reporting limits were elevated to 100 ug/kg on a wet weight basis to be consistent with the Consent Order. The reported sample results were reported on a dry weight basis.

OVERALL ASSESSMENT

Based on low surrogate recoveries, the Aroclor PCB data for sample 229SDPCB045A were qualified estimated "UJ." None of the other Aroclor PCB data for this SDG were

qualified as estimated or rejected as unusable. Aroclor PCBs were not reported present in samples when the concentrations were below the quoted reporting limits.

Concerns other than those discussed were not encountered during the data validation process.

The final Pesticide Organics Analysis Data Sheets following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

SDG 1

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB001

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 35 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	150	U
11096-82-5	Aroclor-1260	150	U

030008

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB002

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT002

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 52 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	210	U
11104-28-2	Aroclor-1221	210	U
11141-16-5	Aroclor-1232	210	U
53469-21-9	Aroclor-1242	210	U
12672-29-6	Aroclor-1248	210	U
11097-69-1	Aroclor-1254	210	U
11096-82-5	Aroclor-1260	210	U

030028

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB003

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 38 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

030049

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB010

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT010

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

039071

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB012

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT012

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 31 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

C30091

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB003

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT003

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 38 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

030049

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB010

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT010

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030071

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB012

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT012

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 31 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

C30091

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB013

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT013

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 36 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

030111

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB014A

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT014A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 34 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	150	U
11096-82-5	Aroclor-1260	150	U

030131

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB014B

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT014B

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 34 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	150	U
11096-82-5	Aroclor-1260	150	U

030151

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB015

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT015

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 24 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030171

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB016

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT016

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 23 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030191

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB017

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT017

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030211

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB018

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT018

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030231

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB019

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT019

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 16 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

130051

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB020

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT020

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB021

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT021

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 17 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

030291

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB037

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT037

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

030311

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB038

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT038

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB039

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT039

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB052

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT052

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 35 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	200	
11096-82-5	Aroclor-1260	150	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB053

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT053

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 10 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	110	U
11096-82-5	Aroclor-1260	110	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB054

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT054

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 29 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: PSL017B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

030696

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKL2

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: PSL016B2

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/08/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

030714

D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB016

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT016MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 23 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	320	
11096-82-5	Aroclor-1260	130	U

U30825

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB016

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT016MSD

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 23 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/01/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/07/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	330	
11096-82-5	Aroclor-1260	130	U

SDG 2

PESTICIDE ORGANICS 1D ANALYSIS DATA SHEET

EPA SAMPLE NO.: 229SDPCB004

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT004

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 30 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 09/30/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB005

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT005

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	150	U
11096-82-5	Aroclor-1260	150	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB006

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT006

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 27 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.2 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB007

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT007

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 16 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB008

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT008

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB009

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT009

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 14 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

030109

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB031

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT031

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 22 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB032

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT032

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 20 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

030153

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB033

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT033

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030175

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB034

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT034

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB035

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT035

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 23 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

030219

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB036A

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT036A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 28 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB036B

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT036B

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 28 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB049

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT049

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	UJ
11104-28-2	Aroclor-1221	130	UJ
11141-16-5	Aroclor-1232	130	UJ
53469-21-9	Aroclor-1242	130	UJ
12672-29-6	Aroclor-1248	130	UJ
11097-69-1	Aroclor-1254	130	UJ
11096-82-5	Aroclor-1260	130	UJ

cem/wcc
01/09/95

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB050

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT050

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 29 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

030307

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB051

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT051

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 38 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
		160	U
12674-11-2	Aroclor-1016	160	U
11104-28-2	Aroclor-1221	160	U
11141-16-5	Aroclor-1232	160	U
53469-21-9	Aroclor-1242	160	U
12672-29-6	Aroclor-1248	160	U
11097-69-1	Aroclor-1254	160	U
11096-82-5	Aroclor-1260	160	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB055

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT055

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 26 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
		140	U
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

030351

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB056

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT056

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	150	U
11096-82-5	Aroclor-1260	150	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB057

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT057

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 24 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

PBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: PSL016B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

030693

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB056

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT056MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/01/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	410	
11096-82-5	Aroclor-1260	150	U

030711

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB056

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT056MSD

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 32 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 09/23/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/02/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
		150	U
12674-11-2	Aroclor-1016	150	U
11104-28-2	Aroclor-1221	150	U
11141-16-5	Aroclor-1232	150	U
53469-21-9	Aroclor-1242	150	U
12672-29-6	Aroclor-1248	150	U
11097-69-1	Aroclor-1254	150	U
11096-82-5	Aroclor-1260	490	
		150	U

SDG 3

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.: 229SDPCB011

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT011

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 22 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB022

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT022

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.4 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB023

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT023

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 18 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

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

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB024

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT024

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB025

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT025

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 25 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB026

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT026

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 8 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 5.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	110	U
11096-82-5	Aroclor-1260	110	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB027

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT027

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 19 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.0 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB028

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT028

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 9 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	110	U
11096-82-5	Aroclor-1260	110	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB029

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT029

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 17 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 6.6 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
		120	U
12674-11-2	Aroclor-1016	120	U
11104-28-2	Aroclor-1221	120	U
11141-16-5	Aroclor-1232	120	U
53469-21-9	Aroclor-1242	120	U
12672-29-6	Aroclor-1248	120	U
11097-69-1	Aroclor-1254	120	U
11096-82-5	Aroclor-1260	120	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB030

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT030

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 9 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.5 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
		110	U
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	110	U
11096-82-5	Aroclor-1260	110	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB040

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT040

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 22 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB041

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT041

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.8 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB042

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT042

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB043

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT043

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 28 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB044

