

REPORT

**Fort Edward Dam
PCB Remnant Containment
1993 Post-Construction Monitoring Program**



**General Electric Company
Corporate Environmental Programs
Albany, New York**

May 1994



**O'BRIEN & GERE
ENGINEERS, INC.**

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Fort Edward Dam PCB Remnant Containment

Post-Construction Monitoring Program

General Electric Company

May 1994

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D* OBG Laboratories TSS Data Summary Packages (1 Volume)

E Comparison of HRM 194.2 and HRM 196.8 Homolog
Distributions

Weight Percent Mono-chlorinated Biphenyls
Weight Percent Di-chlorinated Biphenyls
Weight Percent Tri-chlorinated Biphenyls
Weight Percent Tetra-chlorinated Biphenyls
Weight Percent Penta-chlorinated Biphenyls
Weight Percent Hexa-chlorinated Biphenyls

F Comparison of HRM 194.2 and HRM 196.8 Congener
Distributions

Weight Percent of Congener Peak 2
Weight Percent of Congener Peak 5
Weight Percent of Congener Peak 8
Weight Percent of Congener Peak 24
Weight Percent of Congener Peak 25
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Variability of PCB Duplicates

Variability of Mono-chlorinated PCB Duplicates

Variability of Di-chlorinated PCB Duplicates

Variability of Tri-chlorinated PCB Duplicates

Variability of Tetra-chlorinated PCB Duplicates

Variability of Penta-chlorinated PCB Duplicates

Variability of Hepta-chlorinated PCB Duplicates

1. Introduction

1.1. Objectives

This report presents the results of the 1993 Post-Construction Remnant Deposit Monitoring Program (PCRDMP). The primary objective of the on-going PCRDMP is to evaluate what, if any, impact the remnant deposits have on polychlorinated biphenyl (PCB) loading in the Hudson River. This work is performed in accordance with Consent Decree 90-CV-975 between the United States and General Electric Company (General Electric). The PCRDMP focuses on the evaluation of water mediated transport of PCBs from the remediated remnant deposit areas. This monitoring has included sampling and analysis of water samples collected from the Hudson River at locations upstream, downstream, and adjacent to the remnant deposit areas.

The 1993 PCRDMP was performed in accordance with a Field Sampling Plan (FSP) and Quality Assurance Project Plan (QAPP) prepared by O'Brien & Gere Engineers, Inc. (O'Brien & Gere, 1992a and 1992b, respectively). The content of the QAPP was modelled after previous work by Harza Engineering Company (Harza, 1989). General Electric submitted the above plans to the United States Environmental Protection Agency (USEPA) in June 1992. Comments were provided by USEPA on the QAPP in a letter to General Electric dated March 10, 1993. A response to these comments was submitted on May 27, 1993. Comments on the FSP have not been provided by USEPA. This document is organized as follows:

Section	Title
1	Introduction
2	Methods and Materials
3	Data Production, Reporting, and Validation
4	Results
5	Discussion
6	Conclusions
7	Recommendations

Background details of the site, previous remnant monitoring activities, and an overview of the project are presented in the subsections of this introduction which follow.

1.2. Site background

Over a 30-year period ending in 1977, two General Electric capacitor manufacturing plants near Fort Edward and Hudson Falls, New York reportedly discharged PCBs to the Hudson River (NUS 1984). Much of the PCBs were contained in the pool behind the Fort Edward Dam located at Hudson River Mile (HRM) 194.9 until the 100-year-old dam was removed in 1973. Removal of the dam dropped water levels in the dam pool and left an estimated 1.5 million cubic yards of sediment deposits along the banks of the river up to 1.5 miles upstream of Fort Edward (NUS 1984).

Five discrete remnant deposits were identified (NUS 1984) and are shown in Figure 1. Remnant Site 1 originally appeared as an island; however, floods in 1976 and 1983 scoured much of the sediment associated with this deposit, submerging portions of the island during high flow periods. Remnant Site 1 currently consists of several islands spread out over approximately 1,500 feet, centered at HRM 196.1. Remnant Site 2 occupies approximately 8 acres along the western bank of the river at HRM 195.7. Remnant Site 3 is located along the eastern edge of the river at HRM 195.5 and encompasses approximately 19 acres. Remnant Site 4 occupies 21 acres located on the western and southern banks of the river where the river bends

sharply to the east. Remnant Site 5 is located immediately upstream of the old Fort Edward Dam on the north bank of the Hudson occupying approximately 4 acres (NUS 1984).

Several limited remedial activities involving the remnant deposits were performed between 1974 and 1978 (NUS 1984). In 1975, bank stabilization activities were conducted at Remnant Sites 2, 3, and 5 (NUS 1984). Approximately 1,100 feet of shoreline along Remnant Site 5 was covered with rip-rap. A small amount of stone rip-rap was also placed along the bank of Remnant Site 3. In addition, the steep bank of Remnant Site 2 was cut back to a more shallow slope. In 1977 and 1978, approximately 17,000 cubic yards of exposed sediment at Site 3 were excavated and disposed in a lined containment cell located in the Town of Moreau, New York (NUS 1984).

A feasibility study (FS) of the Hudson River Superfund site, which included Hudson River sediment and the remnant deposits, was performed by NUS (1984). The purpose of the FS was to examine potential remedial alternatives and recommend one remedial alternative which meets goals and objectives established under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Remedial actions which were evaluated for the remnant deposits included no remedial action, restricted access, in-place containment, and chemical treatment. Remedial alternatives were evaluated with respect to criteria focusing on effectiveness, implementability, and cost.

In September 1984, a Record of Decision (ROD) was issued by the USEPA. For Hudson River sediments, the ROD identified no-action. For the remnant deposits, the ROD contained plans for in-place containment of Remnant Sites 2, 3, 4, and 5 by application of soil cover, vegetation of the cover and bank stabilization (USEPA 1984). No remediation plans were proposed for Site 1.

In-place containment of the remnant deposits was completed during the fall of 1990. The containment design consisted of a 6-inch topsoil layer, a 12-inch sand drainage layer underlain by a low permeability layer of Claymax. Additionally, river banks in the remnant areas were stabilized with rip-rap. Remediation activities have been completed by General Electric and are described in the Remedial Action Report (JL Engineering 1992).

1.3. Results of previous remnant monitoring activities

1.3.1. Prior to capping remnants

Monitoring efforts prior to capping the remnants were aimed at evaluating the potential impact of construction activities on PCB transport through the different media including biota, air, and water. An environmental monitoring program was conducted by Harza Engineering Company (Harza 1990a,b; 1992a,b) before, during, and after the completion of the remedial construction activities. The environmental sampling activities performed by Harza included the collection and analysis of water, sediment, air, and aquatic biota samples employing various techniques. The results of this monitoring indicate that there is little, if any, measurable PCB concentrations leaving the remnant deposit areas.

Airborne concentrations of PCBs, above and surrounding the remnant deposit areas, were largely undetected. Detected airborne concentrations were not considered to be attributable to remnant deposit contributions. Other conclusions indicate that sediment analysis is an insensitive indicator of short term impacts from the remnant deposits (Harza 1992a,b).

Water column analyses were performed using a dialysis membrane bag sampling method of concentrating PCB from the water column. This procedure was employed primarily due to the use of a method detection limit (MDL) of 0.1 ug/l for the analysis of PCBs in water samples. This MDL was above the concentrations found in the majority of the water samples analyzed, resulting in the reporting of estimated values only. After a review of the dialysis membrane bag sampling technique, Harza concluded that the procedure has not been subjected to adequate research activities to determine the reproducibility of the data generated. Therefore, Harza discontinued this technique (Harza 1992b). Water sampling conducted at discrete locations along the remnant deposit areas did not indicate localized releases of PCBs to the water column.

Biota sampling was employed as a means of addressing the high method detection limit for PCBs in water. In situ assay monitoring was conducted using fathead minnows. The fish were placed in bioassay containers and suspended at mid-depth in the water-column for a nominal three week exposure period. Following exposure the fish were analyzed for PCBs. Generally, biota sampling and analysis

yielded varied results which were difficult to interpret (Harza, 1992). However, during 1989-1991 approximately equal concentrations of PCBs were detected in biota sampled upstream and downstream of the remnant area during the sampling period (Harza 1992a and b). A retrospective analysis of this data coupled with confirmation of an upstream source at Bakers Falls indicates the presence of a PCB source upstream of the remnant area.

Increased concentrations of PCBs were detected in the air, water, and aquatic biota in samples collected in September and October of 1991 (Harza, 1992b). These concentrations were identified both upstream and downstream of the remnant deposit areas. Float surveys performed by O'Brien & Gere during the same time frame confirmed the presence of similar PCB concentrations in the water column at locations in the vicinity of the remnant deposits (O'Brien & Gere 1993a,b). Elevated PCB concentrations within levels observed in 1991 have been attributed to PCB loading upstream of the remnant deposits.

1.3.2. Post-closure monitoring

Changes were made in the 1992 program to address concerns identified in the 1991 program as noted above. The 1992 program included low concentration analysis of water column samples using capillary column PCB analytical methods to a detection limit of 11 ng/l. Also, an additional sampling location was added immediately upstream of the remnants (O'Brien & Gere 1993b). The 1992 sampling and analysis program included three components:

- weekly water column monitoring
- float surveys
- shore sampling verification

Float survey were designed to monitor a single water mass as it passed the remnant deposit areas. To accomplish this objective a small boat was launched upstream of HRM 196.8 and samples were collected as the boat drifted downstream to Rogers Island. Shore sampling verification was conducted to compare water column PCB concentrations across a transect of the river.

Several conclusions were drawn as a result of the 1992 PCRDMP (O'Brien & Gere 1993b):

- The source of water column PCBs is located between the background PCB sampling site (where PCB concentrations for the study period were generally less than the method detection limit of 11 ng/l) and the upstream sampling site (HRM 196.8) located just below Bakers Falls and upstream of the remnant deposits.
- PCB concentrations of samples collected both upstream and downstream of the remnant deposits varied widely during the ten month study period.
- Seasonal PCB concentration trends were apparent. The highest concentrations during the March to December monitoring period occurred during summer and fall months.
- Both sites upstream and downstream of the remnants had similar temporal trends.
- Congener and homolog distributions of PCBs detected at sampling stations HRM 196.8 and HRM 194.2 are similar and both closely resemble Aroclor 1242 patterns, suggesting a single source of PCB is responsible for the loading at both sites.
- Samples collected from shore at location HRM 196.8 are reasonably representative of center channel characteristics at low flow.
- Float survey data indicate a general increase in water column PCB concentrations in the vicinity of the remnant deposits. However, two convergent lines of evidence suggested that this increase resulted from PCBs loadings from a single source located upstream of the remnant deposits just below Bakers Falls. These two lines of evidence consist of correlation between PCB loading upstream of the remnant deposits and PCB loading apparently due to contributions from the remnant deposits, and no change in homolog and congener pattern upstream and downstream of remnants.
- The remnant deposits contribution to PCB concentrations in the water column during 1992 is difficult to measure, and appears to be insignificant compared to the Bakers Falls source loading over the same period.

These conclusions were reevaluated using the 1993 monitoring results.

1.4. Source control measures

As a result of previous monitoring in 1991 and 1992, the Bakers Falls source of PCB upstream of the remnant deposits was identified and isolated. This source is the subject of a remedial investigation/feasibility study which is being conducted by General Electric with oversight by New York State Department of Environmental Conservation (NYSDEC) (O'Brien & Gere 1994). During 1993, interim remedial measures (IRMs) were performed at the site to address PCB contamination of the river from this location.

1.5. Project overview

As mentioned previously, the primary objective of the 1993 PCRDMP was to evaluate the potential impact of the remnant deposits on PCB loading in the Hudson River. In addition, the impact of Bakers Falls source control measures performed during 1993 on water column PCB concentrations in this region of the river were evaluated through this monitoring effort. The 1993 PCRDMP consisted of two components - weekly water column monitoring and float surveys. Water column monitoring was performed to monitor overall spatial and temporal trends of PCBs in the river. Float surveys were conducted to monitor a single water mass as it transversed this region of the river. The remainder of this document provides details of each of these components in separate subsections below.

2. Methods and materials

2.1. Water column characterization

Water column characterization in 1993 was conducted to identify potential PCB contributions from the capped remnant deposits. This characterization consisted of sampling from river locations upstream and downstream of the remnants which was performed approximately weekly throughout 1993 (Table 1). As a separate study, four rounds of sampling were conducted during spring high flow events to characterize waterborne PCB transport during these events.

2.1.1. Sampling locations

Water column samples were obtained from the same three river locations sampled for the 1992 PCRDMP (Table 1, Figure 1):

- A background sampling station was located at the abandoned Fenimore Bridge upstream of Bakers Falls and upstream of the remnant deposits at approximate HRM 197.0. Beginning with the September 2, 1993 sample, the location was moved immediately upstream to a bridge constructed in 1993 which replaced the Fenimore Bridge. This bridge is referred to as County Route 27. The relocation of this sampling station is not expected to effect the data.
- A second sampling station was located downstream of Bakers Falls, but upstream of the remnant deposits near approximate HRM 196.8.

- A third station was located on the Rt. 197 Bridge(s) in Fort Edward near approximate HRM 194.2 downstream of the remnant deposits.

2.1.2. Sample collection procedures

Procedures and specifications defined in the FSP and QAPP (O'Brien & Gere 1992a,b) were followed for sampling the three water column characterization locations. Sampling procedures employed at each location are described below:

Fenimore Bridge, Hudson Falls - HRM 197.0 At location HRM 197.0, depth stratified composite samples were collected near the middle of the channel from the bridge (Fenimore Bridge or County Route 27 as identified previously in subsection 2.1.1) using a stainless steel Kemmerer bottle sampler. The Kemmerer bottle sampler consisted of a stainless steel 1.2-liter cylinder equipped with closeable stoppers at each end. Samples collected using the Kemmerer bottle were vertically stratified composites made up of equal volumes of discrete aliquots collected at three-foot intervals throughout the water column. To collect the sample, the Kemmerer bottle sampler was lowered to the desired depth in the water column in the open position. Then, the sampler was closed by sending a mechanical messenger down the suspending cable, thereby collecting a discrete aliquot. Upon retrieval, the sample was discharged into a stainless steel compositing container. The composited sample water was then transferred to appropriate containers for laboratory analyses.

Canoe Carry - HRM 196.8 Samples collected at HRM 196.8 were surface grab samples collected from the western shore by immersing new, dedicated sampling containers directly into the water column to retrieve samples. This collection method was selected because the middle of the channel at this location is accessible only by boat. Routine sampling by boat was not practical since the river near HRM 196.8 is shallow (generally less than two feet deep), with rapidly flowing water, and a bed consisting of cobbles and exposed bedrock. Access to the shore sampling location is made via a half mile walk through a wooded area leading to the river. A steep river bank approximately 20 feet in height is then scaled down to reach the rivers edge. This remote location was inaccessible during a portion of March due to heavy snow accumulation.

There was a concern that the grab samples collected from shore at HRM 196.8 might not represent the main channel of the river. To address this concern, an evaluation procedure designed to compare data collected from the shore versus the middle of the channel was conducted in 1992. Two conclusions were drawn as a result of that study:

- Samples collected from shore during low flow were comparable with samples collected at the same HRM location transversing the river (O'Brien & Gere 1993b) and,
- Water column PCB concentrations across the river were highly variable. Variations of up to 100 percent were observed in samples collected approximately one minute apart (O'Brien & Gere 1993b).

Therefore, while samples collected at the shore location are expected to be equivalent to samples collected from the center of the river, single samples may not be representative of the entire mass of water passing this location at a given time. As such, interpretation of individual sample results should include comparison of data with long term results. During 1993, further evaluation of sample results collected from this location and those collected from the middle of the channel during float surveys was conducted. A summary of the results is presented in Section 4.2.1.

Route 197, Fort Edward - HRM 194.2 Samples were collected from the Rt. 197 Bridge (HRM 194.2) in Ft. Edward, as depth integrated composite samples, in the same manner as samples collected from Fenimore Bridge. For the 1993 PCRDMP, both east and west channels were sampled as vertically stratified composite samples which were then combined in equal volumes to produce a single sample for analysis.

One exception to this sampling methodology occurred on December 29, 1993. Due to ice cover on the river on this date, a single grab sample was collected from the shore of the east channel. Results of shore sampling at this location may not be exactly comparable with results samples routinely collected from the Route 197 Bridges.

A previous investigation identified higher PCB loading in the east channel at HRM 194.2 during high flow (Tofflemire 1984). The 1992 PCRDMP addressed concerns that loading differences may exist and employed three sampling methods to evaluate the potential concentration differences between the east and west channels at this location during elevated PCB loadings:

- The western channel, which is the main channel carrying approximately 68 percent of the total flow at this location (USGS 1994), was sampled as a single vertically stratified composite sample.
- Both the east and west channels were sampled as two discrete vertically stratified composite samples.

It was concluded that the combined east and west channel composites provided adequate representation of PCB concentrations at this location (O'Brien & Gere 1993b).

Generally, separate sampling equipment was used at each location so equipment cleaning was not required in the field. Field equipment was cleaned between sampling rounds at O'Brien & Gere's office in Syracuse, New York. When two Kemmerer samplers were not available, the Kemmerer bottle sampler was thoroughly cleaned in the field between use at each sampling location. Equipment cleaning was performed according to procedures specified in the QAPP developed for this project (O'Brien & Gere 1992b). Field logs maintained by sampling personnel, documenting field activities, are presented in Appendix A.

In addition to routine sampling, The water column samples collected on October 21 included two samples collected from the west channel at HRM 194.2 using different sampling methods. River flow during that sampling was approximately 3,000 cfs. One sample was collected as depth integrated composite sample in the same manner as weekly water column samples were collected. The other sample was collected as a surface grab sample in the same manner as float survey samples were collected, as discussed in subsection 2.2.2 below. The results were used to evaluate the comparability of data collected by the different methods, as discussed in Section 4.

2.2. Float surveys

Float surveys were conducted in an effort to identify specific remnant deposit areas which may contribute PCBs to the water column. The float surveys were designed to monitor a single water mass as it passed the remnant deposit areas allowing an analysis of spacial profiles of water column PCBs as the water mass moved through the river. Float surveys were conducted approximately once per month beginning in May 1993 and continuing through October 1993 (Table 1). The float survey schedule coincided with the weekly water column sampling.

2.2.1. Sampling locations

Five locations were utilized for the PCRDMP float surveys. These locations included HRM 196.8, HRM 196.4, HRM 195.8, HRM 195.3, and HRM 194.7 (Table 1; Figure 1). On one occasion the float survey was extended to the Route 197 Bridge in Fort Edward. The purpose of this modification was to compare surface water grab sample results with depth integrated composite samples collected from the bridge, as described in Section 2.1.2. September float surveys included samples collected near the Bakers Falls source area. Results of these analyses were reported previously in the Bakers Falls Remedial Investigation of Operable Unit 3 (O'Brien & Gere 1994).

2.2.2. Sample collection procedures

Sampling procedures defined in the FSP and QAPP (O'Brien & Gere 1992a,b) were followed for the float surveys. Shallow and rapid flowing conditions in the remnant deposit area limited access by conventional water crafts. Samples were therefore collected by launching an inflatable boat (Zodiac) near Bakers Falls, paddling to the middle of the river, and then drifting with the current downstream to the northern tip of Rogers Island, in Fort Edward. The samples consisted of grab samples collected from the surface of the water column, near the middle of the channel. Samples were collected by immersing new, dedicated wide mouth one-gallon glass sampling containers directly into the water. Upon completion of the float survey, samples were transferred to appropriate sample

containers for the required laboratory analyses. Field logs maintained by sampling personnel are presented in Appendix A.

2.3. River flow monitoring

Flows were measured by the United States Geological Survey (USGS) at the Fort Edward gauging station located at approximate HRM 194.7. For each sampling date, mean daily flows are presented from a preliminary data summary by USGS dated April 21, 1994.

Flow monitoring at Fort Edward indicates that control of river flows in this region of the river include meteorologic conditions and hydrologic controls at reservoirs upstream (e.g., Sacandaga Reservoir). Due to a snowstorm late in March, snow pack was greater than normal and the snow melt which followed which produced spring high flows greater than 28,000 cfs at Fort Edward. For comparison, 1992 peak mean daily flows were approximately 18,000 cfs. A summary of high flow data and sampling dates is provided in Figure 2.

2.4. Sample handling procedures

Samples were handled in accordance with procedures presented in the QAPP (O'Brien & Gere 1992b). Upon collection, samples were placed in appropriate containers, chilled to 4°C, and transported to the analytical laboratory for analysis. Each sample was assigned a unique sample designation, identifying sample location, date, and time. Standard chain of custody procedures were followed, as detailed in the QAPP (O'Brien & Gere 1992b).