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT044

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 26 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	140	U
11104-28-2	Aroclor-1221	140	U
11141-16-5	Aroclor-1232	140	U
53469-21-9	Aroclor-1242	140	U
12672-29-6	Aroclor-1248	140	U
11097-69-1	Aroclor-1254	140	U
11096-82-5	Aroclor-1260	140	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB045A

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT045A

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 46 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	190	U
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	U
		190	UJ
		190	UJ
		190	UJ
		190	UJ
		190	UJ
		190	UJ
		190	UJ

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB045B

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT045B

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 46 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.3 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	190	U
11104-28-2	Aroclor-1221	190	U
11141-16-5	Aroclor-1232	190	U
53469-21-9	Aroclor-1242	190	U
12672-29-6	Aroclor-1248	190	U
11097-69-1	Aroclor-1254	190	U
11096-82-5	Aroclor-1260	190	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

229SDPCB046

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT046

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 13 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 8.1 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	110	U
11104-28-2	Aroclor-1221	110	U
11141-16-5	Aroclor-1232	110	U
53469-21-9	Aroclor-1242	110	U
12672-29-6	Aroclor-1248	110	U
11097-69-1	Aroclor-1254	110	U
11096-82-5	Aroclor-1260	110	U

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1D

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB047

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT047

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 24 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.9 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

229SDPCB048

Lab Name: G S E L I Contract:

Lab Code: PACE Case No.: WCC SAS No.: SDG No.:

Matrix: (soil/water) SOIL Lab Sample ID: SVT048

Sample wt/vol: 30.0 (g/mL) G Lab File ID:

% Moisture: 23 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	130	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

PBLKL1

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: PSL018B1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: _____ decanted: (Y/N) ___ Date Received: _____

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/15/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: ____ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	100	U
11104-28-2	Aroclor-1221	100	U
11141-16-5	Aroclor-1232	100	U
53469-21-9	Aroclor-1242	100	U
12672-29-6	Aroclor-1248	100	U
11097-69-1	Aroclor-1254	100	U
11096-82-5	Aroclor-1260	100	U

PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB024

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT024MS

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
		0	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	310	
11096-82-5	Aroclor-1260	130	U

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PESTICIDE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

229SDPCB024

Lab Name: G S E L I Contract: _____

Lab Code: PACE Case No.: WCC SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: SVT024MSD

Sample wt/vol: 30.0 (g/mL) G Lab File ID: _____

% Moisture: 21 decanted: (Y/N) N Date Received: 07/23/94

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 10/13/94

Concentrated Extract Volume: 5000 (uL) Date Analyzed: 10/16/94

Injection Volume: 1.00 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) Y pH: 7.7 Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
		130	U
12674-11-2	Aroclor-1016	130	U
11104-28-2	Aroclor-1221	130	U
11141-16-5	Aroclor-1232	130	U
53469-21-9	Aroclor-1242	130	U
12672-29-6	Aroclor-1248	130	U
11097-69-1	Aroclor-1254	130	U
11096-82-5	Aroclor-1260	350	
		130	U

030776

CHAIN-OF-CUSTODY

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC	CLP PCBs				
229-SD-PCB-001	SE	07/21	1529			Tailgate	1		✓				
229-SD-PCB-002	"	"	1529			"	1		✓				
229-SD-PCB-003	"	"	1529			"	1		✓				
229-SD-PCB-004	"	"	1535			"	1		✓				
229-SD-PCB-005	"	"	1535			"	1		✓				
229-SD-PCB-006	"	"	1535			"	1		✓				
229-SD-PCB-007	"	"	1542			"	1		✓				
229-SD-PCB-008	"	"	1542			"	1		✓				
229-SD-PCB-009	"	"	1542			"	1		✓				
229-SD-PCB-010	"	"	1550			"	1		✓				
229-SD-PCB-011	"	"	1550			"	1		✓				
229-SD-PCB-012	"	"	1550			"	1		✓				
229-SD-PCB-013	"	"	1555			"	1		✓				
229-SD-PCB-014	"	"	1555			"	1		✓				
229-SD-PCB-015	"	"	1555			"	1		✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T.Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: FEDEX AIRBILL/INVOICE: 019627236 6 DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	FedEX	
	COMPANY:	Woodward-Clyde	07/22/94		
2	NAME:				
	COMPANY:				
3	NAME:	FedEX	0932	C.McAvoy	0932
	COMPANY:		7-23-94	ETC-Gulf South	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER _____

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC					
229-SD-PCB-016	SE	07/21	1600			Tr. Outage	1 ✓	✓					
229-SD-PCB-017	"	"	1600			"	1 ✓	✓					
229-SD-PCB-018	"	"	1600			"	1 ✓	✓					
229-SD-PCB-019	"	"	1605			"	1 ✓	✓					
229-SD-PCB-020	"	"	1605			"	1 ✓	✓					
229-SD-PCB-021	"	"	1605			"	1 ✓	✓					
229-SD-PCB-022	"	"	1610			"	1 ✓	✓					
229-SD-PCB-023	"	"	1610			"	1	✓					
229-SD-PCB-024	"	"	1610			"	1	✓					
229-SD-PCB-025	"	"	1615			"	1	✓					
229-SD-PCB-026	"	"	1615			"	1	✓					
229-SD-PCB-027	"	"	1615			"	1	✓					
229-SD-PCB-028	"	"	1620			"	1	✓					
229-SD-PCB-029	"	"	1620			"	1	✓					
229-SD-PCB-030	"	"	1620			"	1	✓					

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T.Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY)

FIELD NOTES:

TRANSPORTER: FEDEX AIRBILL/INVOICE: 819627236 DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	Fed Ex	
	COMPANY:	Woodward-Clyde	07/22/94		
2	NAME:				
	COMPANY:				
3	NAME:	FEDEX	0932	C. McCoy (Unmonitored)	0932
	COMPANY:		7-23-94	7-23-94 ETC/GD	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: DATE: TIME:

COMPANY NAME:

SAMPLE DISPOSITION STORAGE DISPOSAL OTHER (1) 03

000008

000009

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC CLP PCBs				
229-SD-PCB-031	FESE	07/21	1625			Tributary	1	✓				
229-SD-PCB-032	SE	"	1625			"	1	✓				
229-SD-PCB-033	"	"	1625			"	1	✓				
229-SD-PCB-034	"	"	1552			"	1	✓				
229-SD-PCB-035	"	"	1552			"	1	✓				
229-SD-PCB-036	"	"	1552			"	1	✓				
229-SD-PCB-037	"	"	1549			"	1	✓				
229-SD-PCB-038	"	"	1549			"	1	✓				
229-SD-PCB-039	"	"	1549			"	1	✓				
229-SD-PCB-040	"	"	1547			"	1	✓				
229-SD-PCB-041	"	"	1547			"	1	✓				
229-SD-PCB-042	"	"	1547			"	1	✓				
229-SD-PCB-043	"	"	1545			"	1	✓				
229-SD-PCB-044	FESE	"	1545			"	1	✓				
229-SD-PCB-045	FESE	07/21	1545			Tributary	1	✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: Fed EX AIRBILL/INVOICE: 819672370 DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	FedEX	
	COMPANY:	Woodward-Clyde	07/22/94		
2	NAME:				
	COMPANY:				
3	NAME:	FedEx	0932	C. McCoy (as witness)	0932
	COMPANY:		7-23-94	ETC-GS	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER Ref'd 8/8/94

000010

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC CLP PCBs				
229-SD-PCB-046	SE	07/21	1543			Tributary	1	✓				
229-SD-PCB-047	"	"	1543			"	1	✓				
229-SD-PCB-048	"	"	1543			"	1	✓				
229-~~30~~ 38 SD-PCB-049	"	"	1542			"	1	✓				
229-SD-PCB-050	"	"	1542			"	1	✓				
229-SD-PCB-051	"	"	1542			"	1	✓				
229-SD-PCB-052	"	"	1540			"	1	✓				
229-SD-PCB-053	"	"	1540			"	1	✓				
229-SD-PCB-054	"	"	1546			"	1	✓				
229-SD-PCB-055	"	"	1534			"	1	✓				
229-SD-PCB-056	"	"	1534			"	1	✓				
229-SD-PCB-057	SE	07/21	1534			Tributary	1	✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: Fed Ex AIRBILL/INVOICE: 019627237Ø DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	FedEx	
	COMPANY:	Woodward-Clyde	7/23/94		
2	NAME:				
	COMPANY:				
3	NAME:	FedEX	0932	C. Jones (illegible)	0932
	COMPANY:		7-23-94	7-23-94 ETC/GS	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

000011

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER _____

000012

APPENDIX C

TOC ANALYTICAL DATA PACKAGE FROM PACE LABORATORIES FOR SEDIMENT SAMPLES COLLECTED FROM A TRIBUTARY NEAR TENNESSEE GAS COMPRESSOR STATION 229 NEAR EDEN, NEW YORK DURING JULY 1994

DATE: February 8, 1995

TO: Douglas R. Hahn

FROM: Charlie E. Westerman and Anna K. Saucier

SUBJECT: Analytical Data Review for Sediment Samples
Tennessee Gas Pipeline Station 229
Eden, New York
July 1994
File: 91B650C-A

Introduction

This analytical data review applies to 57 sediment samples collected by Woodward-Clyde Consultants (WCC) July 21, 1994 from a reach of an unnamed tributary of Eighteenmile Creek near the Tennessee Gas Pipeline Compressor Station 229 near Eden, New York. The samples were relinquished by WCC on July 22, 1994 under documented chain-of-custody (COC) for transport to Pace Incorporated (Pace) in New Orleans, Louisiana.

Total organic carbon (TOC) data were acquired according to analytical protocols similar to that for "Carbon, Total Organic and Inorganic, Procedures for Sediment Samples Method 1: Sample Ignition" presented in Procedure for Handling and Chemical Analysis of Sediment and Water Samples (Technical Report EPA/CE-81-1, prepared by Great Lakes Laboratory, State University College at Buffalo, Buffalo, N. Y., for the U. S. Environmental Protection Agency/Corps of Engineers Technical Committee on Criteria for Dredged and Fill Material, Published by the U. S. Army Engineer Waterways Experiment Station, CE, Vicksburg, Miss.). According to this protocol, field samples are dried and ground prior to repeated treatment with hydrochloric acid until no further effervescence is observed, redried, mixed with cupric oxide fines, subjected to combustion, and the resultant carbon dioxide determined gravimetrically. All sample results were reported on a dry weight basis.

The protocol was modified as summarized in the following discussion. The gravimetric determination was replaced by an infrared determination similar to that presented in

Method 9060 "Total Organic Carbon" presented in Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846, Third Edition, Office of Solid Waste and Emergency Response, U. S. Environmental Protection Agency, Washington, D. C., November, 1986). (aka SW-846). The sample size of 200 to 500 mg was reduced to 5 to 10 mg due to the greater sensitivity of the infrared measurement process. At least duplicate measurement determinations were performed for all field samples.

Validation of the TOC data were performed in a manner similar to that presented in the draft Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses (Office of Emergency and Remedial Response, U. S. Environmental Protection Agency, Washington, D. C., 1990, Revised February 1, 1988). (aka Organic Functional Guidelines). Applicable criteria in the Quality Assurance Plan, Tennessee Gas Compressor Station Sites (Woodward-Clyde Consultants, Baton Rouge, Louisiana, June 1989) were employed. (aka QAP).