2.5. Laboratory analytical methods

Water column laboratory analyses consisted of analysis of PCBs by capillary column and total suspended solids (TSS) analysis. Analyses were performed on whole water (unfiltered) samples. Details of analytical methodologies are provided in the PCRDMP QAPP (O'Brien & Gere 1992b). A brief summary of the methods are provided below.

Whole water capillary column PCB analyses were performed by Northeast Analytical, Inc. (NEA) using Method NEA-608 CAP, Rev. 3.0 (NEA 1990). The DB-1 capillary column utilized in this method allows the reporting of 118 peaks. Significant research has been performed to identify the PCB congeners which correspond to each peak eluted on this column. In standard PCB mixtures (e.g., Aroclors), the amount of each congener in co-eluting peaks has been determined. In environmentally altered PCBs, the relative proportions of congeners in a given peak may be different from the standards. However, this information is sufficient to allow reliable calculation of total PCB concentrations and PCB homolog distributions. In addition, key congeners (or congener groups) can be tracked, allowing evaluation of PCB sources in the river (which are characterized using the same technique). Analyses met data quality objectives identified for this project. Further details on the analytical method are provided in the QAPP (O'Brien & Gere 1992b).

The gas chromatography instrumentation used to analyze samples for PCBs consisted of a Varian Model 3400 Gas Chromatograph (GC) equipped with capillary on-column injection, temperature programmable oven, Model 8000 automatic sampler, and fast time constant electron capture detector. A data system (Dynamic Solutions, Maxima Work station) for chromatographic operations and integration of detector signal was interfaced to the GC. Output from the GC system was processed into a real time chromatogram and a sample specific report that included peak identification, retention time, peak name, integrated peak area, amount of solution, homolog concentrations, and sample amount. In addition, the data package included a PCB congener report as described in Section 3.1 below. Each package included a separate QA/QC data summary report, detailing QA/QC data for spikes, USEPA check samples, duplicates and method blanks.

Analyses for TSS were performed by OBG Laboratories according to EPA Method 160.1 (USEPA 1983).

2.6. Quality assurance/quality control

2.6.1. Data quality evaluation

The data quality objectives are defined for the PCRDMP in the QAPP (O'Brien & Gere 1992b). These objectives include the generation of data of sufficient quality to support both qualitative and quantitative determination regarding PCB flux from the Fort Edward Dam remnant deposit sites to Hudson River water.

Quality assurance/quality control (QA/QC) samples were collected on a routine basis during the PCRDMP in accordance with the QAPP (O'Brien & Gere 1992b). Data validation as described in Section 3.3 was performed to facilitate evaluation of data quality from results of QA/QC sample analyses. A summary of the data validation results is provided in the data validation technical memorandum, presented as Appendix B (bound separately). The QA/QC samples for PCB analyses included the collection and analysis of matrix spike, blind field duplicate or field duplicate, and equipment blank samples. The locations of the QA/QC samples were selected from the three routine sampling locations (HRM 197.0, HRM 196.8, and HRM 194.2), on a rotational basis. Matrix spike samples consisted of duplicate samples spiked by the laboratory with a known quantity of analyte. The percent recovery of the analyte was recorded upon quantitation. Blind field duplicate samples were submitted to the laboratory without indication to the laboratory of where the samples were collected. Matrix spike and blind duplicate samples were separate aliquots collected from the same source as the original samples. For duplicate samples, a relative percent difference (RPD) was calculated as:

$$RPD = (C_1 - C_2) / ((C_1 + C_2) / 2)$$

where C_1 is the original sample and C_2 is the duplicate sample.

Equipment blank samples were prepared in the field by rinsing a clean Kemmerer bottle sampler and compositing container (a stainless steel bucket) with organic free water obtained from OBG

Laboratories, Inc. The rinse water was collected and submitted to the laboratory for PCB analysis. Equipment blank analytical results were examined for detectable PCBs.

2.6.2. Data losses due to laboratory errors

The laboratory experienced problems which resulted in data losses during June and July. Problems included contamination of method blanks and field samples, and inadvertent spiking of samples with PCBs instead of the surrogate compound. Data losses for weekly monitoring included results of samples collected on June 16, 23, and July 1, 1993. In addition, float survey samples collected on June 16, 1993 were also affected by these errors. The sources of those errors were quickly identified by the laboratory and corrected.

2.7. Data evaluation methods

Data evaluation included examination of analytical results of total PCBs, PCB homolog and congener distributions, and TSS as described below.

2.7.1. Total PCBs

Total PCB concentrations were used to evaluate temporal and spatial concentration patterns in the river upstream and downstream of the remnants. PCB concentrations at each location were used to estimate mass flux of PCBs since river flow at each sampling location was similar. There are no significant tributaries in this region of the river to complicate this assessment.

2.7.2. PCB homolog and congener distributions

Capillary column methodology was useful in the development of homolog and congener distributions which were used to evaluate and to isolate different PCB sources. Characteristic homolog and congener distributions were identified for commercial mixtures of

PCBs which were then compared to distributions found in field samples. Field samples were evaluated for evidence of changes in these distributions due to exposure of PCBs to the environment including site-specific physical, chemical, and biological processes (weathering). Therefore, changes in homolog and congener distributions were used to isolate different PCB sources. Previous discussion of capillary column analytical methodology is provided in subsection 2.5.

The effect of PCB concentration was considered in the evaluation of PCB congener distributions. Sensitivity differences of individual congeners were observed in 1992 (O'Brien & Gere 1993b) which contributed to distribution differences when low concentration were compared with higher concentrations. For example, monochlorobiphenyl was not detected in total PCB concentrations near the practical quantitation limit (PQL). Thus, increases in tri- and tetra-chlorinated biphenyls at this low concentration level were thought to be an artifact of analytical sensitivity differences. The 1993 results were examined for additional evidence of this phenomenon.

2.7.3. Total suspended solids

Total suspended solids were analyzed as a supplementary parameter to evaluate the potential for PCBs to associate with solids in the water column. The hydrophobic characteristics of PCBs would tend to favor such interaction. Therefore, correlation of TSS with flow and/or PCB concentration would provide evidence of transport mechanisms.

2.8. Health and safety

Field activities were conducted in accordance with the health and safety procedures presented in the project specific Health and Safety Plan (O'Brien & Gere 1992c).

3. Data production, reporting, and validation

3.1. Northeast Analytical, Inc.

Northeast Analytical, Inc. (NEA) was responsible for analyzing water column samples for whole water PCBs for the 1993 PCRDMP. Samples were analyzed as whole water PCB analyses utilizing a capillary column (DB-1) with a method detection limit (MDL) of 11 nanograms per liter (ng/l) (NEA 1990). This analytical method is consistent with the Green Bay methodology used by USEPA. A copy of the method is presented in the QAPP (O'Brien & Gere 1992b). One exception to the analytical methodology occurred with samples collected on January 4, 1993. This round of samples was analyzed by USEPA method 8080, with modifications by USGS.

A MDL Study was conducted by NEA to evaluate the lowest detectable total PCB concentration that could be reliably achieved in 1-liter water samples collected from the Hudson River. The MDL study was performed using organic-free water samples spiked with PCBs in accordance with 40 CFR Part 136. The MDL is defined as the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero. It is estimated from analysis of a sample in a given matrix containing the analyte. From the MDL a practical quantitation limit (PQL) was derived. The PQL is defined as the lowest concentration that can be reliably achieved within specified limits of precision and accuracy during routine laboratory operations.

The results of the MDL study indicated an average MDL value of 7.7 ng/l. The laboratory elevated the MDL for reporting purposes to 11 ng/l to account for potential matrix interferences within Hudson River water. The PQL, based on this MDL, was set at 44 ng/l. Concentrations of PCBs observed in samples collected during the PCRDMP which are between the MDL and PQL (from

11 to 44 ng/l) are considered estimates and for this report they are reported with a "P" qualifier. The homolog and congener distributions may be less reliable at these low levels due to decreased sensitivity of lower chlorinated congeners close to the detection limit, as discussed previously in subsection 2.7.2.

A specific New York State Department of Environmental Conservation - Analytical Services Protocol (NYSDEC ASP; NYSDEC 1991) reporting requirement does not exist for analysis of PCB congeners by capillary column. Therefore, a reporting package and quality control program was developed which adheres to the guidelines set forth in the NYSDEC ASP Superfund PCB/pesticide requirements. The data reporting package and quality control program developed for capillary column PCB analyses contains the following components:

- title page;
- sign-off sheet;
- table of contents;
- case narrative;
- sample result form;
- O'Brien & Gere chain of custody forms;
- sample log-in sheet;
- internal sample control record (internal sample tracking sheet);
- matrix spike results table;
- duplicate results table;
- method blank results table;
- sample raw data;
- analyst sample injection log;
- standards results tables; and
- standards/QC sample (blanks, matrix spikes, duplicates) raw data.

Data summary reports for PCB analyses are included in Appendix C of this report (bound separately).

3.2. OBG Laboratories, Inc.

O'Brien & Gere Laboratories, Inc. (OBG Laboratories) was responsible for the analysis of water column samples for TSS (USEPA method 160.1; USEPA 1983). Upon completion of the analyses, OBG Laboratories generated a series of data reports entitled *Laboratory Report, General Electric Company, Post-Construction Monitoring Program, Hudson River, N.Y.* These data reports were prepared consistent with NYSDEC ASP Category B reporting requirements. The data reports contain the following components:

- title page;
- sign-off sheet;
- table of contents;
- case narrative;
- sample result forms;
- chain of custody forms;
- sample log-in sheet;
- internal sample control record (internal sample tracking sheet);
- QC summary tables including results of duplicates, reference samples and reagent blanks analyses; and
- raw data for environmental and QC samples.

Data reports for TSS analyses are presented in Appendix D of this report (bound separately).

3.3. PCB data validation

Data validation conducted for this investigation involved a systematic evaluation of analytical data quality by comparing the data generation process (sample collection through sample analysis) to quality control criteria established prior to the initiation of the field investigation. As a result of the validation process, sample data were considered useable as presented, approximated, or unusable for intended uses.

PCB data generated for the PCRDMP were subjected to an electronic data validation process by O'Brien & Gere. The electronic data validation consisted of evaluation of QA/QC data by a

computer program which identifies data outside QA/QC limits. In addition to the electronic data validation, 10 percent of the data were validated manually and compared to the results of the computer validation output as a check. A detailed description of the electronic and manual data validated processes and results are presented in Appendix B (bound separately). Data validation results are briefly discussed in Section 4 of this report.

4. Results

This section presents the results of weekly water column monitoring and float surveys. The river PCB data were evaluated at three levels of detail:

- Total PCB concentrations,
- PCB homolog distributions, and
- PCB congener distributions.

In addition, this section also provides a summary of QA/QC data, primarily focusing on an assessment of precision and accuracy.

4.1. Weekly water column monitoring

The weekly water column monitoring program included the collection of water column samples from three stations located at approximate HRM 197.0, HRM 196.8, and HRM 194.2 which are portions of the river that represent background, upstream of remnants and downstream of the Bakers Falls source (upstream location), and downstream of remnants (downstream location), respectively (Figure 1). Samples were collected weekly and analyzed for PCBs and TSS, as discussed previously in Section 2.6. Fifty-two rounds of water column samples were collected from the three routine monitoring stations (not including the sample losses due to laboratory errors). Monitoring also included water column sampling at the same locations during high flow (Figure 2).

4.1.1. Total PCB and TSS concentrations

Total PCB concentrations ranged from less than the method detection limit (<11 ng/l) to 1086 ng/l (Table 2 and Figure 3). The PCB concentration mean and 95 percent confidence interval about

the mean for each sampling location are presented (Figure 4). TSS concentrations ranged from <1 mg/l to 47 mg/l (Table 2).

At the background location (HRM 197.0), water column PCB concentrations were below the method detection limit in 79 percent of the samples. However, low concentrations of PCBs (near the detection limit) were detected in 11 of 52 samples analyzed. The highest concentration detected at the background site was 27 ng/l, which is below the PQL for this monitoring program. This site is unaffected by the remnant deposits or sources near Bakers Falls. In summary, the PCB concentrations at sampling location HRM 197.0 were low or below the detection limit, therefore the data support the use of the Fenimore/County Route 27 bridges as a background sampling location. The remainder of this section focuses on a comparison of data from the stations immediately upstream of the remnant deposits upstream (HRM 196.8) and downstream (HRM 194.2) location.

At the upstream location (HRM 196.8), water column PCB concentrations ranged from less than 11 ng/l to 256 ng/l with a geometric mean, median, and standard deviation of 19, 21, and 39 ng/l, respectively (Table 2). Concentrations varied by greater than an order of magnitude during high flow. However, generally the concentrations and variability in PCB concentrations in samples collected from this site were low (Figures 3 and 4).

At the downstream location (HRM 194.2), water column PCB concentrations ranged from less than 11 ng/l to 1086 ng/l with a geometric mean, median, and standard deviation of 38, 33, and 169 ng/l, respectively (Table 2). At the downstream site, the water column PCB concentrations varied by up to two orders of magnitude over the study period (Figures 3 and 4).

4.1.2. PCB homolog and congener distributions

PCB homolog distributions for each sampling result are presented separately (Table 3) and a statistical summary of the homolog distribution data is provided (Table 4). Homolog composition of these samples closely resembled Aroclor 1242. However, the samples were consistently slightly more chlorinated than a commercial Aroclor 1242 mixture.

Mean homolog distributions for sampling station HRM 196.8 and HRM 194.2 were similar for both sites, with the primary homologs

reported as tri- and tetra-chlorinated forms (Figure 5). For comparison purposes, the homolog distribution for Aroclor 1242 analyzed by NEA methodology is also presented (Figure 5). Mean homolog distributions for HRM 196.8 and HRM 194.2 closely resemble that of Aroclor 1242.

Comparisons of individual homolog distributions for the upstream and downstream locations are presented in Appendix E. The figures show an overall 1:1 agreement between the homolog distributions for the two sites. For comparison purposes, the homolog distribution for Aroclor 1242 is also presented. Homolog distributions for HRM 196.8 and HRM 194.2 closely resemble that of Aroclor 1242. Tri- and tetra- chlorinated PCBs were the most prevalent forms at both sites, however, differences in other chlorinated forms were observed. At times, the upstream location had higher percentages of penta- and hexa-chlorinated PCBs, whereas at downstream location, mono- and di-chlorinated percentages were occasionally higher. Outliers were generally attributed to low concentrations, near the method detection limit. Due to the general lack of detectable quantities of PCBs, a homolog distributions are not presented for the HRM 197.0 site in Appendix E.

Congener distributions for weekly water column monitoring for sampling dates representing low and high loading are presented in Figures 6, and 7, respectively. Congener peak distributions for each loading condition examined were similar for both locations. Congener distributions for other elevated concentrations which occurred as individual observations or pulses were examined also. Congener distributions for January 14 and May 26 are provided in Figures 8 and 9, respectively. The January 14 congener pattern for HRM 194.2 was highly altered, whereas the May 26 congener pattern was more typical and it resembled Aroclor 1242.

Comparisons of individual congener distributions for the upstream and downstream locations are presented in Appendix F. The figures show an overall 1:1 agreement between congeners for the two sites. There were occasional deviations from the agreement of congeners between the sites.

In the evaluation of homolog and congener data, it is assumed that different sources may be identifiable by individual patterns associated with alterations caused by biological, chemical and physical processes.

The overall consistency of homolog and congener distributions between the two locations suggest a single source of PCBs in the river upstream of the remnant deposits.

4.2. Float surveys

Nine float surveys were completed from May to October 1992. However, PCB results of June 16 and July 15, 1993 float surveys are not presented due to laboratory errors. Samples were collected from five locations in the vicinity of the remnants - HRM 196.8, HRM 196.4, HRM 195.8, HRM 195.3, and HRM 194.7. Samples were analyzed for PCBs (using capillary column analytical methodology) and TSS, as discussed previously in Section 2.6. Results of the float surveys are presented in Table 5 and Figure 10. For comparison, data for water column samples collected at HRM 197.0 and HRM 194.2 on the same days as the float surveys are also presented (Table 5). Samples collected at location HRM 197.0 were used to indicate background PCB levels. PCBs were not detected (< 11 ng/l) in any of the background samples collected at the time of the float surveys.

4.2.1. Total PCB and TSS concentrations

Results of float surveys are consistent with weekly monitoring results. Total PCB and TSS concentration ranges for locations HRM 196.8, HRM 196.4, HRM 195.8, HRM 195.3, and HRM 194.7 were as

follows for each float survey:

Float survey date	PCB conc. range (ng/l)	TSS conc. range (mg/l)
5/26/93	19-23	<1-3
7/28/93	20-51	6-10
8/18/93	22-24	1-4
9/02/93	14-18	3-6
9/15/93	18-33	2-6
9/29/93	17-50	7-10
10/21/93	<11-21	5-10

The PCB concentrations were low at all locations, generally less than the PQL of 44 ng/l. Mean concentrations ranged from 14 to 29 ng/l over the monitoring period. The lowest mean concentration occurred during the October 21 sampling.

4.2.2. PCB homolog and congener distributions

The homolog distribution in weight percent for samples with detectable quantities of PCBs are presented in Table 5. Mean homolog distributions for float survey sampling stations are presented in Figure 11. The mean homolog distribution patterns were similar for all sites sampled during float surveys, with the primary homologs in the tri- and tetra- forms (Figure 11). For comparison purposes, the homolog distribution for Aroclor 1242 analyzed using NEA standards is also presented in Figure 11. Mean homolog distributions for the float survey data closely resemble that of Aroclor 1242. A homolog distribution is not presented for the HRM 197.0 background site since PCBs were generally not detected at the site. Homolog distributions for each float survey are presented in Appendix G.

Float survey mean congener distributions for all sample collection dates are presented by location. Upstream and downstream results are presented in Figure 12. For comparison, sample locations within the remnant deposit area of the river are present separately in Figure 13. The mean congener distributions were similar for locations upstream of the remnants and in the vicinity of the remnants. Congener distributions of samples collected at HRM

194.2 showed some differences. Most noticeable were the differences in the low weight percent of peak 8.

Overall, homolog and congener distributions were similar at float survey locations. Slight differences observed in distributions may be related to analytical limitations at low concentrations as described in subsection 2.7.2.

4.3. Quality assurance/quality control

The data summary tables (Tables 2 through 5), include PCB data qualifiers identified during the data validation process. For PCB concentrations reported below the method detection limit, <11 ng/l is reported in the summary tables. PCB concentrations between 11 ng/l and 44 ng/l represent concentrations above the MDL, but below the PQL. PCB results in this range were noted with a "P" to identify the results as estimated concentrations. These field data have been previously supplied to USEPA and the NYSDEC in the monthly progress reports.

Data from four water column monitoring rounds were considered not useable do to laboratory errors which consisted of blank contamination and inadvertent spiking of samples with solution intended for matrix spike samples only. Therefore, it was not necessary to further evaluate the data through data validation processes. The four sampling rounds consisted of samples collected on June 16 and 23, 1993 and July 1 and 15, 1993. Samples collected on June 16 and July 15 included float survey samples in addition to weekly water column monitoring samples.

The results of the data validation performed on the PCRDMP PCB data collected between December 22, 1992 and December 29, 1993 are presented in the data validation technical memorandum in Appendix B (bound separately). A computerized data validation method was utilized to evaluate these data, these automated procedures were supplemented by manual validation of 10 percent of the data to confirm the results. The results of the manual and computer validation were 100 percent consistent, thereby verifying the accuracy of computer validation.

A total of 249 water samples were validated and the results of this evaluation indicate that 99 percent of the data are useable for quantitative purposes. Validation identified 30 sample results which

required qualification as estimates (J) due to minor quality control issues. Estimated results included results which were outside of duplicate RPD criteria, samples extracted outside holding times, and performance criteria concerns (chromatographic resolution, retention time window, and internal standard area). Two sample results were unusable for project purposes (R).

Field sampling and laboratory analytical precision were assessed through results of duplicate analyses which are provided in Appendix B (bound separately). Briefly, 45 duplicates were analyzed along with weekly water column monitoring and float survey samples. The statistical analysis did not include 18 samples which were non-detect for PCBs. The remaining 27 samples had an average RPD of 9.3 percent. Comparison of original and duplicate sample results by homologs are provided in Appendix H. Original and duplicate sample homolog distributions generally indicated precision is within expected ranges. In summary, overall duplicate analytical precision was within expected ranges and could not account for consistent field variability observed in the studies conducted for the PCRDMP. The results are thought to be indicative of field variability, rather than an indication of sampling and analysis precision.

For an assessment of PCB data accuracy, matrix sample results were examined. The average matrix spike recovery, for the 49 matrix spike samples analyzed, was 93.8 percent.

Laboratory reports containing PCB data along with supporting documentation are provided in Appendix C (bound separately). Data that did not meet the data quality objectives are not included in this summary report. The level of completeness in this data set exceeds the normal level of completeness for work of this nature.