The following areas were reviewed during the data validation process:

Holding Times

Initial Calibrations

Continuing Calibrations

Blanks

Matrix Spike/Matrix Spike Duplicates

Laboratory Control Samples

Analyte Quantitation

Overall Assessment of Data

Documentation

All laboratory results were either accepted (unqualified), qualified, or rejected. Accepted (unqualified) results are valid with respect to the specified procedures and may be used without reservation. Qualified results are usable with the indicated limitation. Rejected results are unusable, and the analyte may or may not be present. Resampling and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

Qualified and rejected results were annotated according to Functional Guidelines conventions employing the following codes:

U - The analyte was analyzed for, but was not detected above the associated numerical value.

J - The associated numerical value was an estimated quantity.

R - The data were unusable. The presence or absence of the analyte could not be verified from the existing data. Resampling and reanalysis would be necessary for verification of the presence and/or concentration of the rejected analyte.

N - There was presumptive evidence to make a tentative identification.

NJ - There was presumptive evidence to make a tentative identification, and the associated numerical value was an estimated quantity.

UJ - The analyte was analyzed for, but was not detected above the reported value. The associated numerical value was an estimate.

HOLDING TIMES

All samples were stored on ice or refrigerated from the time of collection. There are not any EPA-specified holding times for nonaqueous samples. All sediment samples considered in the present validation report were analyzed within 13 days from the date of collection.

None of the data were qualified as estimated or rejected as unusable due to exceeded holding times or improper sample preservation.

INITIAL CALIBRATIONS

The TOC instrument was calibrated with a single point standard each day that field samples or quality control samples were analyzed. Each initial calibration was followed with the analysis of standards at three or four concentration levels. Following analysis of the multilevel level standards, a single point initial calibration standard, which also served as the laboratory control sample, was analyzed.

None of the data were qualified as estimated or rejected as unusable due to these initial calibrations.

CONTINUING CALIBRATIONS

Continuing calibration checks were preformed periodically throughout the analytical run sequence.

None of the data were qualified as estimated or rejected as unusable due to for these continuing calibration.

BLANKS

A method blank was processed with a frequency of one per 20 or fewer samples.

Method blanks, PB9382, PB9448, PB9449 were associated with these samples.

Total organic carbon was not reported at 100 mg/kg with any of these method blanks.

A rinsate blank was not associated with these samples.

None of the data were qualified as estimated or rejected as unusable based on blanks.

MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

Three matrix spike/matrix spike duplicate (MS/MSD) sample pairs, 229-SD-PCB-015MS and 229-SD-PCB-015MSD, 229-SD-PCB-035MS and 229-SD-PCB-035MSD, and 229-SD-PCB-049MS and 229-SD-PCB-049MSD, were associated with these samples.

Utilizing the averages of replicate determinations, the MS/MSD percent recoveries (%Rs) and relative percent differences (RPDs) were summarized as follows:

Sample ID	MS %R	MSD %R	RPD
229-SD-PCB-015	115.0	110.2	4.3
229-SD-PCB-035	103.0	107.9	-4.6
229-SD-PCB-049	103.6	88.3	15.9

MS %R and RPD control limits for total organic carbon were not specified in QAP.

None of the data were qualified as estimated or rejected as unusable based on MS/MSD %Rs or RPDs.

LABORATORY CONTROL SAMPLES

Laboratory control samples (LCSs), which were identical with the initial calibration verification standard, were analyzed each day that field samples or quality control samples were analyzed. LCSs, LCS9382, LCS9448, and LCS9449 were associated with these samples.

LCS %Rs for these samples were 107.0, 110.2, and 109.8 percent, respectively.

LCS %R control limits for total organic carbon were not specified in QAP.

None of the data were qualified as estimated or rejected as unusable based on LCS recoveries.

FIELD DUPLICATES

A sample/field duplicate sample pair was not associated with these samples.

Three sample/laboratory duplicate or matrix duplicate (MD) sample pairs for samples, 229-SD-PCB-014, 229-SD-PCB-038, and 229-SD-PCB-045, were associated with these samples. Utilizing the averages of replicate determinations, the RPDs for these sample/laboratory duplicate sample pairs were -6.1, 0.8, and -5.5 percent, respectively.

Sample/laboratory duplicate RPD control limits for total organic carbon were not specified in QAP.

None of the data were qualified as estimated or rejected as unusable based on the absence of field duplicate results.

ANALYTE QUANTITATION AND QUANTITATION LIMITS

All TOC quantitations were acceptable with regard to the supporting data.

The reported sample results were reported on a dry weight basis.

Pace stated in the case narrative that "Due to the coarse and rocky nature of most samples, poor replicate precision was observed." WCC determined that the average of the replicate laboratory determinations should be utilized as the sample concentrations and appended the averages to the Analytical Results - TOC by Method ACOE reporting forms.

OVERALL ASSESSMENT

None of the TOC data were qualified as estimate or rejected as unusable. TOC was reported present in all field samples.

Pace stated in the case narrative that "Due to the coarse and rocky nature of most samples, poor replicate precision was observed." WCC determined that the average of the replicate laboratory determinations should be utilized as the sample concentrations

and appended the averages to the Analytical Results - TOC by Method ACOE reporting forms.

Concerns other than those discussed were not encountered during the data validation process.

The final Analytical Results - TOC by Method ACOE reporting forms following data validation are appended.

DOCUMENTATION

The completed field COC record is appended.

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-001	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-001	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	35

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12100	154
	TOC	13400	154
	Average	12750	

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000600 1 ypd 1/25/94

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-002	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-002	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	52

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	19200	208
	TOC	22000	208
	Average	20600	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-003	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-003	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	38

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	13400	161
	TOC	17100	161
	Average	15200	

cew|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-004	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-004	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	30

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10200	143
	TOC	8770	143
	Average	9480	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-005	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-005	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	32

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10300	147
	TOC	11800	147
	Average	11050	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-006	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-006	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	27

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	18100	137
	TOC	15100	137
	Average	16600	

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-007	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-007	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	16

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12300	119
	TOC	7070	119
	Average	7625	

cem/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-008	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-008	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10300	127
	TOC	8550	127
	Average	9425	

01/19/95
cew/wcc

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-009	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-009	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	14

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	13500	116
	TOC	9970	116
	Average	11735	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-010	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-010	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample		Detection Limit
	TOC	8070	~~8110~~	127
	TOC		8390	127
		Average	8230	

cew|wcc
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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-011	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-011	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	22

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11500	128
	TOC	9030	128
	Average	10265	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-012	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-012	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	31

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11100	145
	TOC	10800	145
	Average	10950	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-013	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-013	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	36

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10400	156
	TOC	7050	156
	Average	8725	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-014	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT14A	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	34

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	21100	152
	TOC	16800	152
	Average	18950	

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-014 (Laboratory Duplicate)	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT14B	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	34

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	23000	152
	TOC	17300	152
	Average	20150	

RPD Sample and Laboratory Duplicate

-6.1%

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-015	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-015	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	24

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	8690	132
	TOC	9930	132
	Average	9310	

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01/19/95

000616

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-016	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-016	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	23

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	7740	130
	TOC	12900	130
	Average	10320	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-017	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-017	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	22

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	8980	128
	TOC	10100	128
	Average	9540	

cew|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-018	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-018	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	7280	127
	TOC	4230	127
	Average	5755	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-019	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-019	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	16

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11100	119
	TOC	4970	119
	Average	8035	

000620

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-020	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-020	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	16

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	16300	119
	TOC	17000	119
	Average	16650	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-021	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-021	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	17

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12000	121
	TOC	17400	121
	Average	14700	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-022	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-022	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11100	127
	TOC	11700	127
	Average	11400	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-023	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-023	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	18

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	27200	122
	TOC	13500	122
	Average	20300	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-024	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-024	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	9590	127
	TOC	11400	127
	Average	10495	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-025	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-025	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	25

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	15800	133
	TOC	16600	133
	Average	16200	

000626

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-026	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-026	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	8

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12200	109
	TOC	7450	109
	Average	98250	

cew | wcc
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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-027	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-027	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	19

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	17100	124
	TOC	9450	124

Average 13275

cem | wcc
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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-028	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-028	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	9

CAS No.	Parameters		Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	First determination	21700	110
	TOC	Second	3640	110
		Third	22900	
		Average	16080	

cew/
WCC
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-029	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-029	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	17

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12200	121
	TOC	10000	121
	Average	11100	

eew|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-030	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-030	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	9

CAS No.	Parameters		Concentration, mg/kg (ppm) Sample	Detection Limit
		First determination	28700	
	TOC	Second	3000	110
	TOC	Third	1200	110
		Average	10967	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-031	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-031	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	22

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	5030	128
	TOC	11500	128
	Average	8265	

cew|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-032	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-032	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	20

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	19900	125
	TOC	17300	125
	Average	18600	

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Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-033	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-033	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12000	127
	TOC	10000	127
	Average	11000	

cwj | wcc
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000634

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-034	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-034	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10300	127
	TOC	10200	127
	Average	10250	

cew/wcc
01/19/95

000635

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-035	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-035	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	23

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	8970	130
	TOC	9080	130
	Average	9025	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-036	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-036	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	28

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10900	139
	TOC	10400	139
	Average	10650	

ewo/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-037	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-037	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	26

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11900	135
	TOC	10800	135
	Average	11350	

ewj/WCC
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-038	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT038A	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	10200	127
	TOC	14800	127
	Average	12500	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-038 (Laboratory Duplicate)	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT038B	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	23

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	13600	130
	TOC	11200	130
	Average	12400	

cew|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-039	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-039	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12600	127
	TOC	12100	127
	Average	12350	

cem/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-040	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-040	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	22

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	13900	128
	TOC	13700	128
	Average	13800	

cew/wcc
01/19/95

000642

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-041	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-041	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11200	127
	TOC	10400	127
	Average	10800	

ceo/wcc
01/19/95

000643

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-042	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-042	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	17800	127
	TOC	11700	127
	Average	14750	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-043	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-043	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	28

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11300	139
	TOC	12500	139
	Average	11900	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-045	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT045A	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	46

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	15700	185
	TOC	16400	185
	Average	16050	

ceno/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-045 (Laboratory Duplicate)	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT045B	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	46

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	16700	185
	TOC	17200	185
	Average	16950	

ceno/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-046	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-046	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	13

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12800	115
	TOC	9460	115
	Average	11130	

cem/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-047	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-047	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	24

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	17400	132
	TOC	8480	132
	Average	12940	

ebs/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-048	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-048	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	23

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	11500	130
	TOC	7850	130
	Average	9675	

cew/wcc
01/19/95

000651

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-049	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-049	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	12700	127
	TOC	10000	127
	Average	11350	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-050	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-050	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	29

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	9590	141
	TOC	13200	141
	Average	11395	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-051	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-051	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	38

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	19700	161
	TOC	23300	161
	Average	21500	

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-052	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-052	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	35

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	20800	154
	TOC	18900	154
	Average	19850	

ceo|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-053	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-053	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	10

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	14000	111
	TOC	28700	111
	Average	21300	

ewu|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-054	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-054	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	29

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	15000	141
	TOC	22100	141
	Average	18500	

cem|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-055	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-055	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	26

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	28100	135
	TOC	13400	135
	Average	20700	

ewb|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-056	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-056	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	32

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	13700	147
	TOC	16100	147
	Average	14900	

ems/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-057	Collected:	07/21/94
Description:	NA	Received:	07/23/94
ETC/Gulf South ID:	SVT-057	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	24

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	19000	132
	TOC	8770	132
	Average	13885	

ewj|wcc
01|19|95

000660

Analytical Results – TOC by Method ACOE

Client ID:	BLANK	Collected:	NA
Description:	METHOD BLANK	Received:	NA
ETC/Gulf South ID:	PB9382	Prepared:	NA
Matrix:	Water	Analyzed:	07/29/94
Wet/Dry Basis:	NA	Percent Moisture:	NA

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	100 U	100
	TOC	NA	100

NA denotes not applicable or not analyzed.