5. Discussion

The 1993 PCRDMP data were evaluated for evidence of correlations between two sites consisting of location HRM 196.8 upstream of the remnants (upstream location) and location 194.2 downstream of the remnants (downstream location):

- Temporal Trends;
- Spatial Trends;
- Heterogeneity of River PCB Concentrations;
- Correlation between PCB concentrations with TSS and Flow;
- PCB Homolog and Congener Distributions;
- Conceptual Model of PCB Transport; and
- Summary

The discussion below is restricted to the region of the river between HRM 196.8 and HRM 194.2, since water column PCB concentrations at the background location (HRM 197.0) were generally less than the method detection limit (<11 ng/l). Evaluation of the data was complicated by the presence of the Bakers Falls source. The impact of source control measures during 1993 were responsible for reduction of water column PCB concentrations during the second half of 1993. Details of the topics listed above are provided in the subsections below.

5.1. Temporal trends

Water column PCB concentrations were variable during the first half of the year and in the second half of the year concentrations decreased to <50 ng/l (Figure 3). The temporal patterns of water column PCB concentrations were in sharp contrast to 1992 (Figure 14). During 1993 there was no sustained period of elevated PCB levels which occurred in the summer and fall of 1992.

The highest water column PCB concentrations in 1993 occurred during the first half of the year prior to implementation of source control measures at Bakers Falls. Elevated concentrations may have been associated with flow increases which remobilized PCBs previously deposited during the summer and fall of 1992 during a low flow period which would have allowed deposition of PCBs. In contrast to 1992, elevated concentrations during 1993 were not sustained over prolonged periods. Typically, elevated concentrations were limited to single sampling locations and sampling rounds. The pulsed nature of the elevated PCB concentrations complicated evaluation of the data.

Activities at the Bakers Falls source appeared to have an immediate impact on water column PCB concentrations during 1993. Source control measures began in January with the reconstruction of a gate structure located immediately upstream of the abandon Allen Mill. Increases in water column PCB concentrations at that time may have been correlated with disruption of sediments during construction activities. Following implementation of additional source control measures in April, and the fall and winter of 1993, water column PCB concentrations decreased and generally remained low throughout the remainder of 1993. Source control measures evidently reduced water column PCB concentrations, as well as the overall variability of PCB concentrations in the river.

Comparison of data for selected time period identified long term statistical trends (Figure 15). During 1993 the highest water column PCB concentrations occurred during the spring (Figure 15a) and decreased over time (Figure 15b and c). Each time period examined during 1993 was lower than the mean water column concentrations observed in 1992.

5.2. Spatial trends

The discussion of spatial trends is divided into two subsections:

- Upstream and downstream
 - general trends
 - statistical evaluation
- Within remnant region
 - general trends
 - statistical evaluation

Details of these topics are provided below.

5.2.1. Trends upstream and downstream of remnants

General trends

There are several limitations in the direct quantitative comparison of the 1993 PCRDMP data from upstream of the remnants (HRM 196.8) and downstream of the remnants (HRM 194.2) as identified following the 1992 monitoring (O'Brien & Gere 1993b) which need to be addressed when examining the data:

- Comparison of the data from the two locations may include biases due to differences in sampling methods. The upstream samples (HRM 196.8) were generally collected as a single grab sample along the western shore, whereas the downstream samples (HRM 194.2) were collected from a bridge as depth integrated composite samples collected at the center of the river channel.
- The relationship between the PCB concentrations at the two sites may be dynamic, as PCB concentrations at both locations were variable during the first half of the year. The data also suggest that under certain conditions, flow patterns may not allow complete mixing of water between Bakers Falls and the HRM 196.8 sampling station. This limitation may be important due to the proximity of the Bakers Falls PCB source to sample location HRM 196.8. This sampling location was considered

representative under summer low flow and loading conditions observed in 1992.

- Although flows are similar at each location, water velocity is expected to be different. The channel in the vicinity of HRM 196.8 is shallower than the water depth at HRM 194.2, with typical depths of approximately 3 to 6 feet, respectively. These differences may account for differences in PCB storage and release patterns.

Therefore, when comparing data from the two sites, the downstream PCB concentrations represent an overestimate of apparent remnant contributions to water column PCB concentrations.

Water column PCB concentrations at the downstream location were more variable than the those measured at the upstream location as indicated by the standard deviation of the downstream location which was greater than four times that of the upstream results. This was consistent with trends observed in 1992 (O'Brien & Gere 1993). It is thought that variations represented heterogeneity inherent in the river described above which may be associated with differences in water velocity affecting recharge and discharge patterns.

Statistical trends

Despite this high variability, the median concentrations were much closer and results for both locations were below the PQL (44 ng/l) when compared with 1992 data for which median concentrations for both locations were above the PQL. A statistical summary of 1992 and 1993 data from both locations is provided below:

Statistic	1992 Location		1993 Location	
	HRM 196.8	HRM 194.2	HRM 196.8	HRM 194.2
Minimum	<11	<11	<11	<11
Maximum	721	941	256	1086
Geometric Mean	154	113	19	38
Median	44	77	21	33
Standard Deviation	166	245	39	169

Water column PCB loading trends upstream of the remnant deposits and apparent loading through the remnant pool were not statistically correlated ($r^2=0.07$) (Figure 16). The correlation changed compared to 1992 data ($r^2=0.80$) (O'Brien & Gere 1993b) apparently due to reduction of the source and the pulsed nature of 1993 PCB water column concentrations.

The medians for the upstream and downstream monitoring locations were compared using box plot analyses which confirmed the lack of statistical correlation between the two sites (Reckhow and Chapra 1983) (Figure 17). Box plots (Reckhow and Chapra 1983) provide a summary of seven statistical components:

- Mean is represented by a "+" sign.
- Median is represented by a horizontal bar in the interior of the box.
- First and third quarterlies are represented by the upper and lower limits of the box.
- Interquartile ranges of up to 1.5 are represented by the central vertical lines called "whiskers".
- Values outside of the 1.5 interquartile range, but inside 3 interquartile ranges of the box are marked by zeros (0).
- Standard deviation of the median is represented by the notch height. When the notches of any two boxes overlap in a vertical sense, the medians are not significantly different at about the 95 percent confidence level.
- Relative sample sizes can be judged by box widths.

The box plots present data from the weekly water column monitoring. For sample dates with multiple data for the same location, the mean PCB concentration was utilized in the statistical analysis. The box plot evaluation indicated that the upstream and downstream median water column PCB concentrations were not statistically similar, as given by the lack of vertical overlap of the box plot notches for these two sample locations.

Statistical evaluation of trends was also performed using the Q test (Christian 1980) to identify outliers. Trends identified by this

technique indicate an overall decline in water column PCB concentrations at both locations (Figure 18).

5.2.2 Trends within the remnant area

General trends

Float surveys performed during low flow were used to assess spatial patterns of water column PCBs within the remnant region of the river (HRM 196.4 though HRM 194.7). Results of float survey sampling consistently showed low concentrations throughout the remnant region similar to water column concentrations observed at upstream and downstream locations. Concentration differences were small and were within variability ranges observed previously in the river. Therefore, float survey results were consistent with hypothesized river dynamics and did not indicate that the remnants are contributing PCBs to the water column.

Relative trends of water column PCB concentrations observed during Float surveys were inconsistent, therefore contributions of each sampling location was not clear. Although concentrations generally increased slightly from upstream to downstream, the highest PCB concentrations observed during the float surveys occurred in the July sampling round and concentrations actually decreased through the remnant areas. The similarity of homolog and congener distributions for each location sampled during the float survey provides further evidence that the PCB concentrations are derived from the same source.

Statistical trends

Comparison of float survey samples collected at HRM 196.8 with samples collected at the shore sampling location during routine weekly monitoring at the same river mile were examined to assess spatial variability across the river, although short-term temporal variability (in minutes) could be inferred, as well. Results of the these analyses are presented below.

<u>PCB concentration (ng/l)</u>			
<u>Date collected</u>	<u>Shore location</u>	<u>Float survey</u>	<u>RPD</u>
May 26, 1993	256	19	172
July 28, 1993	19	20	5
August 18, 1993	25	22	13
September 2, 1993	<11	14	NA
September 15, 1993	25	18	33
September 29, 1993	25	17	38
October 21, 1993	40	19	71

For the seven samples used in this comparison, the mean RPD was 55 percent and the range was 5 to 172 percent. The relatively high variability between samples collected at this location suggests that PCB concentrations were not uniform in the river channel. Samples collected from shore had higher concentrations than those collected in the middle of the river in five out of the seven samples compared. Similar results were observed of samples collected across the river at this location during the 1992 monitoring program (O'Brien & Gere 1993b). No trends were evident to otherwise explain the differences.

5.3. River heterogeneity

Peak concentrations during 1993 were indicative of heterogeneity in the river described previously (O'Brien & Gere 1993b). Three elevated concentrations were detected in individual samples early in the year. These elevated concentrations were not sustained over extended periods. In fact, where duplicate and collocated sample results were available for elevated PCB results, they generally indicated that these elevated concentrations were not reproducible:

Sample date	Sample location	Sample type	Concentration (ng/l)	
			result 1	result 2
May 5, 1993	HRM 194.2	Duplicate	665	36
May 26, 1993	HRM 196.8/ HRM 196.8C	Collocated	256	19

This lack of correlation was in contrast to correlation observed in lower concentration samples where the overall RPD for duplicate results was one percent. These data suggest that pulsed releases of PCBs occurred. In this type of system the limitations of sampling are evident and long-term results are considered more reliable indicator of trends.

Evaluation of the May 5 duplicate results included a review of results of a matrix spike sample and equipment blank sample collected from the same location. The matrix spike recovery for that sample was zero percent. However, a spike sample of laboratory reagent water was within performance criteria, therefore it was concluded that analytical error was not responsible. The equipment blank result was non-detect for PCBs (<11 ng/l) indicating that sampling error was not responsible for the differences between the original and duplicate results. Therefore, The absence of spike recovery was again attributed the variability of PCB concentrations in that sample, although analytical or sampling error can not completely be ruled out.

Concentration differences observed between float survey sampling locations were generally on the same order of magnitude as variability observed in the shore sampling site verification study results collected during the 1992 program (O'Brien & Gere 1993b) and comparison of shore and float survey results collected at HRM 196.8 during 1993, as discussed in subsection 5.2 above. Therefore, it is uncertain whether trends were the result of field conditions or introduced by sampling variability.

To further evaluate the heterogeneity of water column PCB concentrations two samples were collected simultaneously from the west channel at HRM 194.2 using two different sampling methods. Comparison of the results indicate close agreement:

<u>HRM 194.2, West</u>		
Sample date	Sample type	Concentration (ng/l)
October 21	Composite	<11
October 21	Grab	12

One sample was collected as a depth integrated composite sample and the other sample was collected as a surface grab sample. Agreement of the results provide support for the comparability of samples collected during float surveys.

5.4. Correlation of PCB concentrations, TSS, and Flow

Flow and TSS were monitored for the PCRDMP to evaluate whether water column PCB concentrations could be attributed to scouring of remnant deposits. Under such circumstances it might be anticipated that elevated PCB concentrations would be correlated with elevated TSS and/or high flow. The results of the 1993 PCRDMP provide weak evidence of such correlations. Elevated PCB concentrations were not correlated with flow at HRM 196.8 and HRM 194.2 ($r^2 = 0.07$ and $r^2 = 0.04$, respectively) (Figure 19). Concentrations of water column PCBs were also not correlated with TSS ($r^2 = 0.002$ and $r^2 = 0.07$, respectively) (Figure 20). Nor were TSS concentrations correlated with flow ($r^2 = 0.07$ and $r^2 = 0.08$, respectively) (Figure 21). The lack of association of water column PCB concentrations, TSS, and flow suggests that mechanisms other than scouring are responsible for transport of PCBs in the river for the monitoring period. In addition, the generally low water column TSS concentrations (mean concentration 7 mg/l) indicate limited sediments in this region of the river are available for scouring.

5.5. PCB homolog and congener distributions

Homolog and congener distributions were consistent with 1992 PCRDMP results. Water column PCB homolog and congener distributions in the vicinity of the remnants correlated with patterns found in samples from the Bakers Falls source. Following 1992 monitoring, the presence of the source was inferred from results of congener PCB analyses which identified the water column PCBs as an unaltered Aroclor 1242 pattern. Previous monitoring, by others (Tofflemire 1984; Harza 1992a,b) had implicated the presence of a PCB source upstream of the remnant deposits. Congener results were in contrast to those anticipated if the remnants had been the primary contributor. Historic data, although scarce, identified PCBs in remnants as an altered Aroclor pattern due to environmental weathering (Canonie Environmental 1990). Similar results in the water column would be expected if the capped remnants were actively contributing PCBs to the water column (O'Brien & Gere 1993b).

Data collected from sampling locations upstream of the remnant deposits indicate that the Bakers Falls source(s) consists predominantly of Aroclor 1242 that has not been altered or degraded by environmental processes. This is unusual because it is common for PCB homolog and congener distributions to change when exposed to the environment over extended periods, due to weathering. Therefore, the similarity of PCBs in samples collected near Bakers Falls to that of unaltered Aroclor 1242 is significant because it allows the "fingerprinting" of the PCBs in the river originating from this source (O'Brien & Gere 1993b).

Aroclor 1242 is distinguished by the presence of primarily tri- and tetra-chlorinated biphenyls. Likewise, similar homolog distributions were identified in the samples collected for the PCRDMP, from Bakers Falls to the sampling location downstream of the remnant deposits. In contrast, historic research identified the PCBs buried in upper river sediments to contain primarily mono- and di-chlorinated biphenyls (O'Brien & Gere 1991 and 1993c) characteristic of biological alteration. Such alteration results in selective meta- and para- dechlorination producing a unique composition which is not present in commercial mixtures (Brown et al. 1987a; Brown et al. 1987b; Brown et al. 1984).

The remnant deposits, were buried sediments until the removal of the Fort Edward Dam in 1973. Therefore, the PCBs contained in these sediments should show evidence of environmental weathering as observed in Hudson River sediments. Unfortunately, characterization conducted in association with the sediment deposits containment consisted of low-resolution GC chromatography and PCB concentrations were reported as Aroclors. These data alone are insufficient to determine the PCB congener distributions of the remnant deposits.

5.6. Conceptual model of PCB transport

A conceptual model of the hypothesized river dynamics was presented in the 1992 PCRDMP summary report to explain river heterogeneity (Figure 22). The results of the 1993 PCRDMP support the model. To recall, comparison of data from HRM 196.8, above the remnant deposits, and data from HRM 194.2, below the remnant deposits, provides evidence for the transport and deposition dynamics conceptualized in Figure 22. During the summer of 1992 PCB levels were recharged in this region of the river, PCB concentrations at both of these two locations were elevated to similar levels during that period. Water column PCB concentrations remained elevated in this region of the river for an extended period (O'Brien & Gere 1993b).

During the high flow period which occurred in the spring of 1993, PCB concentrations at these two locations diverged somewhat when previously deposited PCBs were discharged. Transport of PCBs was facilitated by increases in river flow, whereas steady flow and decreases in flow tended to allow PCB deposition and limit PCB resuspension. Discharging periods were characterized by short-term pulses of PCBs. Observed elevated PCB concentrations typically occurred as single observations which were not confirmed at both upstream and downstream locations or in duplicate samples.

No recharging periods occurred in 1993 similar to those which were observed in 1992. On the contrary, water column PCB concentrations remained near the detection limit from summer throughout the remainder of 1993. This difference appears to be associated with PCBs stored in the river bed which became a

secondary source of PCBs following periods of elevated loading from the Bakers Falls source area. Thus, during periods of low PCB loading from the Bakers Falls source, the relative contribution of PCBs stored in the river bed became the predominant contribution of water column PCBs downstream of the Bakers Falls source area.

Reduction of the Bakers Falls source during 1993 resulted in immediate improvement in water column PCB concentrations. Water column concentrations in December ranged from non-detect (<11 ng/l) to 44 ng/l (the PQL). Remedial measures completed in December included control of water exiting the tailrace tunnel and beginning of water removal from the tunnel via pumping. Over time, the model predicts that water column PCB heterogeneity will decrease as removal of residual PCBs from the river occurs.

The differences observed between water column concentrations upstream and downstream of the remnants have been attributed to the limitations of sampling and the heterogeneity of the river. Reduction of the source resulted in similar decreases both upstream and downstream of the remnants. At the end of 1993, water column concentrations were low and the difference between water column concentrations upstream and downstream of the remnants was small. These data are consistent with the hypothesized dynamics of water column PCBs in this region of the river and the results indicate that little or no loading from the remnants occurs.

5.7. Summary

Evaluation of the potential contributions of the remnants to water column PCB concentrations was confounded by the presence of the Bakers Falls source which periodically contributed PCBs to the river.

Short-term results of water column PCB analyses during and following source control measures implemented during 1993 indicate that significant improvements have occurred. During 1993 a RI of the Bakers Falls source and related interim remedial measures (IRMs) were performed (O'Brien & Gere 1994). The immediate impact of interim remedial measures implemented during 1993 were evident in water column PCB concentration trends. Source control

measures began with the reconstruction (January 1993) and closure of a gate structure (April 1993) which controlled water flow through a raceway leading into the abandoned Allen Mill structure located on the east bank of the river, adjacent to Bakers Falls and the General Electric Hudson Falls facility. Subsequently, seep collection (September 1993), and source material excavation and removal measures (October 1993 through February 1994) were implemented at Allen Mill. In December 1993, water exiting the tailrace tunnel was controlled and removal of water from the tunnel via pumping began.

Results of weekly water column monitoring and float surveys suggest that remedial measures conducted at the Bakers Falls source reduced the primary source of PCBs in this region of the river. Decreases in water column PCB concentrations were observed at sampling locations both upstream and downstream of the remnant deposits. However, water column concentrations of PCBs in the river, both upstream and downstream of the remnants, persisted at concentrations above the detection limit (11 ng/l) throughout the remainder of 1993. Water column congener distributions at both locations resembled unaltered Aroclor 1242 that were similar to distributions found at the source during the 1993 investigation of the Bakers Falls source area (O'Brien & Gere 1994). These congener distributions suggested that the Bakers Falls source continued to control PCB concentrations in this region of the river. Thus, although the 1993 PCRDMP results indicate that the IRMs have reduced PCB loading in the Hudson River substantially, other minor sources of PCBs persist in the Bakers Falls area. Several potential remaining sources were identified by the RI (O'Brien & Gere 1994).

With the reduction of the Bakers Falls source the difference between concentrations upstream of the remnants (HRM 196.8) and downstream of the remnants (HRM 194.2) decreased. This relationship between the two monitoring locations was expected due to the hypothesized role of the Bakers Falls source in controlling PCB concentrations in this portion of the river. Had the remnant been the primary contributor, the downstream concentrations would have been expected to remain elevated. The contributions of the remnants would thereby cause concentration difference between the two locations to diverge. Continued monitoring is required to evaluate this phenomenon further.

6. Conclusions

Several conclusions can be drawn from the 1993 PCRDMP:

- The remnant deposits contribution to PCB concentrations in the water column, if present, was very small during 1993. This conclusion will be verified by continued monitoring during 1994. Supporting evidence includes:
 - Apparent loading from the remnants decreased substantially following Bakers Falls source control measures. Both sites (upstream and downstream of the remnants) had similar temporal water column PCB trends between June through the end of the year following initiation of source control measures.
 - Water column PCB congener and homolog distributions provide additional evidence that the Bakers Falls PCB source(s) continue to be responsible for the presence of PCBs in the river. Congener and homolog distributions detected at sampling stations HRM 196.8 and HRM 194.2 were both similar to Aroclor 1242 distributions found at the Bakers Falls source.
- The Bakers Falls source located upstream of the remnants is the dominant source of water column PCBs in this region of the river. Following source control measures, water column PCB concentrations decreased significantly at locations both upstream of the remnants (HRM 196.8) and downstream of the remnants (HRM 194.2). Although the Bakers Falls source has been reduced to lower levels, it has not been eliminated.
- Control of the Bakers Falls source prevented a reoccurrence of seasonal water column PCB concentration increases observed in fall 1991 and late summer 1992. Seasonal trends are sharply contrasted when 1992 and 1993 data are compared. Elevated concentrations detected during the summer of 1992 were not

observed in 1993. Conversely, during the summer of 1993 water column concentrations were near the detection limit (11 ng/l).

- At low flow, samples collected from the western shore at location HRM 196.8 are reasonably representative of center channel characteristics. Nonetheless, samples collected from this location under varying flow conditions may not wholly account for PCB loading from the eastern shore (Bakers Falls) source.
- Float survey data are consistent with weekly water column data. Low concentrations of PCBs resembling Aroclor 1242 were detected at float survey sampling locations. Variability between sampling locations was generally within limitations of sampling and analysis.
- Comparison of two methods of sampling at HRM 194.2 indicated close agreement of results. One sample was collected as depth integrated composite sample and the other sample was collected as a surface grab sample.