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	BLANK	Collected:	NA
Description:	METHOD BLANK	Received:	NA
ETC/Gulf South ID:	PB9448	Prepared:	NA
Matrix:	Water	Analyzed:	08/01/94
Wet/Dry Basis:	NA	Percent Moisture:	NA

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	100 U	100
	TOC	NA	100

NA denotes not applicable or not analyzed.

cew/wcc
01/19/95

000662

Analytical Results – TOC by Method ACOE

Client ID:	BLANK	Collected:	NA
Description:	METHOD BLANK	Received:	NA
ETC/Gulf South ID:	PB9449	Prepared:	NA
Matrix:	Water	Analyzed:	08/03/94
Wet/Dry Basis:	NA	Percent Moisture:	NA

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	100 U	100
	TOC	NA	100

NA denotes not applicable or not analyzed.

cew/wcc
01/19/95

000663

Analytical Results – TOC by Method ACOE

Client ID:	BLANK SPIKE	Collected:	NA
Description:	BLANK SPIKE	Received:	NA
ETC/Gulf South ID:	LCS9382	Prepared:	NA
Matrix:	Water	Analyzed:	07/29/94
Wet/Dry Basis:	NA	Percent Moisture:	NA

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	8560	100
	TOC	NA	100

Recovery 107.0 %

NA denotes not applicable or not analyzed.

cew|wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	BLANK SPIKE	Collected:	NA
Description:	BLANK SPIKE	Received:	NA
ETC/Gulf South ID:	LCS9448	Prepared:	NA
Matrix:	Water	Analyzed:	08/01/94
Wet/Dry Basis:	NA	Percent Moisture:	NA

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	8820	100
	TOC	NA	100

Recovery 110.2%

NA denotes not applicable or not analyzed.

ceo/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	BLANK SPIKE	Collected:	NA
Description:	BLANK SPIKE	Received:	NA
ETC/Gulf South ID:	LCS9449	Prepared:	NA
Matrix:	Water	Analyzed:	08/03/94
Wet/Dry Basis:	NA	Percent Moisture:	NA

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	8780	100
	TOC	NA	100

Recovery 109.8%

NA denotes not applicable or not analyzed.

ews/wcc
01/19/95

000666

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-015MS	Collected:	07/21/94
Description:	MATRIX SPIKE	Received:	07/23/94
ETC/Gulf South ID:	SVT-015	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	24

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	19400	132
	TOC	16100	132

Average 17750

Sample Average 9310

Spike Added Average 7339

Recovery 115.0 %

cew/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-015MSD	Collected:	07/21/94
Description:	MATRIX SPIKE DUPLICATE	Received:	07/23/94
ETC/Gulf South ID:	SVT-015	Prepared:	07/27/94
Matrix:	Soil	Analyzed:	07/29/94
Wet/Dry Basis:	Dry	Percent Moisture:	24

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	17600	132
	TOC	17200	132

Average 17400

Sample Average 9310

Spike Added Average 7339

Recovery 110.2 %

Relative Percent Difference 4.3 %

cen/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-035MS	Collected:	07/21/94
Description:	MATRIX SPIKE	Received:	07/23/94
ETC/Gulf South ID:	SVT-035	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	23

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	14800	130
	TOC	18100	130

Average 16450

Sample Average 9025

Spike Added Average 7207

Recovery 103.0%

ceo/wcc
01/19/95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-035MSD	Collected:	07/21/94
Description:	MATRIX SPIKE DUPLICATE	Received:	07/23/94
ETC/Gulf South ID:	SVT-035	Prepared:	07/28/94
Matrix:	Soil	Analyzed:	08/01/94
Wet/Dry Basis:	Dry	Percent Moisture:	23

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	19300	130
	TOC	14300	130

Average 16800

Sample Average 9025

Spike Added Average 7207

Recovery 107.9%

Relative Percent Difference - 4.6%

cew|wcc
01|19|95

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-049MS	Collected:	07/21/94
Description:	MATRIX SPIKE	Received:	07/23/94
ETC/Gulf South ID:	SVT-049	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	18700	127
	TOC	17000	127

Average 17800

Sample Average 9675

Spike Added Average 7843

Recovery 103.6%

cem/WCC
01/19/95

000671

Analytical Results – TOC by Method ACOE

Client ID:	229-SD-PCB-049MSD	Collected:	07/21/94
Description:	MATRIX SPIKE DUPLICATE	Received:	07/23/94
ETC/Gulf South ID:	SVT-049	Prepared:	08/01/94
Matrix:	Soil	Analyzed:	08/03/94
Wet/Dry Basis:	Dry	Percent Moisture:	21

CAS No.	Parameters	Concentration, mg/kg (ppm) Sample	Detection Limit
	TOC	17800	127
	TOC	15400	127