7. Recommendations

The 1994 sampling and analysis program will continue the routine monitoring of the upper Hudson River in the vicinity of the remnant deposits. The principal objective of this monitoring will be to evaluate whether the remnants are contributing PCBs to the water column. In addition, the results of the monitoring will be used to further define the transport of PCBs in the vicinity of the remnant deposits and to track the impact of the Bakers Falls PCB source reduction on water column PCB concentrations in this region of the river. Reduction of the Bakers Falls source will allow confirmation of previous observations that the remnants are contributing insignificant PCB concentrations to the water column.

The PCRDMF has become more routine following the reduction and stabilization of water column PCB concentrations in response to control of the Bakers Falls source. As such, recommendations for 1994 include some modifications to improve the efficiency of the program. Recommendations for the 1994 monitoring program are presented in two subsections:

- Proposed Field Sampling Program
- Alternative analytical method

Details are provided below.

7.1. Proposed field sampling program

The 1994 program will consist of a continuation of the routine water column sampling and analysis performed in 1993. Sampling will be conducted at the same three sampling locations:

Sample Description	River Mile	Significance
Rt 27 Bridge, Hudson Falls	HRM 197.0	Background location, upstream of Bakers Falls
Canoe Carry	HRM 196.8	Upstream of remnants
Rt 197 Bridges, Fort Edward	HRM 194.2	Downstream of remnants

As in 1992 and 1993, samples will be analyzed for PCB congeners by capillary column methodology (NEA608-CAP using a DB-1 capillary column) and TSS will be analyzed by USEPA method 160.1. Following laboratory errors in June and July of 1993 field samples intended for PCB analysis have been collected in duplicate to provide archival samples should verification of results be required. This procedure will continue in 1994.

Four changes in the PCRDMP are recommended for implementation in 1994:

- reduce sampling frequency
- discontinue float surveys
- discontinue matrix spike blank QA/QC sample
- improve efficiency of analytical batches

Details of each of these recommendations are provided below.

Reduce sampling frequency. Reduced sampling frequency is warranted due to the water column PCB decreases in 1993 following source control measures. This reduction in sampling frequency has been approved by the USEPA (1993). The sampling schedule is planned as follows:

- Routine sampling every other week throughout 1994, except,
- Weekly sampling during spring high flow period, weeks of March 14 through May 30, 1994,
- Weekly sampling during late summer, weeks of August 22 through September 12, 1994.

Sampling completed in 1994 to date has followed this schedule.

Discontinue float surveys. It is recommended that float surveys not be included due to the low water column PCB concentrations present in the river. During 1993, the float survey sampling locations were generally less than the PQL (44 ng/l). Results at this concentration level are considered estimates. Moreover, congener distributions become less reliable at these low concentrations. Therefore, float surveys would not provide additional meaningful information beyond that of the fixed stations provided that PCBs remain less than the PQL. Should water column concentrations increase significantly above the PQL, float surveys could be used to evaluate possible remnant contributions.

Improve efficiency of analytical batches. Combining two sampling rounds for analysis as one analytical batch is recommended to improve efficiency and allow reduction in QA/QC samples. For the past two years the PCRDMP has analyzed samples for each week of sample collection as separate analytical rounds. Each round included a complete complement of QA/QC samples consisting of a field duplicate, matrix spike, equipment blank, and method blank. With control of the Bakers Falls source it is sufficient to report results on a monthly basis.

For 1994, analysis of two rounds of sampling together would allow reduction in QA/QC and laboratory documentation packaging without sacrificing data quality. Therefore, each analytical batch would consist of two sampling rounds:

- One sampling round with extraction and analysis of a complete complement of QA/QC samples.
- The other round would include analysis of an equipment blank and method blank. The remainder of the QA/QC samples for this round (field duplicate and matrix spike) would be extracted, but would not be analyzed except if results indicate possible QA/QC concerns.

Each sampling round would be extracted separately to meet holding times, as indicate above.

Archived duplicate field and QA/QC samples would also be available if analytical problems are encountered. These samples could be analyzed if laboratory or sampling concerns warrant. Although extraction of archived samples would likely be performed outside of extraction holding times, the results would be expected to be comparative with original results and could be used for confirmation purposes.

Discontinue matrix spike blank QA/QC sample. The need for matrix spike blank samples can be reduced by fixing the matrix spike sampling location at the background location (HRM 197.0). Matrix spike blanks are laboratory reagent water samples spiked with PCBs for a source independent from the source used for calibration standards to evaluate the efficiency of laboratory extraction procedures. This sample is similar to a matrix spike sample which is a field sample spiked with PCBs from a source independent of the source used for calibration standards to evaluate the efficiency of extraction in the field matrix. Field data from the past two years indicates that samples collected at the background location have consistently had concentrations below or near the detection limit. Also, matrix spike recoveries from samples collected at this location over the past two years have been reliable and no matrix problems with spike recoveries have been identified. By collecting matrix spike samples at this location on a permanent basis it is expected that matrix spike blank samples will not be needed. To initiate this procedure, matrix spike samples would be collected each round at HRM 197.0 rather than on a rotational basis from each sampling station as performed in 1992 and 1993.

7.2. Alternative analytical method for USEPA consideration

In the past, the capillary column methodology was useful to develop data on the congener distributions at each location. This data was used to isolate the Bakers Falls source due to the similarity of water column PCB congener distributions to Aroclor 1242 and material sampled at the Bakers Falls source. With the reduction of loading from this source following remediation, PCB concentrations in this region of the river have declined to values generally below the PQL (44 ng/l). The reliability of congener distributions measured at these

levels decreases as the detection limits for individual congeners is approached, as discussed previously.

Presently, water column analysis for PCBs by Aroclor is sufficient to meet current data quality objectives most of the time. Congener analyses of samples is only necessary during the periods specified below.

The reduction in water column PCB concentrations to below the PQL (<44 ng/l) and the long term consistency of the PCB congener and homolog distributions at the remnant monitoring stations favors analysis of water column samples for PCBs by Aroclor (USEPA method 8080) instead of capillary column analysis. Therefore, we recommend that routinely collected water column samples be analyzed for Aroclors. Should water column PCB concentrations increase above the PQL for two consecutive sampling rounds, capillary column analysis would be used to assess the source of the PCBs.

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Tables

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ENGINEERS, INC.

TABLE 1

**GENERAL ELECTRIC COMPANY
1993 POST-CONSTRUCTION REMNANT DEPOSIT MONITORING
SAMPLING LOCATIONS AND SAMPLE COLLECTION SCHEDULE**

Sample Location	Location Description	Time Frame	Collection Frequency	Laboratory Analyses
WATER COLUMN CHARACTERIZATION				
HRM 197.0	Fenimore Bridge; Hudson Falls, NY	January 4, 1993	One round	Whole Water PCB Aroclors by USEPA Method 8080*; TSS
HRM 196.8	West shore access approximately 0.2 miles downstream of Bakers Falls; Hudson Falls, NY	Jan. 14, 1993 - Dec. 29, 1993	Approximately 1x/week	Whole Water PCB by congener specific methodology; TSS
HRM 194.2	Route 197 Bridge; Fort Edward, NY	April 1993, high flow	Four rounds	Whole Water PCB by congener specific methodology; TSS
FLOAT SURVEY				
HRM 196.8	Center of channel, approximately 0.2 miles downstream of Bakers Falls, Hudson Falls, NY	May 1993 - October 1993	May 26	Whole Water PCB by congener specific methodology; TSS
HRM 196.4	Center of channel, approximately 0.6 miles downstream of Bakers Falls, Hudson Falls, NY		July 28	
HRM 195.8	Center of channel, approximately 1.2 miles downstream of Bakers Falls, Hudson Falls, NY		August 18	
HRM 195.3	Center of channel, approximately 1.7 miles downstream of Bakers Falls, Hudson Falls, NY		September 2	
HRM 194.7	Center of channel, approximately 2.1 miles downstream of Bakers Falls, Hudson Falls, NY		September 15	
			September 29	
			October 21	
HRM 194.2E	East channel, approximately 2.6 miles downstream of Bakers Falls, Hudson Falls, NY	September 29, 1993	One sample	
HRM 194.2W	West channel, approximately 2.6 miles downstream of Bakers Falls, Hudson Falls, NY	October 21, 1993	One sample	

Notes:

TSS = Total Suspended Solids

HRM Approximate Hudson River mile; HRM 0.0 located at the Battery in New York City.

* Method modified for a detection limit of 11 ng/l.

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TABLE 2
GENERAL ELECTRIC COMPANY
POST-CONSTRUCTION REMNANT DEPOSIT MONITORING
WEEKLY WATER COLUMN PCB RESULTS

Date Collected	USGS Flow (2) (cfs)	HRM 197.0 (1)			HRM 196.8 (1)			HRM 194.2 (1)		
		Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments
01/04/93	-	<11	8	A	37	8	AP	63 (60)	6	A
01/04/93	-	-	-	-	-	-	-	76	-	-
01/14/93	7,020	<11 (<11)	6	-	35	2	P	1086	16	-
01/21/93	6,260	18	1	P	26 (21)	1	P	20	5	P
01/27/93	6,100	<11	1	-	<11	2	-	<11 (11)	2	-
02/03/93	4,160	<11 (<11)	8	-	<11	7	-	32	9	P
02/10/93	3,970	<11	2	-	13 (13)	1	P	28	4	P
02/16/93	4,570	12	7	P	-	-	-	46 (44)	8	-
02/24/93	4,510	<11 (<11)	5	-	-	-	-	32	7	P
03/03/93	4,470	<11	8	-	-	-	-	- (28)	9	R
03/10/93	3,010	<11 (<11)	6	-	16	6	P	25	8	P
03/17/93	2,630	12	3	P	22	4	P	58 (61)	7	-
03/23/93	2,660	<11 (<11)	5	-	24	6	P	29	3	P
03/31/93	8,830	<11	14	-	67 (64)	47	-	160	<1	J

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels; HRM 0.0 is located at the Battery in New York City.

(2) USGS mean daily flow data from Fort Edward gauging station.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/l.

PCB Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = data not presented, quality control parameters outside project limits; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

Eg = Grab sample collected from east shore of east channel due to ice cover on the river at the routine sampling location.

Geometric means calculated for Total PCB using a value of one-half the detection limit for results less than the detection limit.

Arithmetic means calculated for flow and TSS, using one-half the detection limit for TSS results less than the detection limit.

Parantheses () indicate results of duplicate analyses.

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TABLE 2
GENERAL ELECTRIC COMPANY
POST-CONSTRUCTION REMNANT DEPOSIT MONITORING
WEEKLY WATER COLUMN PCB RESULTS

Date Collected	USGS Flow (2) (cfs)	HRM 197.0 (1)			HRM 196.8 (1)			HRM 194.2 (1)		
		Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments
04/07/93	6,110	14	20	P	<11 (<11)	21	-	27	19	P
04/12/93	20,300	12 (12)	12	P	44	2	J	121	<1	J
04/13/93	18,100	<11 (<11)	4	-	96	1	-	60	2	-
04/20/93	16,200	<11 (<11)	6	-	13	5	P	46	9	-
04/23/93	27,900	13	12	P	48	29	-	266 (258)	29	-
04/24/93	27,600	18	3	P	108	9	-	80 (79)	5	-
04/25/93	27,100	<11	2	-	38	7	P	79	9	-
04/28/93	25,400	<11	8	UJ	32 (32)	11	PJ	47	7	J
05/05/93	11,100	<11	2	UJ	17	6	PJ	665 (36)	3	J
05/12/93	5,830	27 (26)	<1	P	35	<1	P	140	<1	-
05/19/93	3,740	15	<1	P	16	1	P	37	1	P
05/26/93	2,230	<11 (11)	1	-	256	1	-	39	1	P
06/03/93	3,120	<11 (<11)	2	-	13	5	P	32	2	P
06/10/93	2,960	<11	2	-	20 (19)	2	P	26	2	P
06/16/93	3,000	-	<1	R	-	<1	R	-	<1	R
06/23/93	3,510	-	48	R	-	2	R	-	5	R
07/01/93	2,490	-	7	R	-	7	R	-	7	R
07/07/93	2,670	<11	4	-	25	3	P	132	3	-
07/15/93	2,470	-	6	R	-	8	R	-	8	R
07/23/93	2,410	<11 (<11)	5	-	<11	5	-	26	4	P
07/28/93	2,660	<11	12	-	19	11	P	30 (31)	11	P

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels; HRM 0.0 is located at the Battery in New York City.

(2) USGS mean daily flow data from Fort Edward gauging station.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/l.

PCB Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = data not presented, quality control parameters outside project limits; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

Eg = Grab sample collected from east shore of east channel due to ice cover on the river at the routine sampling location.

Geometric means calculated for Total PCB using a value of one-half the detection limit for results less than the detection limit.

Arithmetic means calculated for flow and TSS, using one-half the detection limit for TSS results less than the detection limit.

Parantheses () indicate results of duplicate analyses.

TABLE 2
GENERAL ELECTRIC COMPANY
POST-CONSTRUCTION REMNANT DEPOSIT MONITORING
WEEKLY WATER COLUMN PCB RESULTS

Date Collected	USGS Flow (2) (cfs)	HRM 197.0 (1)			HRM 196.8 (1)			HRM 194.2 (1)		
		Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments
08/04/93	2,440	<11	5	-	30	5	P	35	6	P
08/12/93	2,520	<11	8	-	28	4	P	33 (33)	5	P
08/18/93	2,630	<11 (<11)	4	-	25	6	P	35	4	P
08/25/93	2,810	<11	1	-	16	1	P	35 (34)	1	P
09/02/93	2,510	<11	4	-	<11	6	-	26	4	P
09/08/93	2,240	<11	5	-	21	4	P	23 (23)	3	P
09/15/93	2,950	<11	10	-	25	7	P	27 (27)	9	P
09/22/93	2,500	<11 (<11)	5	-	21	4	P	35	4	P
09/29/93	2,880	<11	11	UJ	25 (25)	13	PJ	50	10	J
10/06/93	2,660	<11	2	-	17	1	P	24	2	P
10/13/93	2,480	<11	4	-	16	6	P	45	4	-
10/21/93	3,230	<11 (<11)	11	-	40	10	P	<11	6	W
10/21/93	3,230	-	-	-	-	-	-	34	6	PE
10/28/93	2,720	<11	6	-	<11 (<11)	8	-	14	7	P
11/03/93	2,560	<11	8	-	<11	9	-	27 (25)	6	P
11/10/93	3,540	15	3	P	13	2	P	21	5	P
11/17/93	3,680	<11 (<11)	7	-	16	7	P	22	8	P
11/24/93	3,040	<11	8	UJ	13	8	PJ	13 (13)	8	PJ

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels; HRM 0.0 is located at the Battery in New York City.

(2) USGS mean daily flow data from Fort Edward gauging station.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/l.

PCB Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = data not presented, quality control parameters outside project limits; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

Eg = Grab sample collected from east shore of east channel due to ice cover on the river at the routine sampling location.

Geometric means calculated for Total PCB using a value of one-half the detection limit for results less than the detection limit.

Arithmetic means calculated for flow and TSS, using one-half the detection limit for TSS results less than the detection limit.

Parantheses () indicate results of duplicate analyses.

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TABLE 2
GENERAL ELECTRIC COMPANY
POST-CONSTRUCTION REMNANT DEPOSIT MONITORING
WEEKLY WATER COLUMN PCB RESULTS

Date Collected	USGS Flow (2) (cfs)	HRM 197.0 (1)			HRM 196.8 (1)			HRM 194.2 (1)		
		Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments	Total PCBs (ng/l)	TSS (mg/l)	Comments
12/01/93	5,710	<11	7	-	<11 (<11)	4	-	19	5	P
12/08/93	3,650	<11 (<11)	10	-	<11	13	-	<11	10	-
12/15/93	3,760	<11	9	-	<11	8	-	11	9	P
12/22/93	4,350	<11 (<11)	4	-	21	4	P	12	5	P
12/29/93	4,150	11	10	P	15 (15)	7	P	44	4	Eg
STATISTICAL SUMMARY										
Mean	6,275	<11	7	-	19	7	-	38	6	-
Median	3,370	<11	6	-	21	6	-	33	5	-
Minimum	2,230	<11	<1	-	<11	<1	-	<11	<1	-
Maximum	27,900	27	48	-	256	47	-	1,086	29	-
Std. Dev.	6,949	4	7	-	39	8	-	169	5	-

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise a sample is a composite of West (main) and East channels; HRM 0.0 is located at the Battery in New York City.

(2) USGS mean daily flow data from Fort Edward gauging station.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/l.

PCB Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = data not presented, quality control parameters outside project limits; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

Eg = Grab sample collected from east shore of east channel due to ice cover on the river at the routine sampling location.

Geometric means calculated for Total PCB using a value of one-half the detection limit for results less than the detection limit.

Arithmetic means calculated for flow and TSS, using one-half the detection limit for TSS results less than the detection limit.

Parantheses () indicate results of duplicate analyses.

317013

TABLE 3
General Electric Company
Post-Construction Remnant Deposit Monitoring
Weekly Water Column Data
PCB Homolog Distributions

Background Location - HRM 197.0 (1)										
Date Collected	Total PCB (ng/l)	Comments	Homolog Distribution (weight %)							
			Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
01/04/93	<11	A	-	-	-	-	-	-	-	-
01/14/93	<11	-	-	-	-	-	-	-	-	-
01/14/93	<11	dup	-	-	-	-	-	-	-	-
01/21/93	18	P	0.0	16.8	29.9	25.6	20.0	7.8	0.0	0.0
01/27/93	<11	-	-	-	-	-	-	-	-	-
02/03/93	<11	-	-	-	-	-	-	-	-	-
02/03/93	<11	dup	-	-	-	-	-	-	-	-
02/10/93	<11	-	-	-	-	-	-	-	-	-
02/16/93	12	P	0.0	15.9	33.3	18.3	21.5	11.1	0.0	0.0
02/24/93	<11	-	-	-	-	-	-	-	-	-
02/24/93	<11	dup	-	-	-	-	-	-	-	-
03/03/93	<11	-	-	-	-	-	-	-	-	-
03/10/93	<11	-	-	-	-	-	-	-	-	-
03/10/93	<11	dup	-	-	-	-	-	-	-	-
03/17/93	12	P	0.0	1.2	32.3	30.1	26.9	9.5	0.0	0.0
03/23/93	<11	-	-	-	-	-	-	-	-	-
03/23/93	<11	dup	-	-	-	-	-	-	-	-
03/31/93	<11	-	-	-	-	-	-	-	-	-
04/07/93	14	P	0.0	1.3	40.9	23.7	24.2	9.9	0.0	0.0
04/12/93	12	P	0.0	1.0	35.0	29.5	22.2	12.3	0.0	0.0
04/12/93	12	dup,P	0.0	1.6	35.2	30.4	22.9	9.9	0.0	0.0
04/13/93	<11	-	-	-	-	-	-	-	-	-
04/13/93	<11	dup	-	-	-	-	-	-	-	-
04/20/93	11	P	0.0	0.9	33.6	45.2	13.8	6.6	0.0	0.0
04/20/93	<11	dup	-	-	-	-	-	-	-	-
04/23/93	13	P	0.0	0.6	16.5	31.7	38.1	13.1	0.0	0.0
04/24/93	18	P	0.0	0.9	25.1	22.7	34.0	17.3	0.0	0.0
04/25/93	<11	-	-	-	-	-	-	-	-	-
04/28/93	<11	UJ	-	-	-	-	-	-	-	-
05/05/93	<11	UJ	-	-	-	-	-	-	-	-
05/12/93	27	P	0.0	9.0	18.8	42.5	23.9	5.8	0.0	0.0
05/12/93	26	dup,P	0.0	10.1	25.8	32.2	23.3	8.7	0.0	0.0
05/19/93	15	P	0.0	8.4	24.1	37.1	23.4	7.0	0.0	0.0
05/26/93	<11	-	-	-	-	-	-	-	-	-
05/26/93	11	dup,P	0.0	1.3	30.7	30.3	28.8	8.9	0.0	0.0
06/03/93	<11	-	-	-	-	-	-	-	-	-
06/03/93	<11	dup	-	-	-	-	-	-	-	-
06/10/93	<11	-	-	-	-	-	-	-	-	-
06/16/93	-	R	-	-	-	-	-	-	-	-
06/23/93	-	R	-	-	-	-	-	-	-	-

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/L.

Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = rejected; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

"dup" indicates results of duplicate analyses.

TABLE 3
General Electric Company
Post-Construction Remnant Deposit Monitoring
Weekly Water Column Data
PCB Homolog Distributions

Background Location - HRM 197.0 (1)										
Date Collected	Total PCB (ng/l)	Comments	Homolog Distribution (weight %)							
			Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
07/01/93	-	R	-	-	-	-	-	-	-	-
07/07/93	<11	-	-	-	-	-	-	-	-	-
07/15/93	-	R	-	-	-	-	-	-	-	-
07/23/93	<11	-	-	-	-	-	-	-	-	-
07/23/93	<11	dup	-	-	-	-	-	-	-	-
07/28/93	<11	-	-	-	-	-	-	-	-	-
08/04/93	<11	-	-	-	-	-	-	-	-	-
08/12/93	<11	-	-	-	-	-	-	-	-	-
08/18/93	<11	-	-	-	-	-	-	-	-	-
08/18/93	<11	dup	-	-	-	-	-	-	-	-
08/25/93	<11	-	-	-	-	-	-	-	-	-
09/02/93	<11	-	-	-	-	-	-	-	-	-
09/08/93	<11	-	-	-	-	-	-	-	-	-
09/15/93	<11	-	-	-	-	-	-	-	-	-
09/22/93	<11	-	-	-	-	-	-	-	-	-
09/22/93	<11	dup	-	-	-	-	-	-	-	-
09/29/93	<11	UJ	-	-	-	-	-	-	-	-
10/06/93	<11	-	-	-	-	-	-	-	-	-
10/13/93	<11	-	-	-	-	-	-	-	-	-
10/21/93	<11	-	-	-	-	-	-	-	-	-
10/21/93	<11	dup	-	-	-	-	-	-	-	-
10/28/93	<11	-	-	-	-	-	-	-	-	-
11/03/93	<11	-	-	-	-	-	-	-	-	-
11/10/93	15	P	0.0	0.9	20.7	23.2	36.5	18.8	0.0	0.0
11/17/93	<11	-	-	-	-	-	-	-	-	-
11/17/93	<11	dup	-	-	-	-	-	-	-	-
11/24/93	<11	UJ	-	-	-	-	-	-	-	-
12/01/93	<11	-	-	-	-	-	-	-	-	-
12/08/93	<11	-	-	-	-	-	-	-	-	-
12/08/93	<11	dup	-	-	-	-	-	-	-	-
12/15/93	<11	-	-	-	-	-	-	-	-	-
12/22/93	<11	-	-	-	-	-	-	-	-	-
12/22/93	<11	dup	-	-	-	-	-	-	-	-
12/29/93	11	P	0.0	1.4	41.9	24.8	21.5	10.4	0.0	0.0

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/L.

Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = rejected; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

"dup" indicates results of duplicate analyses.

317015

TABLE 3
General Electric Company
Post-Construction Remnant Deposit Monitoring
Weekly Water Column Data
PCB Homolog Distributions

Upstream of Remnant Areas - HRM 196.8 (1)										
Date Collected	Total PCB (ng/l)	Comments	Homolog Distribution (weight %)							
			Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
01/04/93	37	AP	-	-	-	-	-	-	-	-
01/14/93	35	P	0.0	9.2	39.3	31.7	15.6	4.3	0.0	0.0
01/21/93	26	P	0.0	13.4	34.4	34.9	13.3	4.1	0.0	0.0
01/21/93	21	dup,P	0.0	21.0	32.8	27.3	14.0	5.0	0.0	0.0
01/27/93	<11	-	-	-	-	-	-	-	-	-
02/03/93	<11	-	-	-	-	-	-	-	-	-
02/10/93	13	P	0.0	16.8	36.7	22.2	17.2	7.1	0.0	0.0
02/10/93	13	dup,P	0.0	17.4	33.5	20.9	20.3	7.9	0.0	0.0
02/16/93	-	-	-	-	-	-	-	-	-	-
02/24/93	-	-	-	-	-	-	-	-	-	-
03/03/93	-	-	-	-	-	-	-	-	-	-
03/10/93	16	P	0.0	1.6	43.2	31.2	16.4	7.6	0.0	0.0
03/17/93	22	P	0.0	1.3	38.8	33.0	19.2	7.7	0.0	0.0
03/23/93	24	P	0.0	18.2	33.8	24.1	16.2	7.6	0.0	0.0
03/31/93	67	-	0.0	13.3	37.7	31.7	11.6	5.7	0.0	0.0
03/31/93	64	dup	0.0	14.8	39.0	31.2	10.3	4.7	0.0	0.0
04/07/93	<11	-	-	-	-	-	-	-	-	-
04/07/93	<11	dup	-	-	-	-	-	-	-	-
04/12/93	44	J	0.0	14.1	40.8	33.4	8.0	3.8	0.0	0.0
04/13/93	96	-	0.0	8.5	41.8	38.0	9.0	2.6	0.0	0.0
04/20/93	13	P	0.0	1.3	48.0	32.8	13.0	4.9	0.0	0.0
04/23/93	48	-	0.0	11.5	35.1	30.4	16.5	6.5	0.0	0.0
04/24/93	108	-	0.0	16.8	40.3	30.3	9.7	2.9	0.0	0.0
04/25/93	38	P	0.0	20.0	42.8	25.9	8.1	3.1	0.0	0.0
04/28/93	32	PJ	0.0	12.7	38.6	33.7	11.4	3.5	0.0	0.0
04/28/93	32	dup,P	0.0	12.2	39.1	31.1	12.8	4.7	0.0	0.0
05/05/93	17	PJ	0.0	11.6	37.0	31.2	16.1	4.2	0.0	0.0
05/12/93	35	P	0.0	16.4	33.9	29.6	15.2	5.0	0.0	0.0
05/19/93	16	P	0.0	17.7	29.5	24.8	19.6	8.5	0.0	0.0
05/26/93	256	-	0.0	12.8	40.9	36.1	8.1	2.1	0.0	0.0
06/03/93	13	P	0.0	9.4	30.9	32.4	20.3	7.0	0.0	0.0
06/10/93	20	P	0.0	8.6	28.2	35.1	19.7	8.4	0.0	0.0
06/10/93	19	dup,P	0.0	10.4	32.5	31.1	19.2	6.8	0.0	0.0
06/16/93	-	R	-	-	-	-	-	-	-	-
06/23/93	-	R	-	-	-	-	-	-	-	-
07/01/93	-	R	-	-	-	-	-	-	-	-
07/07/93	25	P	0.0	12.2	40.6	30.4	10.6	6.1	0.0	0.0
07/15/93	-	R	-	-	-	-	-	-	-	-
07/23/93	<11	-	-	-	-	-	-	-	-	-
07/28/93	19	P	0.0	1.6	38.7	34.1	19.1	6.5	0.0	0.0

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/L.

Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = rejected; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

"dup" indicates results of duplicate analyses.

317016

TABLE 3
General Electric Company
Post-Construction Remnant Deposit Monitoring
Weekly Water Column Data
PCB Homolog Distributions

Upstream of Remnant Areas - HRM 196.8 (1)										
Date Collected	Total PCB (ng/l)	Comments	Homolog Distribution (weight %)							
			Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
08/04/93	30	P	0.0	11.0	37.7	31.7	14.9	4.9	0.0	0.0
08/12/93	28	P	0.0	13.8	36.2	32.9	13.4	3.8	0.0	0.0
08/18/93	25	P	0.0	11.1	42.5	31.1	11.0	4.5	0.0	0.0
08/25/93	16	P	0.0	1.1	35.4	32.0	18.4	13.0	0.0	0.0
09/02/93	<11	-	-	-	-	-	-	-	-	-
09/08/93	21	P	0.0	1.3	36.4	34.2	19.8	8.3	0.0	0.0
09/15/93	25	P	0.0	14.1	32.3	32.0	15.2	6.4	0.0	0.0
09/22/93	21	P	0.0	15.9	33.3	31.6	14.1	5.1	0.0	0.0
09/29/93	25	PJ	0.0	15.6	30.9	34.8	13.5	5.2	0.0	0.0
09/29/93	25	dup,P	0.0	9.5	32.4	36.0	16.1	6.1	0.0	0.0
10/06/93	17	P	0.0	11.7	34.8	31.0	15.2	7.4	0.0	0.0
10/13/93	16	P	0.0	14.8	33.2	29.3	15.6	7.2	0.0	0.0
10/21/93	-	-	-	-	-	-	-	-	-	-
10/21/93	40	P	0.0	15.9	39.5	30.0	11.1	3.6	0.0	0.0
10/28/93	<11	-	-	-	-	-	-	-	-	-
10/28/93	<11	dup	-	-	-	-	-	-	-	-
11/03/93	<11	-	-	-	-	-	-	-	-	-
11/10/93	13	P	0.0	1.7	36.3	27.6	23.4	11.1	0.0	0.0
11/17/93	16	P	0.0	15.4	41.6	22.3	15.4	5.4	0.0	0.0
11/24/93	13	PJ	0.0	2.4	43.8	25.0	19.5	9.3	0.0	0.0
12/01/93	<11	-	-	-	-	-	-	-	-	-
12/01/93	<11	dup	-	-	-	-	-	-	-	-
12/08/93	<11	-	-	-	-	-	-	-	-	-
12/15/93	<11	-	-	-	-	-	-	-	-	-
12/22/93	21	P	0.0	1.3	43.8	37.2	13.4	4.4	0.0	0.0
12/29/93	15	P	0.0	18.4	35.0	22.5	15.7	8.4	0.0	0.0
12/29/93	15	dup,P	0.0	17.2	35.3	22.5	15.9	9.1	0.0	0.0

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/L.

Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = rejected; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

"dup" indicates results of duplicate analyses.

317017

TABLE 3

General Electric Company
Post-Construction Remnant Deposit Monitoring
Weekly Water Column Data
PCB Homolog Distributions

Downstream of Remnant Areas - HRM 194.2 (1)										
Date Collected	Total PCB (ng/l)	Comments	Homolog Distribution (weight %)							
			Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
01/04/93	76	-	0.0	16.0	38.4	29.8	10.2	5.6	0.0	0.0
01/04/93	60	dup	0.0	24.3	34.1	28.3	7.5	5.8	0.0	0.0
01/14/93	1086	-	0.0	4.0	39.7	43.6	9.5	2.8	0.3	0.0
01/21/93	20	P	0.0	17.4	36.4	31.6	11.2	3.4	0.0	0.0
01/27/93	<11	-	-	-	-	-	-	-	-	-
01/27/93	11	dup,P	0.0	1.0	28.8	40.5	20.4	9.4	0.0	0.0
02/03/93	32	P	0.0	10.1	34.0	34.4	14.9	6.7	0.0	0.0
02/10/93	28	P	0.0	13.6	33.4	31.2	13.6	8.1	0.0	0.0
02/16/93	46	-	0.0	12.3	36.3	31.6	12.4	7.4	0.0	0.0
02/16/93	44	dup	0.0	13.1	36.7	33.4	10.7	6.1	0.0	0.0
02/24/93	32	P	0.0	11.1	37.5	37.6	10.5	3.2	0.0	0.0
03/03/93	-	R	-	-	-	-	-	-	-	-
03/03/93	28	dup	0.0	13.6	38.3	26.8	18.6	2.8	0.0	0.0
03/10/93	25	P	0.0	1.8	41.4	36.3	14.9	5.7	0.0	0.0
03/17/93	58	-	0.0	7.6	32.9	39.0	13.9	6.6	0.0	0.0
03/17/93	61	dup	0.0	8.4	30.9	38.6	15.1	7.0	0.0	0.0
03/23/93	29	P	0.0	16.5	35.5	29.6	12.8	5.7	0.0	0.0
03/31/93	160	J	0.0	15.2	40.9	32.1	8.8	3.1	0.0	0.0
04/07/93	27	P	0.0	1.2	44.0	42.4	8.4	4.1	0.0	0.0
04/12/93	121	J	0.0	10.4	38.7	36.4	10.9	3.6	0.0	0.0
04/13/93	60	-	0.0	16.5	41.5	32.0	8.3	1.7	0.0	0.0
04/20/93	46	-	0.0	12.9	36.2	37.9	11.0	2.1	0.0	0.0
04/23/93	266	-	0.0	8.4	37.0	41.8	10.0	2.9	0.0	0.0
04/23/93	258	dup	0.0	8.8	37.5	41.4	9.7	2.6	0.0	0.0
04/24/93	80	-	0.0	13.7	39.5	33.6	9.3	3.9	0.0	0.0
04/24/93	79	dup	0.0	14.3	38.9	34.0	9.5	3.4	0.0	0.0
04/25/93	79	-	0.0	12.3	39.5	37.6	8.7	2.0	0.0	0.0
04/28/93	47	J	0.0	14.1	39.8	34.2	9.9	2.1	0.0	0.0
05/05/93	665	J	0.0	9.7	42.0	38.2	8.1	2.1	0.0	0.0
05/05/93	36	dup,P	0.0	18.3	32.4	30.4	15.1	3.7	0.0	0.0
05/12/93	140	-	0.0	7.2	37.1	40.3	11.4	3.9	0.0	0.0
05/19/93	37	P	0.0	13.1	34.1	32.1	18.4	2.3	0.0	0.0
05/26/93	39	P	0.0	9.7	33.4	35.5	14.9	6.5	0.0	0.0
06/03/93	32	P	0.0	9.8	36.1	36.2	13.3	4.7	0.0	0.0
06/10/93	26	P	0.0	6.3	29.9	41.5	18.4	3.9	0.0	0.0
06/16/93	-	R	-	-	-	-	-	-	-	-
06/23/93	-	R	-	-	-	-	-	-	-	-

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E = East channel and W = West channel, otherwise sample is a composite of West (main) and East channels.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/L.

Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit due to results of validation; R = rejected; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

"dup" indicates results of duplicate analyses.

317018

TABLE 3
General Electric Company
Post-Construction Remnant Deposit Monitoring
Weekly Water Column Data
PCB Homolog Distributions

Downstream of Remnant Areas - HRM 194.2 (1)										
Date Collected	Total PCB (ng/l)	Comments	Homolog Distribution (weight %)							
			Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
07/01/93	-	R	-	-	-	-	-	-	-	-
07/07/93	132	-	0.0	8.1	35.8	41.3	10.3	4.5	0.0	0.0
07/15/93	-	R	-	-	-	-	-	-	-	-
07/23/93	26	P	0.0	14.0	38.6	31.3	12.6	3.5	0.0	0.0
07/28/93	30	P	0.0	1.5	39.4	37.5	16.7	5.0	0.0	0.0
07/28/93	31	dup,P	0.0	1.5	34.7	38.8	19.4	5.6	0.0	0.0
08/04/93	35	P	0.0	13.0	37.3	29.5	15.9	4.4	0.0	0.0
08/12/93	33	P	0.0	12.4	35.1	25.7	21.0	5.9	0.0	0.0
08/12/93	33	dup,P	0.0	9.7	32.5	31.0	21.8	5.0	0.0	0.0
08/18/93	35	P	0.0	9.8	36.8	39.2	10.9	3.4	0.0	0.0
08/25/93	35	P	0.0	1.1	42.8	36.7	15.1	4.4	0.0	0.0
08/25/93	34	dup,P	0.0	1.5	47.7	36.0	11.0	3.8	0.0	0.0
09/02/93	26	P	0.0	8.1	42.2	35.6	10.6	3.4	0.0	0.0
09/08/93	23	P	0.0	1.3	33.9	37.6	20.8	6.4	0.0	0.0
09/08/93	23	dup,P	0.0	1.5	36.8	36.3	19.5	5.9	0.0	0.0
09/15/93	27	P	0.0	14.5	34.8	33.6	13.0	4.1	0.0	0.0
09/15/93	27	dup,P	0.0	14.1	35.1	32.2	14.4	4.2	0.0	0.0
09/22/93	35	P	0.0	24.1	37.0	24.3	10.5	4.1	0.0	0.0
09/29/93	50	J	0.0	13.5	37.7	35.6	10.4	2.9	0.0	0.0
10/06/93	24	P	0.0	13.1	35.3	27.5	19.0	5.1	0.0	0.0
10/13/93	45	-	0.0	9.8	38.9	37.9	9.9	3.6	0.0	0.0
10/21/93	<11	W	-	-	-	-	-	-	-	-
10/21/93	34	PE	0.0	15.2	31.7	33.9	14.1	5.2	0.0	0.0
10/28/93	14	P	0.0	0.9	37.1	36.6	17.5	7.9	0.0	0.0
11/03/93	27	P	0.0	0.9	37.9	41.6	14.4	5.2	0.0	0.0
11/03/93	25	dup,P	0.0	1.1	44.2	38.9	11.8	4.0	0.0	0.0
11/10/93	21	P	0.0	15.8	31.5	24.9	20.2	7.5	0.0	0.0
11/17/93	22	P	0.0	10.0	26.5	28.2	28.4	7.0	0.0	0.0
11/24/93	13	PJ	0.0	2.3	45.0	24.5	19.1	9.1	0.0	0.0
11/24/93	13	dup,P	0.0	1.8	43.8	27.2	18.7	8.4	0.0	0.0
12/01/93	19	P	0.0	1.1	41.1	43.3	9.5	5.0	0.0	0.0
12/08/93	<11	-	-	-	-	-	-	-	-	-
12/15/93	11	P	0.0	0.0	25.2	48.1	18.7	8.0	0.0	0.0
12/22/93	12	P	0.0	1.4	40.3	26.2	22.1	10.0	0.0	0.0
12/29/93	44	Eg	0.0	10.4	38.8	37.2	10.7	3.0	0.0	0.0

Notes:

(1) HRM = Approximate Hudson River mile; For sample location HRM 194.2, E= East channel and W = West channel, otherwise sample is a composite of West (main) and East channels.

A = Alternate PCB analytical method used, modified USEPA method 8080. No congener analysis performed.

P = Practical quantitation limit (PQL) note for PCB values between <11 and 44 ng/L.

Eg = Grab sample collected from east shore of east channel due to ice cover on the river at the routine sampling location.

Data Validation Qualifiers: U = elevated detection limit or concentration reduced to less than detection limit

due to results of validation; R = rejected; J = approximated concentration; UJ = approximated detection limit; and "-" = no qualification.

"dup" indicates results of duplicate analyses.

317019

TABLE 4

**GENERAL ELECTRIC COMPANY
POST-CONSTRUCTION REMNANT DEPOSIT MONITORING**

**WEEKLY WATER COLUMN DATA
STATISTICAL SUMMARY OF PCB HOMOLOG DISTRIBUTIONS
WEIGHT PERCENT**

BACKGROUND LOCATION - HRM 197.0								
	Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
Geom mean	0.0	2.3	28.2	28.5	24.6	10.1	0.0	0.0
Minimum	0.0	0.6	16.5	18.3	13.8	5.8	0.0	0.0
Maximum	0.0	16.8	41.9	45.2	38.1	18.8	0.0	0.0
Std. Dev.	0.0	3.3	1.3	1.3	1.3	1.4	0.0	0.0

UPSTREAM LOCATION - HRM 196.8								
	Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
Geom mean	0.0	7.7	37.5	30.3	14.4	5.6	0.0	0.0
Minimum	0.0	1.1	28.2	21.8	8.0	2.1	0.0	0.0
Maximum	0.0	20.0	49.5	38.0	23.4	13.0	0.0	0.0
Std. Dev.	0.0	2.7	1.1	1.2	1.3	1.5	0.0	0.0

DOWNSTREAM LOCATION - HRM 194.2								
	Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
Geom mean	0.0	7.4	36.7	34.5	13.0	4.4	0.0	0.0
Minimum	0.0	0.9	25.2	24.3	8.1	1.7	0.0	0.0
Maximum	0.0	24.1	45.0	48.1	28.4	10.0	0.3	0.0
Std. Dev.	0.0	2.5	1.1	1.2	1.3	1.5	0.0	0.0

317020

Table 5
General Electric Company
Post-Construction Remnant Deposit Monitoring Program
Float Survey Results (1)

Date Collected	Sample Location (2)	Comments	Flow (3) (cfs)	TSS (mg/l)	Total PCB (ng/L)	Homolog Distribution (weight%)							
						Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
05/26/93	HRM 197.0	--	2,230	1	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		2	19	0.0	19.1	33.4	20.9	18.2	8.4	0.0	0.0
	HRM 196.4C	--		2	22	0.0	12.0	37.0	27.8	16.9	6.3	0.0	0.0
	HRM 195.8C	--		<1	20	0.0	13.7	31.8	32.2	16.9	5.4	0.0	0.0
	HRM 195.3C	--		1	23	0.0	12.3	36.2	32.8	14.3	4.4	0.0	0.0
	HRM 194.7C	--		3	20	0.0	8.9	39.3	33.0	13.6	5.1	0.0	0.0
	HRM 194.2	--		1	39	0.0	9.7	33.4	35.5	14.9	6.5	0.0	0.0
07/28/93	HRM 197.0	--	2,660	12	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		9	20	0.0	13.1	38.7	29.9	13.5	4.9	0.0	0.0
	HRM 196.4C	--		8	24	0.0	20.4	40.8	22.4	12.3	4.1	0.0	0.0
	HRM 195.8C	--		8	22	0.0	17.3	39.0	24.5	15.0	4.3	0.0	0.0
	HRM 195.3C	--		10	27	0.0	14.0	43.8	26.6	11.8	3.9	0.0	0.0
	HRM 194.7C	--		6	51	0.0	12.3	33.2	33.6	16.3	4.6	0.0	0.0
	HRM 194.2	--		11	30	0.0	1.5	39.4	37.5	16.7	5.0	0.0	0.0
08/18/93	HRM 197.0	--	2,630	4	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		4	22	0.0	12.0	44.1	29.2	9.3	5.4	0.0	0.0
	HRM 196.4C	--		3	24	0.0	14.0	43.0	27.2	14.1	1.6	0.0	0.0
	HRM 195.8C	--		2	22	0.0	13.3	38.2	36.3	8.4	3.8	0.0	0.0
	HRM 195.3C	--		1	22	0.0	10.8	41.4	33.1	10.7	4.0	0.0	0.0
	HRM 194.7C	--		2	24	0.0	12.1	41.6	32.8	9.6	3.9	0.0	0.0
	HRM 194.2	--		4	35	0.0	9.8	36.8	39.2	10.9	3.4	0.0	0.0

Notes: (1) Samples analyzed by capillary column using NEA Method 608CAP. Two additional float surveys were conducted on 06/16/93 and 07/15/93; however, these results were not presented because of laboratory errors during analysis.