Average 16600

Sample Average 9675

Spike Added Average 7843

Recovery 88.3%

Relative Percent Difference 15.9%

cew/wce
01/19/95

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC CLP PCBs				
229-SD-PCB-016	SE	07/21	1600			TRAVERSE	1	✓				
229-SD-PCB-017	"	"	1600			"	1	✓				
229-SD-PCB-018	"	"	1600			"	1	✓				
229-SD-PCB-019	"	"	1605			"	1	✓				
229-SD-PCB-020	"	"	1605			"	1	✓				
229-SD-PCB-021	"	"	1605			"	1	✓				
229-SD-PCB-022	"	"	1610			"	1	✓				
229-SD-PCB-023	"	"	1610			"	1	✓				
229-SD-PCB-024	"	"	1610			"	1	✓				
229-SD-PCB-025	"	"	1615			"	1	✓				
229-SD-PCB-026	"	"	1615			"	1	✓				
229-SD-PCB-027	"	"	1615			"	1	✓				
229-SD-PCB-028	"	"	1620			"	1	✓				
229-SD-PCB-029	"	"	1620			"	1	✓				
229-SD-PCB-030	"	"	1620			"	1	✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T.Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: FEDEX AIRBILL/INVOICE: 819627366 DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	Fed Ex	
	COMPANY:	Woodward-Clyde	07/22/94		
2	NAME:				
	COMPANY:				
3	NAME:	Fed Ex	0932	C. McCon (illegible)	0932
	COMPANY:		7-23-94	7-23-94 ETC-GD	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER _____

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC CLP PCBs				
229-SD-PCB-001	SE	07/21	1529			Tr. 9, Tray	1	✓				
229-SD-PCB-002	"	"	1529			"	1	✓				
229-SD-PCB-003	"	"	1529			"	1	✓				
229-SD-PCB-004	"	"	1535			"	1	✓				
229-SD-PCB-005	"	"	1535			"	1	✓				
229-SD-PCB-006	"	"	1535			"	1	✓				
229-SD-PCB-007	"	"	1542			"	1	✓				
229-SD-PCB-008	"	"	1542			"	1	✓				
229-SD-PCB-009	"	"	1542			"	1	✓				
229-SD-PCB-010	"	"	1550			"	1	✓				
229-SD-PCB-011	"	"	1550			"	1	✓				
229-SD-PCB-012	"	"	1550			"	1	✓				
229-SD-PCB-013	"	"	1555			"	1	✓				
229-SD-PCB-014	"	"	1555			"	1	✓				
229-SD-PCB-015	"	"	1555			"	1	✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T.Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: FEDEX AIRBILL/INVOICE: 019627236 6 DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	FedEX	
	COMPANY:	Woodward-Clyde	07/22/94		
2	NAME:				
	COMPANY:				
3	NAME:	Fed EX	0932	C. McCa[illegible]	0932
	COMPANY:		7-23-94	ETC-GS	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER _____

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC CLP PCBs				
229-SD-PCB-031	FISE	07/21	1625			TRIBUTARY	1	✓				
229-SD-PCB-032	SE	"	1625			"	1	✓				
229-SD-PCB-033	"	"	1625			"	1	✓				
229-SD-PCB-034	"	"	1552			"	1	✓				
229-SD-PCB-035	"	"	1552			"	1	✓				
229-SD-PCB-036	"	"	1552			"	1	✓				
229-SD-PCB-037	"	"	1549			"	1	✓				
229-SD-PCB-038	"	"	1549			"	1	✓				
229-SD-PCB-039	"	"	1549			"	1	✓				
229-SD-PCB-040	"	"	1547			"	1	✓				
229-SD-PCB-041	"	"	1547			"	1	✓				
229-SD-PCB-042	"	"	1547			"	1	✓				
229-SD-PCB-043	"	"	1545			"	1	✓				
229-SD-PCB-044	SE	"	1545			"	1	✓				
229-SD-PCB-045	FISE	07/21	1545			TRIBUTARY	1	✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T.Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: _____ COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: Fed EX AIRBILL/INVOICE: 819672370 DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	T. Hunt	0845	FedEX	
	COMPANY:	Woodward-Clyde	07/22/94		
2	NAME:				
	COMPANY:				
3	NAME:	FedEx	0932	C McCool (for courier)	0932
	COMPANY:		7-22-94	ETC-GS	7-22-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER _____

WOODWARD-CLYDE CONSULTANTS

CHAIN-OF-CUSTODY RECORD

TENNESSEE GAS PIPELINE

Sample No.	Matrix	YR:94 DATE MM/DD	Time	Sample Depth From	Sample Depth To	Station Location	Total No. Containers	TOC CLP PCBs				
229-SD-PCB-046	SE	07/21	1543			Tributary	1	✓				
229-SD-PCB-047	"	"	1543			"	1	✓				
229-SD-PCB-048	"	"	1543			"	1	✓				
229-SD-PCB-049	"	"	1542			"	1	✓				
229-SD-PCB-050	"	"	1542			"	1	✓				
229-SD-PCB-051	"	"	1542			"	1	✓				
229-SD-PCB-052	"	"	1540			"	1	✓				
229-SD-PCB-053	"	"	1540			"	1	✓				
229-SD-PCB-054	"	"	1546			"	1	✓				
229-SD-PCB-055	"	"	1534			"	1	✓				
229-SD-PCB-056	"	"	1534			"	1	✓				
229-SD-PCB-057	SE	07/21	1534			Tributary	1	✓				

SAMPLE COLLECTION:

PROJECT NO. AND NAME: 91B650C Tennessee Gas Pipeline (TGP) Eden, NY

LOCATION OF SAMPLE: Station 229

TEAM LEADER: T. Hunt TELEPHONE: (504) 751-1873

COMPANY NAME: Woodward-Clyde Consultants (WCC)