(2) HRM = Approximate Hudson River Mile; For sample location HRM 194.2, E = East channel and W = West channel. HRM 0.0 is located at the Battery in New York City.

(3) Flow is presented as mean daily flow from preliminary data monitored by USGS at Fort Edward Gauging Station. TSS values in parentheses () are results of laboratory duplicate analyses.

C = Samples collected from the approximate center of the river channel.

Data Validation Qualifiers: J = approximated concentration.

317021

Table 5
General Electric Company
Post-Construction Remnant Deposit Monitoring Program
Float Survey Results (1)

Date Collected	Sample Location (2)	Comments	Flow (3) (cfs)	TSS (mg/l)	Total PCB (ng/L)	Homolog Distribution (weight%)							
						Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
09/02/93	HRM 197.0	--	2,510	4	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		6	14	0.0	11.1	49.3	25.8	9.7	4.1	0.0	0.0
	HRM 196.4C	--		4	18	0.0	10.3	42.4	32.1	10.4	4.8	0.0	0.0
	HRM 195.8C	--		4	17	0.0	11.1	41.4	29.1	13.9	4.5	0.0	0.0
	HRM 195.3C	--		3	18	0.0	13.2	36.8	32.1	13.9	4.2	0.0	0.0
	HRM 194.7C	--		4	17	0.0	11.7	39.9	34.7	9.9	3.9	0.0	0.0
	HRM 194.2	--		4	26	0.0	8.1	42.2	35.6	10.6	3.4	0.0	0.0
09/15/93	HRM 197.0	--	2,950	10	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		6	18	0.0	14.3	33.0	34.0	13.3	5.4	0.0	0.0
	HRM 196.4C	--		6	26	0.0	15.7	36.0	31.6	12.4	4.4	0.0	0.0
	HRM 195.8C	--		3	29	0.0	16.8	36.0	33.4	10.5	3.3	0.0	0.0
	HRM 195.3C	--		2	33	0.0	19.4	31.6	32.5	13.2	3.4	0.0	0.0
	HRM 194.7C	--		2	32	0.0	14.8	33.8	36.7	10.6	4.0	0.0	0.0
	HRM 194.2	--		9	27	0.0	14.5	34.8	33.6	13.0	4.1	0.0	0.0
09/29/93	HRM 197.0	--	2,880	11	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		7	17	0.0	12.1	34.3	31.6	16.1	6.0	0.0	0.0
	HRM 196.4C	--		8	21	0.0	11.2	33.0	35.9	14.6	5.4	0.0	0.0
	HRM 195.8C	--		8	19	0.0	13.9	38.0	32.0	11.9	4.2	0.0	0.0
	HRM 195.3C	J		10	19	0.0	15.0	36.5	33.2	11.6	3.7	0.0	0.0
	HRM 194.7C	--		10	50	0.0	12.9	40.4	36.6	7.9	2.3	0.0	0.0
	HRM 194.2C	E		9(9)	30	0.0	12.6	39.3	37.2	7.6	3.3	0.0	0.0

- Notes:
- (1) Samples analyzed by capillary column using NEA Method 608CAP. Two additional float surveys were conducted on 06/16/93 and 07/15/93; however, these results were not presented because of laboratory errors during analysis.
 - (2) HRM = Approximate Hudson River Mile; For sample location HRM 194.2, E = East channel and W = West channel. HRM 0.0 is located at the Battery in New York City.
 - (3) Flow is presented as mean daily flow from preliminary data monitored by USGS at Fort Edward Gauging Station. TSS values in parentheses () are results of laboratory duplicate analyses.
- C = Samples collected from the approximate center of the river channel.
Data Validation Qualifiers: J = approximated concentration.

317022

Table 5
General Electric Company
Post-Construction Remnant Deposit Monitoring Program
Float Survey Results (1)

Date Collected	Sample Location (2)	Comments	Flow (3) (cfs)	TSS (mg/l)	Total PCB (ng/L)	Homolog Distribution (weight%)							
						Mono	Di	Tri	Tetra	Penta	Hexa	Hepta	Octa
10/21/93	HRM 197.0	--	3,230	11	<11	-	-	-	-	-	-	-	-
	HRM 196.8C	--		10	19	0.0	15.7	32.3	30.3	15.4	6.3	0.0	0.0
	HRM 196.4C	--		9	21	0.0	15.5	36.5	28.6	13.5	6.0	0.0	0.0
	HRM 195.8C	--		5	<11	-	-	-	-	-	-	-	-
	HRM 195.3C	--		9	<11	-	-	-	-	-	-	-	-
	HRM 194.7C	--		6	<11	-	-	-	-	-	-	-	-
	HRM 194.2C	W		6(5)	12	0.0	0.5	30.8	39.1	20.3	9.4	0.0	0.0

- Notes:
- (1) Samples analyzed by capillary column using NEA Method 608CAP. Two additional float surveys were conducted on 06/16/93 and 07/15/93; however, these results were not presented because of laboratory errors during analysis.
 - (2) HRM = Approximate Hudson River Mile; For sample location HRM 194.2, E = East channel and W = West channel. HRM 0.0 is located at the Battery in New York City.
 - (3) Flow is presented as mean daily flow from preliminary data monitored by USGS at Fort Edward Gauging Station.
- TSS values in parentheses () are results of laboratory duplicate analyses.
- C = Samples collected from the approximate center of the river channel.
- Data Validation Qualifiers: J = approximated concentration.

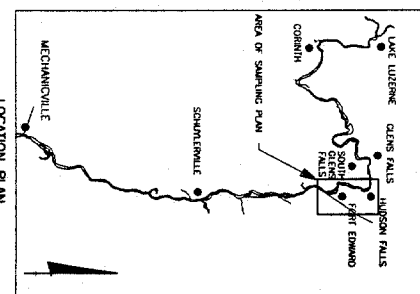
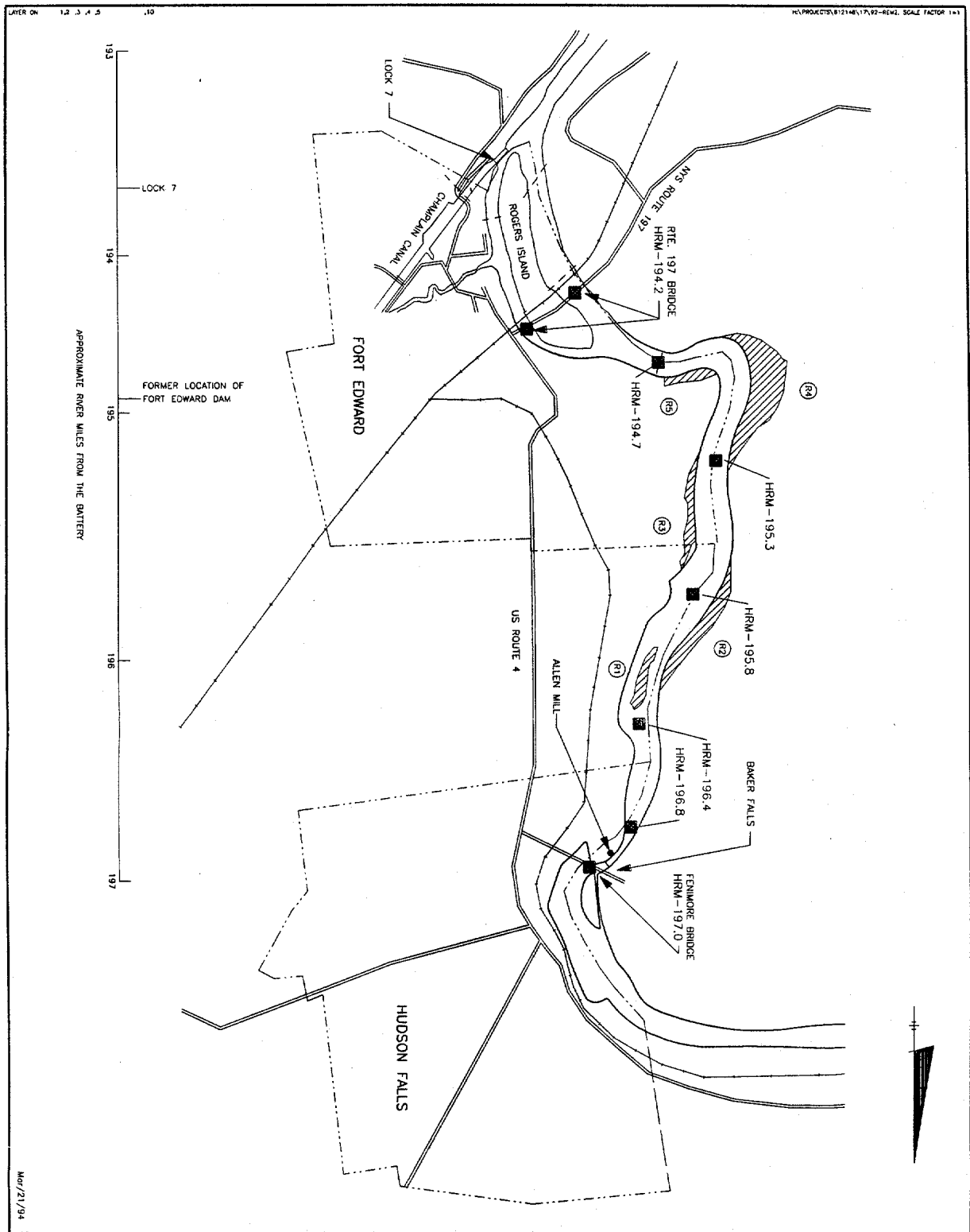
317023

Figures

317024



O'BRIEN & GERE
ENGINEERS, INC.



LEGEND

RT 7 APPROXIMATE REMNANT AREA LOCATION

HRM-197.0 SAMPLING LOCATION

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT
DEPOSIT CONTAINMENT
POST-CONSTRUCTION
MONITORING PROGRAM

SITE PLAN

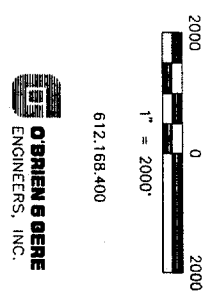
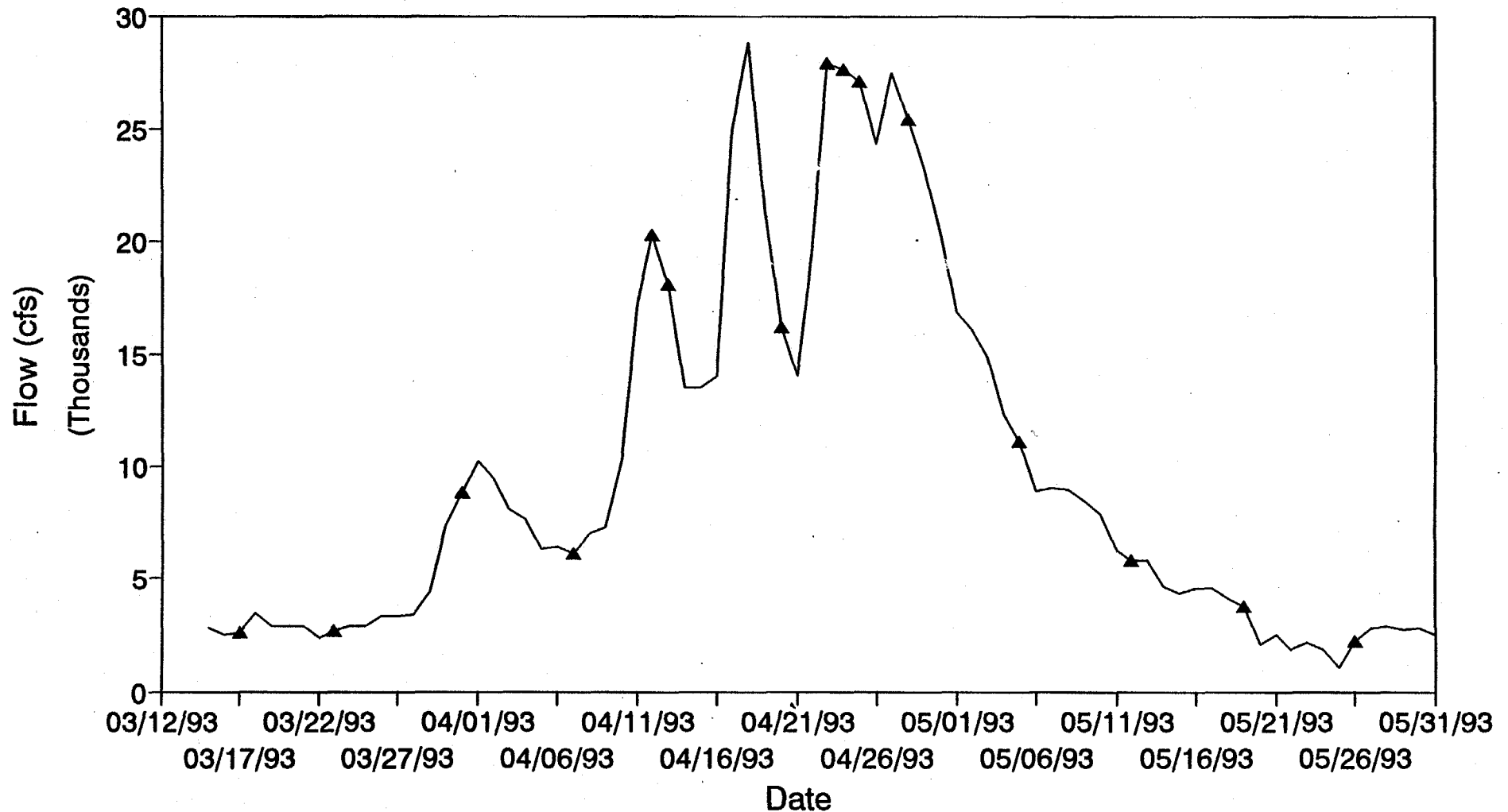


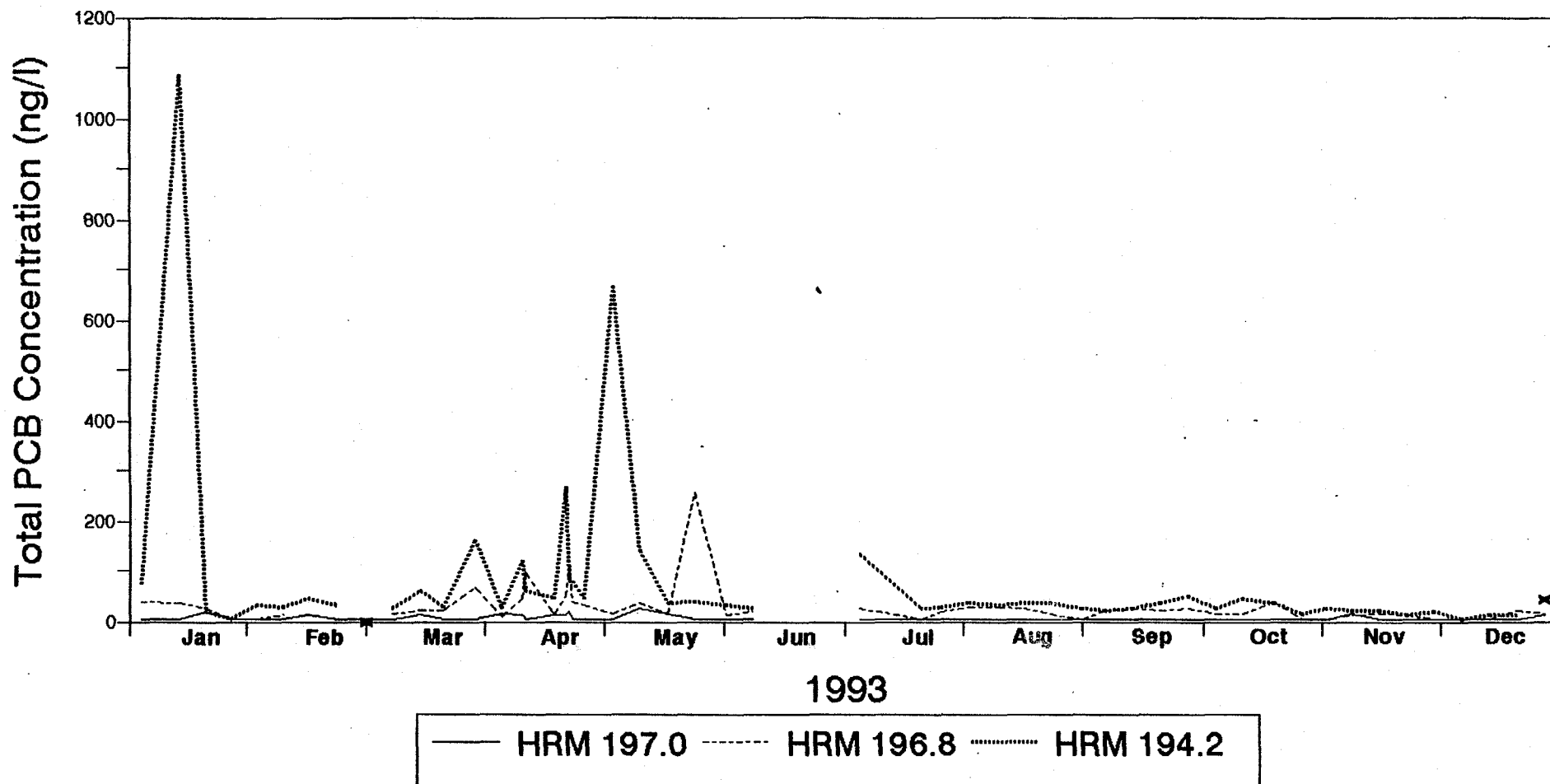
FIGURE 1

Figure 2
General Electric Company
Post-Construction Remnant Deposit Monitoring
Samples Collected During High Flow - 1993



Note: Flows presented are mean daily flows measured by USGS at the Fort Edward gauging station.

Figure 3
General Electric Company
Post-Construction Remnant Deposit Monitoring
Water Column Total PCB Concentration vs Time

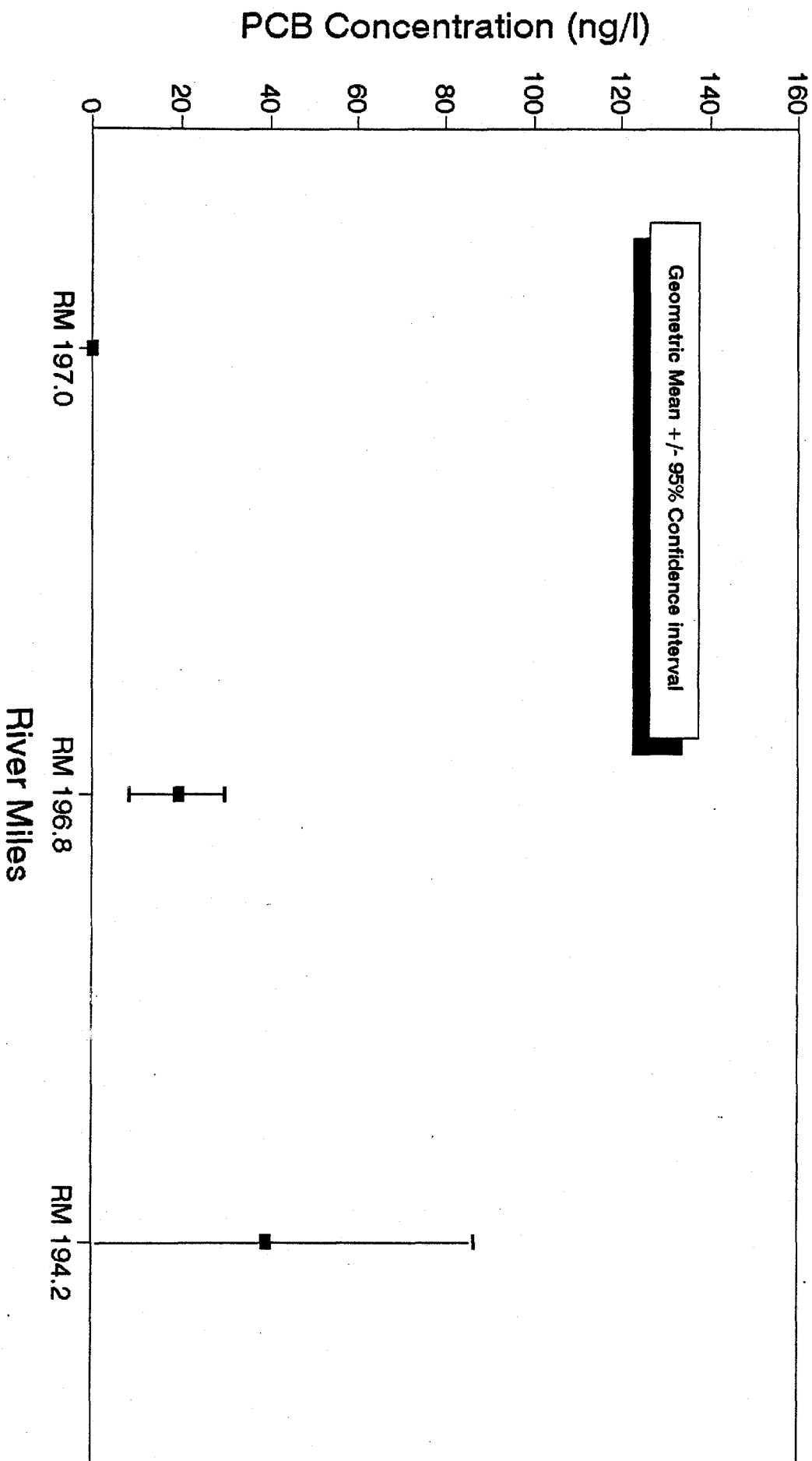


Notes:

- * Samples were not collected at HRM 196.8 from Feb 16 through Mar 3, 1993.
- * Sampling on May 5 included a blind field duplicate sample collected at HRM 196.8. The PCB concentration of the two samples were 665 and 36 ng/l for the original and duplicate respectively. The difference was attributed to field conditions as there was no evidence of analytical or sampling difficulties.
- * Data losses in June and July occurred due to laboratory errors.
- * Method Detection Limit: 11.0 ng/l
- * Practical Quantitation Limit: 44.0 ng/l
- * Symbol (X) indicates sample collected from eastern shoreline at HRM 194.2, due to ice cover on the river.

Figure 4

General Electric Company
Post-Construction Remnant Deposit Monitoring
Sampling Location Statistical Comparison: 01/04/93 - 12/29/93



Notes:

*Method Detection Limit: 11.0 ng/l

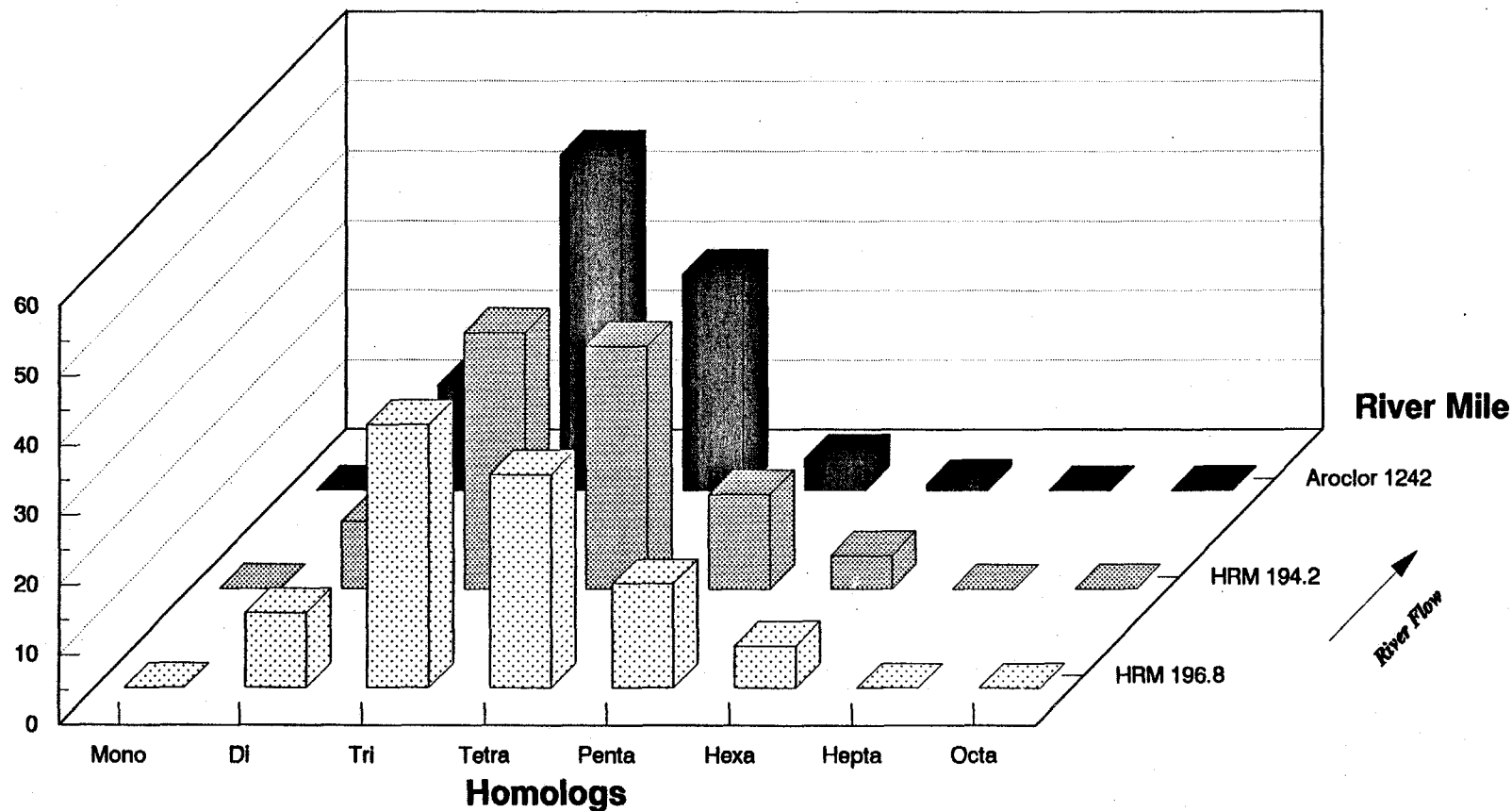
*Practical Quantitation Limit = 44.0 ng/l

*At HRM 197, mean less than method detection limit

*A value of 5.5 was used to calculate statistics of numbers less than 11 ng/l.

Figure 5 General Electric Company Post Construction Remnant Deposit Monitoring Mean Weekly Water Column Homolog Distribution

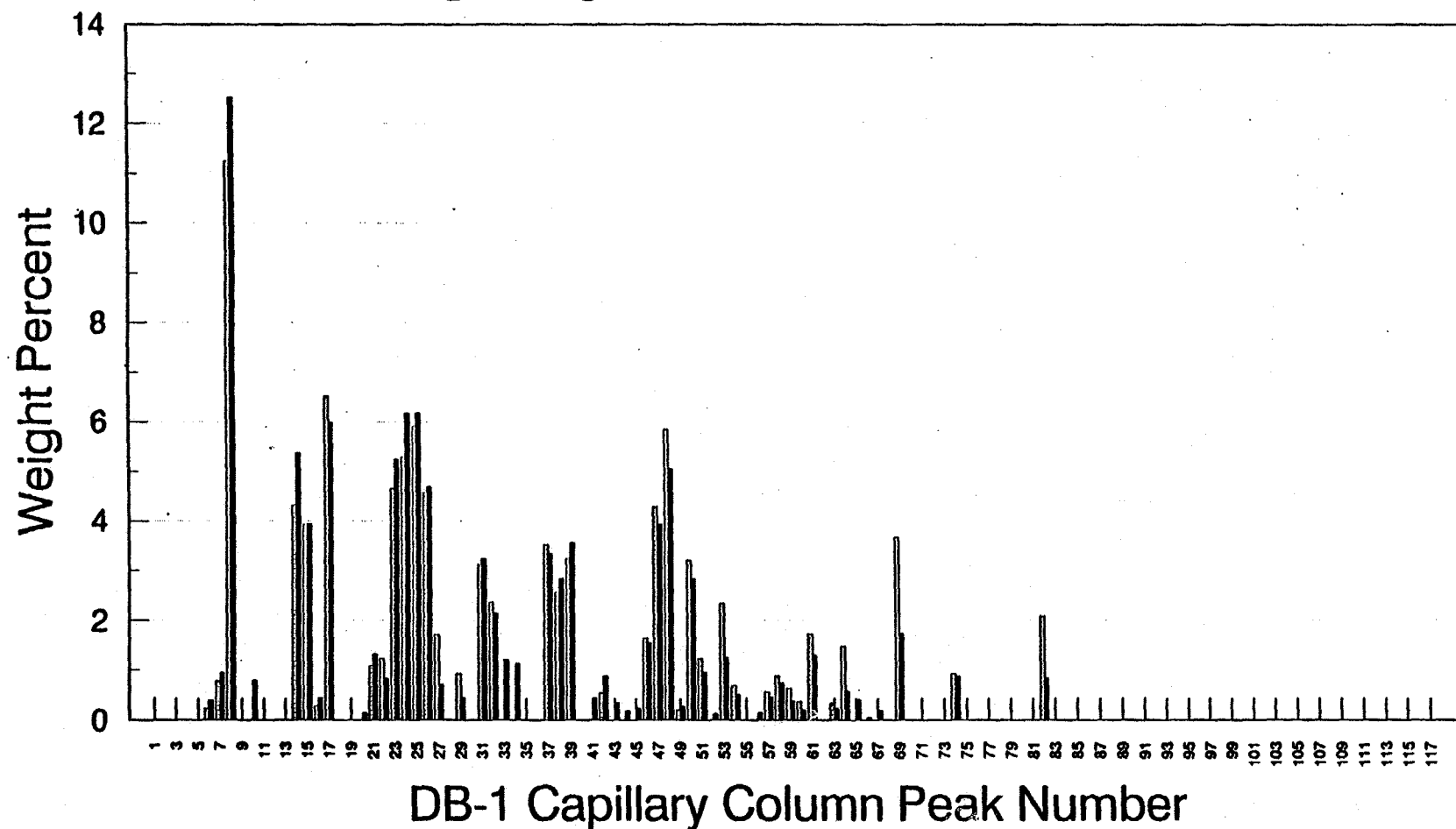
Weight Percent



O'Brien & Gere Engineers, Inc.
May 12, 1994
B7c:homo.drw

- Notes:
- * HRM 197 values below Method Detection Limit.
 - * Sampling Period: Mean of 1/14/93 through 12/29/93.
 - * Source of Aroclor 1242 distribution: NEA Laboratories.
(for reference only)

Figure 6
General Electric Company
Post-Construction Remnant Deposit Monitoring
Low Loading Congener Distribution 196.8 & 194.2



DB-1 Capillary Column Peak Number



HRM 196.8



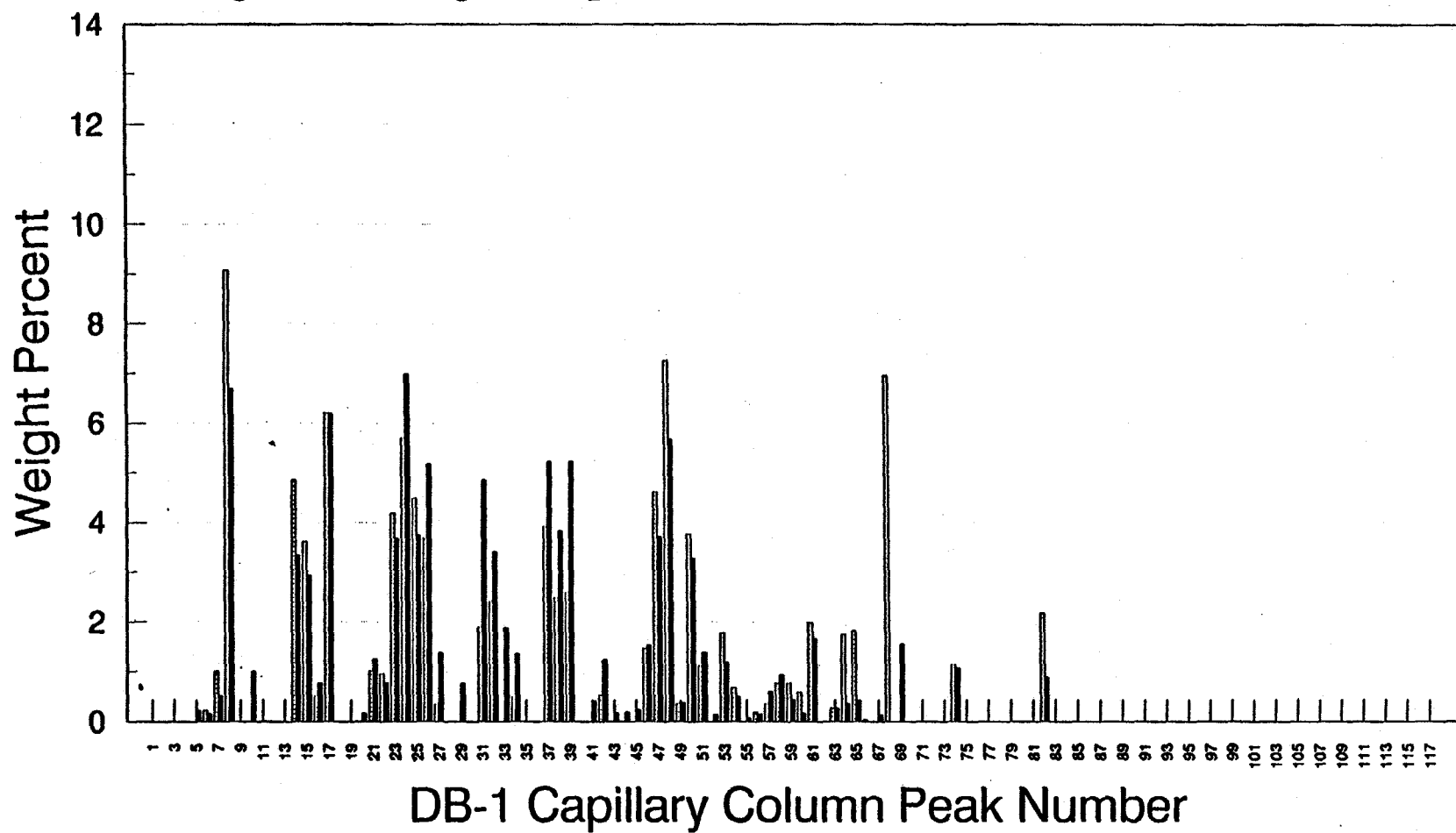
HRM 194.2

Notes: * Total PCB Concentration at HRM 196.8 = 66.8 ng/l
 * Total PCB Concentration at HRM 194.2 = 160.4 ng/l
 * Flow at Fort Edward = 8830 cfs
 * Sample Collection Date: 3/31/93

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 B7c.93Fig9.Drw

317030

Figure 7
General Electric Company
Post-Construction Remnant Deposit Monitoring
High Loading Congener Distribution 196.8 & 194.2



DB-1 Capillary Column Peak Number

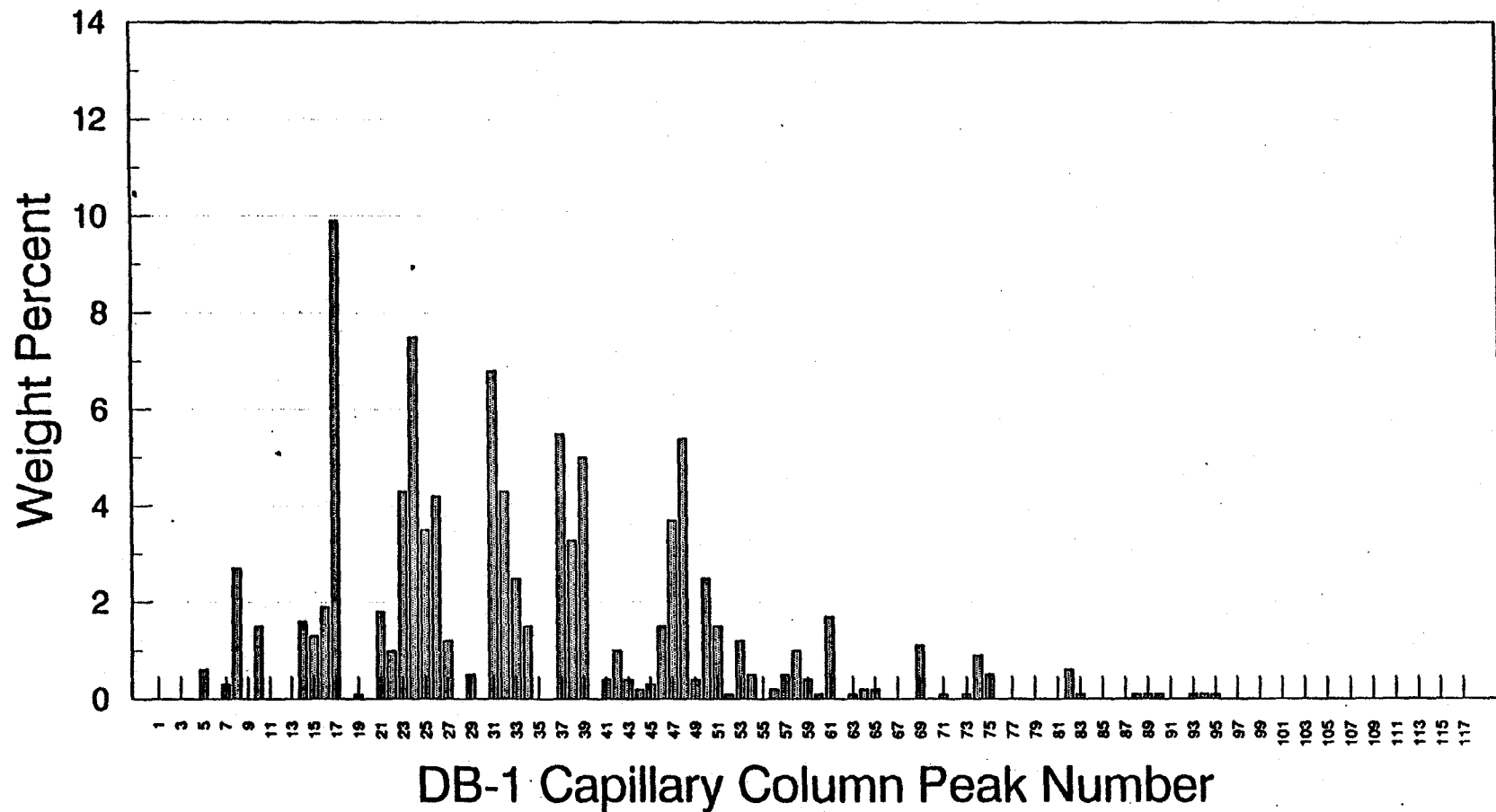
HRM 196.8
 HRM 194.2

Notes: * Total PCB Concentration at HRM 196.8 = 48 ng/l
 * Total PCB Concentration at HRM 194.2 = 266 ng/l
 * Flow at Fort Edward = 27900 cfs
 * Sample Collection Date: 4/23/93

317031

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 May 11, 1994

Figure 8
General Electric Company
Post-Construction Remnant Deposit Monitoring
January 14 Congener Distribution HRM 194.2



■ HRM 194.2

Notes: * Total PCB Concentration at HRM 196.8 = 35 ng/l (not presented)
 * Total PCB Concentration at HRM 194.2 = 1086 ng/l
 * Flow at Fort Edward = 7,020 cfs
 * Sample Collection Date: 1/14/93