ADDRESS: 2822 O'Neal Lane Baton Rouge, LA 70816

WITNESS: [signature] COMPANY NAME: Woodward-Clyde

FIELD INFORMATION:

TYPES OF SAMPLES: LIQUID (LI) FISH (FI) SLUDGE (SL) SOIL (SO)

(MATRIX) WIPE (WI) SEDIMENT(SE) OTHER (SPECIFY) _____

FIELD NOTES: _____

TRANSPORTER: Fed Ex AIRBILL/INVOICE: 819627237Ø DESTINATION: ETC/Gulf South

6801 Press Drive East Building New Orleans, LA 70126 (504) 283-4223

SAMPLE TRANSFER (Original must be retained with sample at all times)

		RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1	NAME:	[signature]	0845	FedEx	
	COMPANY:	Woodward-Clyde	7/23/94		
2	NAME:				
	COMPANY:				
3	NAME:	FedEx	0932	C. Price (illegible)	0932
	COMPANY:		7-22-94	7-23-94 ETGS	7-23-94

TERMINATION OF CHAIN-OF-CUSTODY:

AUTHORIZED BY: _____ DATE: _____ TIME: _____

COMPANY NAME: _____

SAMPLE DISPOSITION STORAGE _____ DISPOSAL _____ OTHER _____

APPENDIX D

APPENDIX D

RESULTS OF ENSYS KIT SEDIMENT ANALYSES FOR PCBs IN TRIBUTARY TO EIGHTEENMILE CREEK WEST OF HIGHWAY 75 NEAR EDEN, NEW YORK, JULY 1994

APPENDIX D

RESULTS OF ENSYS KIT SEDIMENT ANALYSES FOR PCBs IN TRIBUTARY TO EIGHTEENMILE CREEK WEST OF HIGHWAY 75 NEAR EDEN, NEW YORK, JULY 1994

ROUND #1 RESULTS: JULY 21, 1994

Source of Sediment Sample Middle of Pool Number	ENSYS Kit Results		PCBs Indicated[1]
	Standard	Sample	
Highway 75			
1	- 0.11	- 0.07	Yes
3	- 0.11	+ 0.39	No
4	- 0.11	+ 0.41	No
5	- 0.11	+ 0.47	No
6	- 0.11	+ 0.39	No
7	- 0.20	+ 0.26	No
8	- 0.20	+ 0.15	No
9	- 0.20	- 0.02	Yes
10	- 0.20	- 0.01	Yes
11	- 0.20	- 0.01	Yes
Hickman Road			
12	- 0.20	+ 0.12	No

[1] Aroclor 1254 detection limit of 0.4 ppm

ROUND #2 RESULTS: JULY 21, 1994

Source of Sediment Sample From Pool No. 1	ENSYS Kit Results		PCBs Indicated[1]
	Standard	Sample	
Upstream End of Pool	- 0.02	+ 0.08	No
Next Sample	- 0.02	+ 0.44	No
Next Sample	- 0.02	- 0.64	Yes
Original Sample (From Preceding Results)		- 0.07	Yes
Next Sample	- 0.02	- 0.76	Yes
Next Sample	- 0.02	- 0.62	Yes
Downstream End of Pool	- 0.02	- 0.19	Yes

[1] Aroclor 1254 detection limit of 0.4 ppm

APPENDIX D (continued)

RESULTS OF ENSYS KIT SEDIMENT ANALYSES FOR PCBs IN TRIBUTARY TO EIGHTEENMILE CREEK WEST OF HIGHWAY 75 NEAR EDEN, NEW YORK, JULY 1994

ROUND #3 RESULTS: JULY 21, 1994

Source of Sediment Sample In The Pool	ENSYS Kit Results		PCBs Indicated[1]
	Standard	Sample	
Upstream End of Pool #9	- 0.33	+ 0.44	No (Invalid)
Downstream End of Pool #9	- 0.33	+ 0.34	No (Invalid)
Upstream End of Pool #10	- 0.33	+ 0.10	No (Invalid)
Downstream End of Pool #10	- 0.33	- 0.00	Yes (Invalid)
Upstream End of Pool #11	- 0.33	+ 0.06	No (Invalid)
Downstream End of Pool #11	- 0.33	+ 0.23	No (Invalid)

[1] Aroclor 1254 detection limit of 0.4 ppm. The standard value of - 0.33 exceeded the accepted maximum value of - 0.3 so the results are considered invalid and will have to be re-analyzed.

ROUND #4 RESULTS: JULY 22, 1994 (Repeat of Round #3)

Source of Sediment Sample In The Pool	ENSYS Kit Results		PCBs Indicated[1]
	Standard	Sample	
Upstream End of Pool #9	- 0.02	+ 0.32	No
Downstream End of Pool #9	- 0.02	+ 0.36	No
Upstream End of Pool #10	- 0.02	+ 0.33	No
Downstream End of Pool #10	- 0.02	+ 0.39	No
Upstream End of Pool #11	- 0.02	+ 0.45	No
Downstream End of Pool #11	- 0.02	+ 0.65	No

[1] Aroclor 1254 detection limit of 0.4 ppm.

APPENDIX D (continued)

RESULTS OF ENSYS KIT SEDIMENT ANALYSES FOR PCBs IN TRIBUTARY TO EIGHTEENMILE CREEK WEST OF HIGHWAY 75 NEAR EDEN, NEW YORK, JULY 1994

ROUND #5 RESULTS: JULY 22, 1994			
Samples From Riffle Area Immediately Downstream From Pool No. 1	ENSYS Kit Results		PCBs Indicated[1]
	Standard	Sample	
Sample #1	- 0.11	+ 0.42	No
Sample #2	- 0.11	+ 0.35	No
[1] Aroclor 1254 detection limit of 0.4 ppm.			