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 May 11, 1994

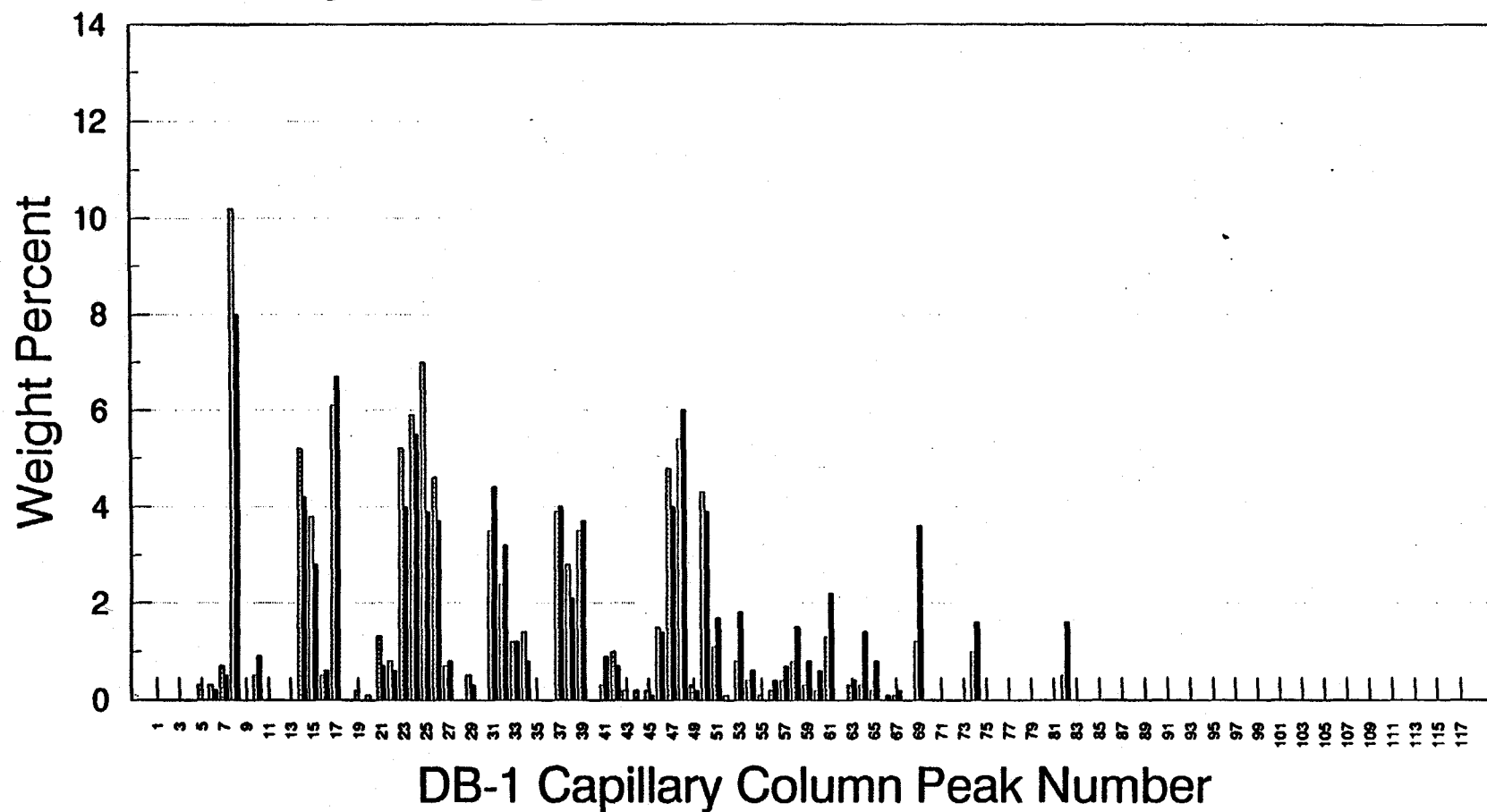
317032

Figure 9

General Electric Company

Post-Construction Remnant Deposit Monitoring

May 26 Congener Distribution 196.8 & 194.2



 HRM 196.8
  HRM 194.2

Notes:

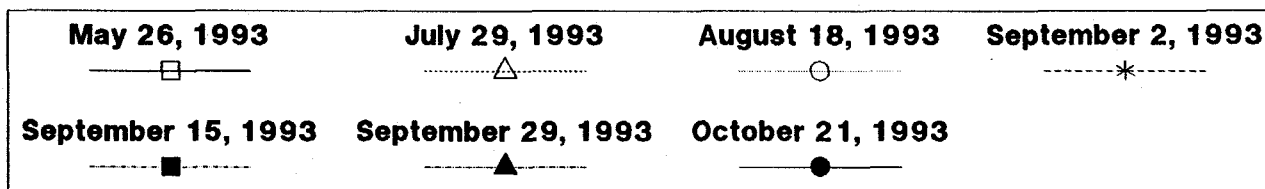
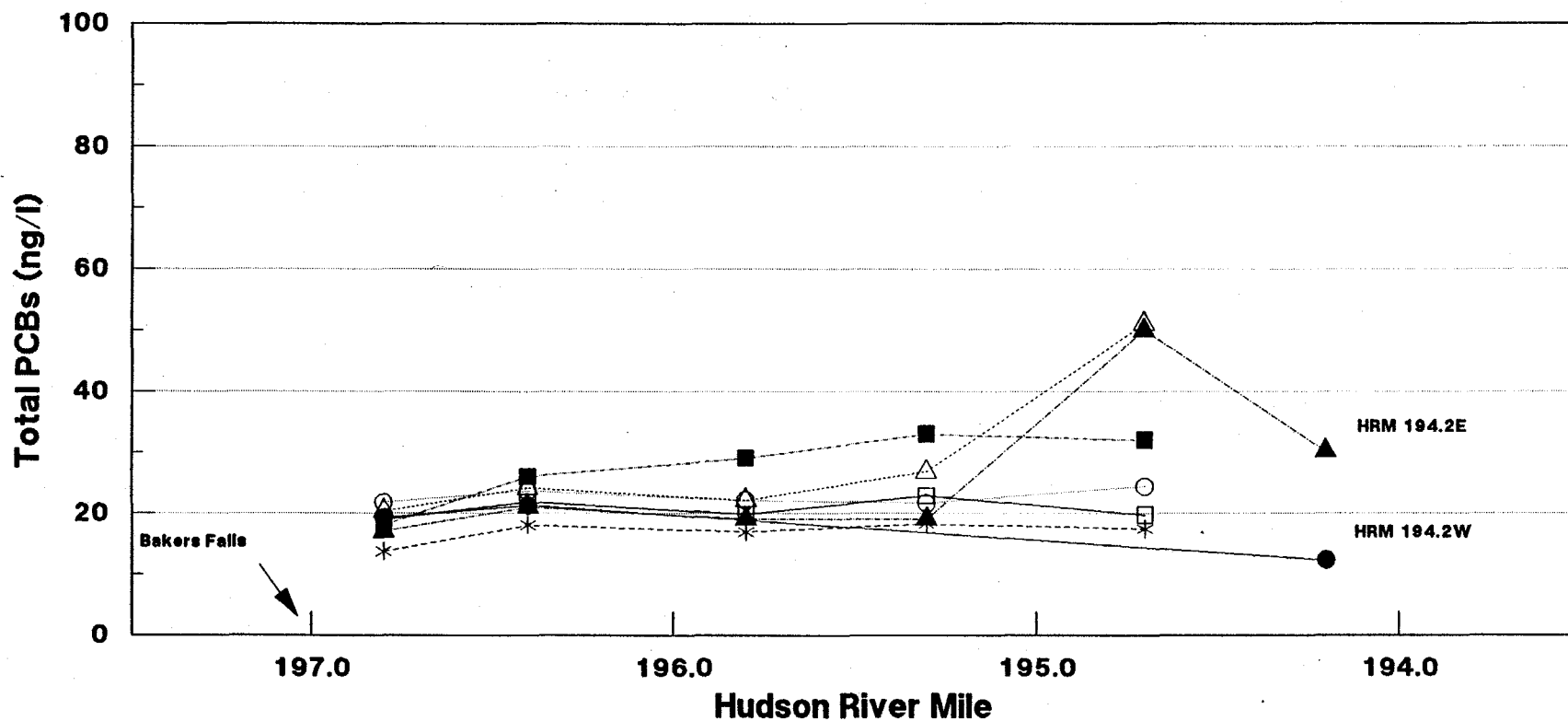
- * Total PCB Concentration at HRM 196.8 = 256 ng/l
- * Total PCB Concentration at HRM 194.2 = 39 ng/l
- * Flow at Fort Edward = 2,230 cfs
- * Sample Collection Date: 5/26/93

Figure 10

General Electric Company

Post-Construction Remnant Deposit Monitoring

1993 Float Survey Total PCB Results



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May 11, 1994
b7c:93fig12.drw

Notes:

- * HRM 194.2E is from the east channel of Rogers Island.
- * HRM 194.2W is from the west channel of Rogers Island.
- * HRM 197.0 is below method detection limit (<11 ng/l).

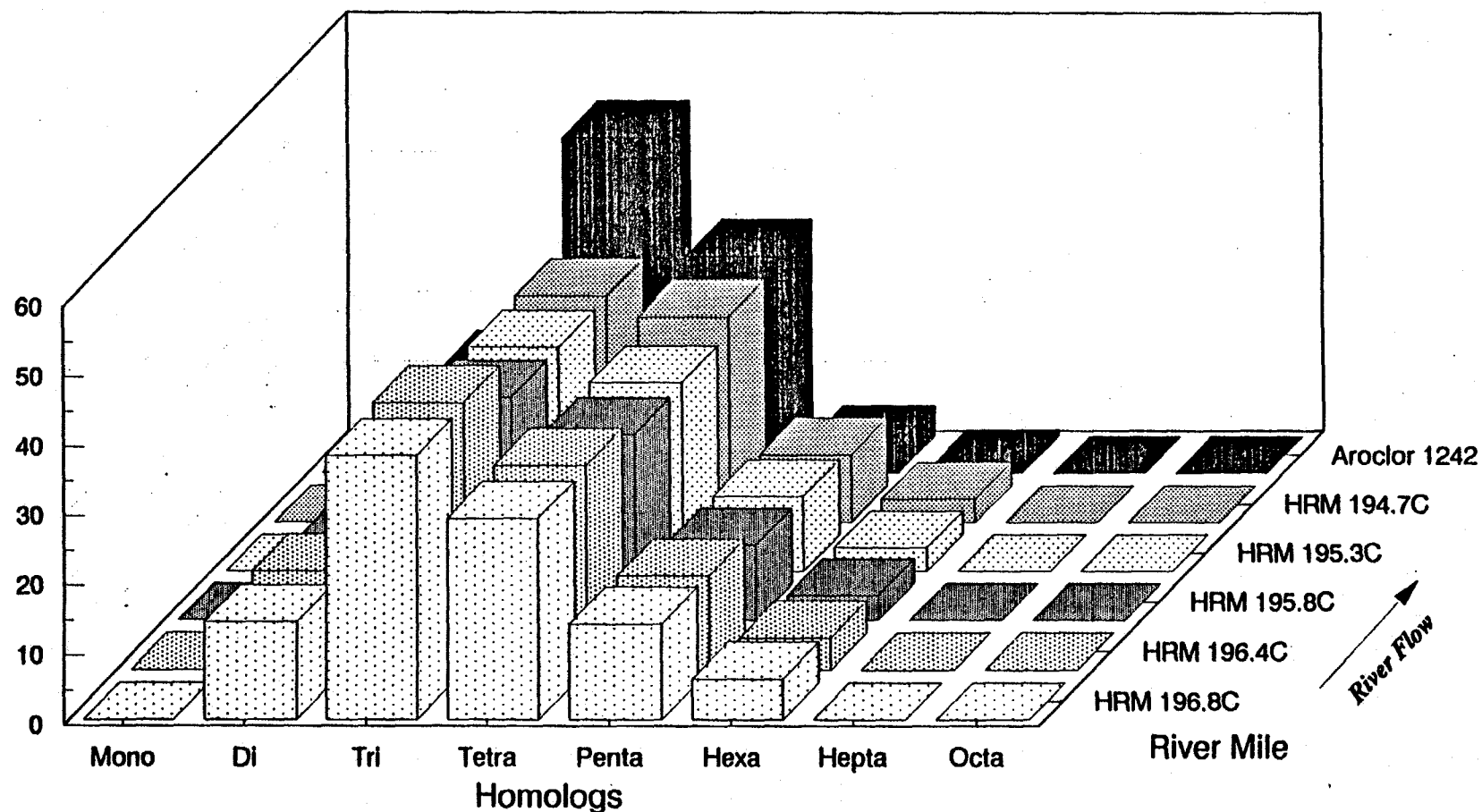
Figure 11

General Electric Company

Post-Construction Remnant Deposit Monitoring

Float Survey Mean Homolog Distribution

Weight Percent

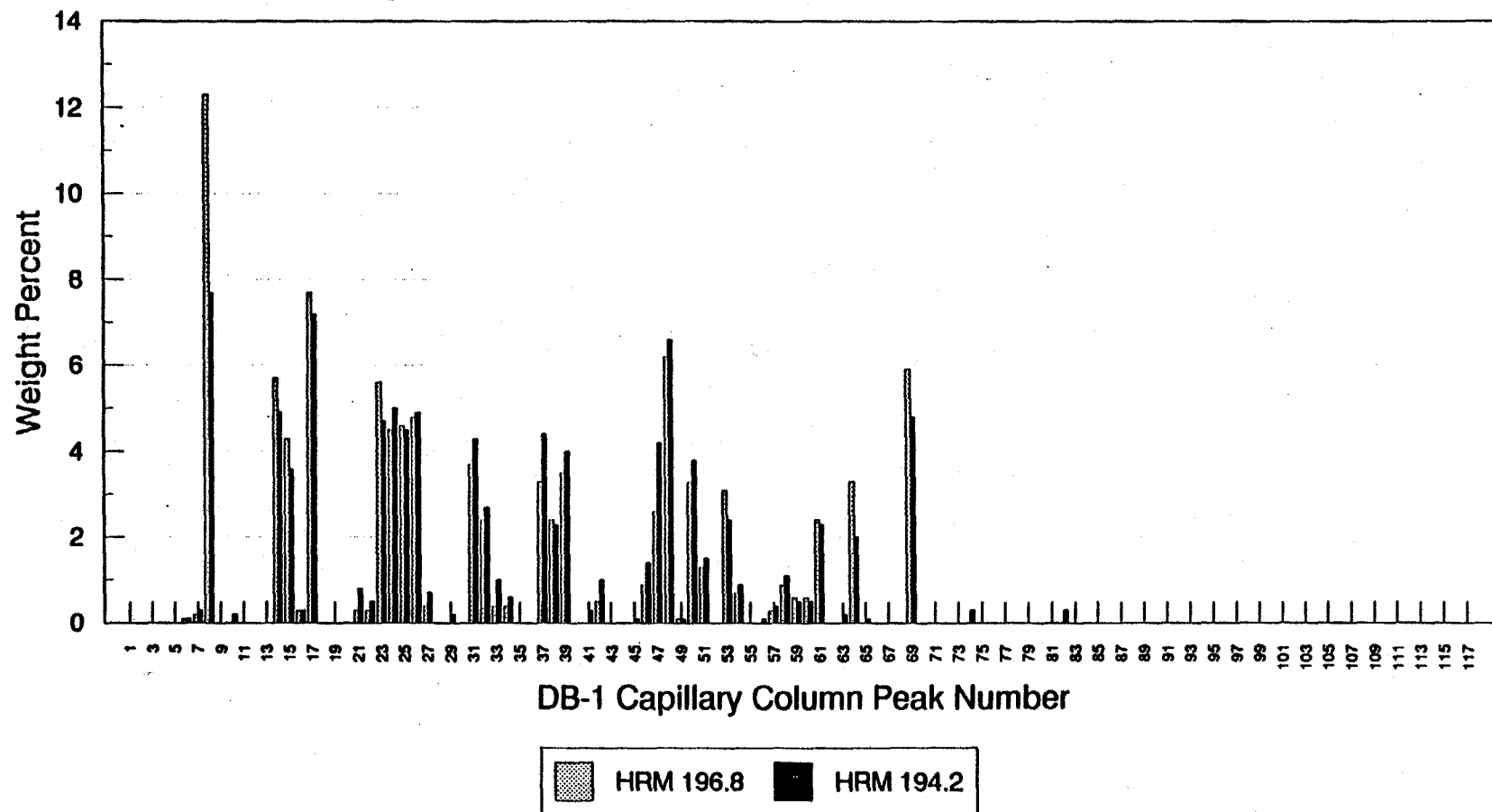


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May 11, 1994
b7c:93fig14.drw

Notes: Source of Aroclor 1242 Homolog Distribution: NEA March 1993, by NEA 608CAP.
Time Period: 05/26/93 through 10/21/93.

317035

Figure 12
General Electric Company
Post-Construction Remnant Deposit Monitoring
Mean Congener Distribution - HRM196.8 & HRM194.2



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 May 10, 1994
 B7b:93Fig12a.drw

Note: Source of information - 1993 Float Survey Results (HRM 196.8) and corresponding weekly water column results (HRM 194.2).

Figure 13
General Electric Company
Post-Construction Remnant Deposit Monitoring
Mean Congener Distribution - HRM195.8 & HRM195.3

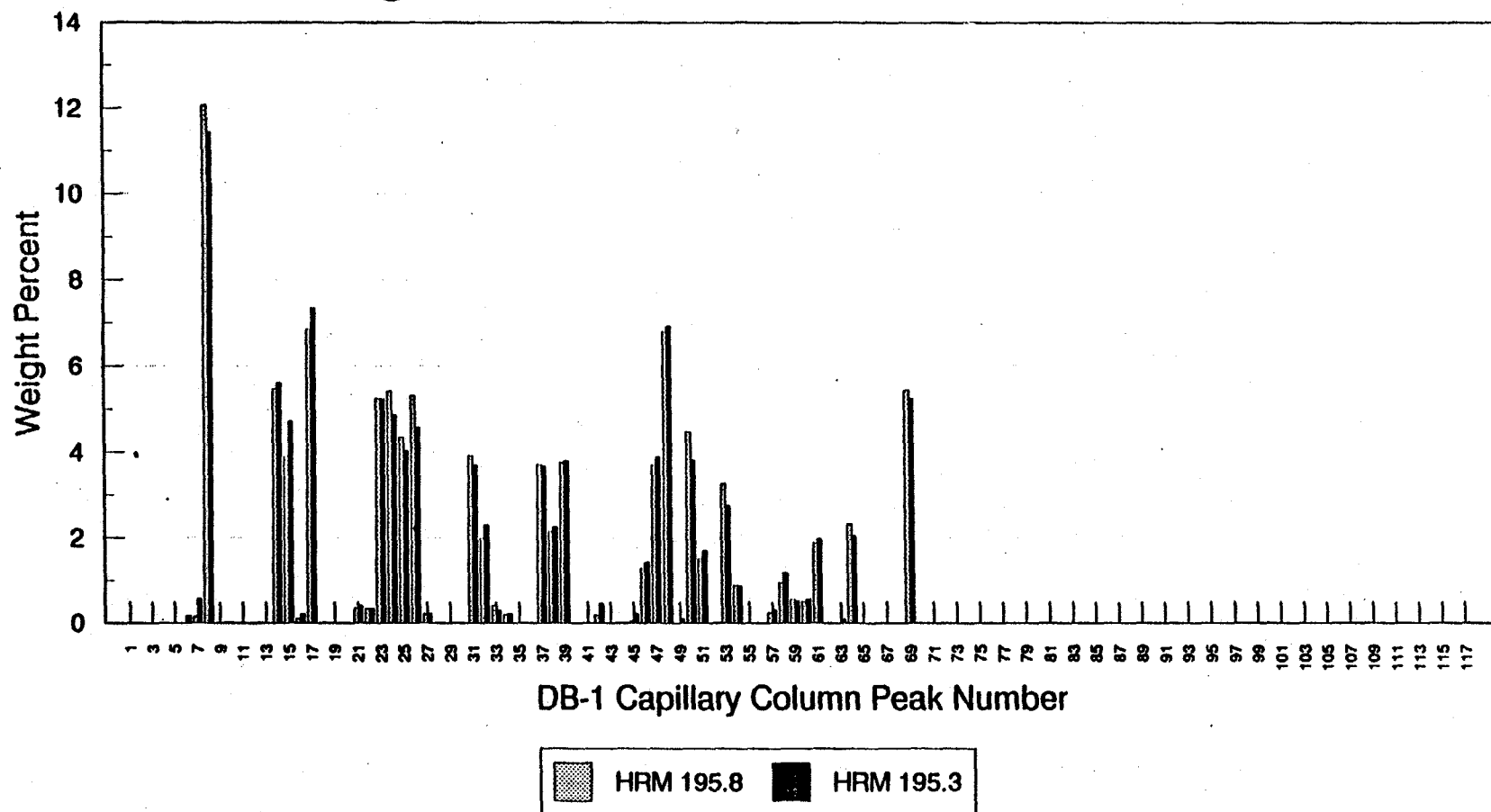


Figure 14

General Electric Company
1991-1993 Field Sampling and Analysis
Water Column Monitoring Results

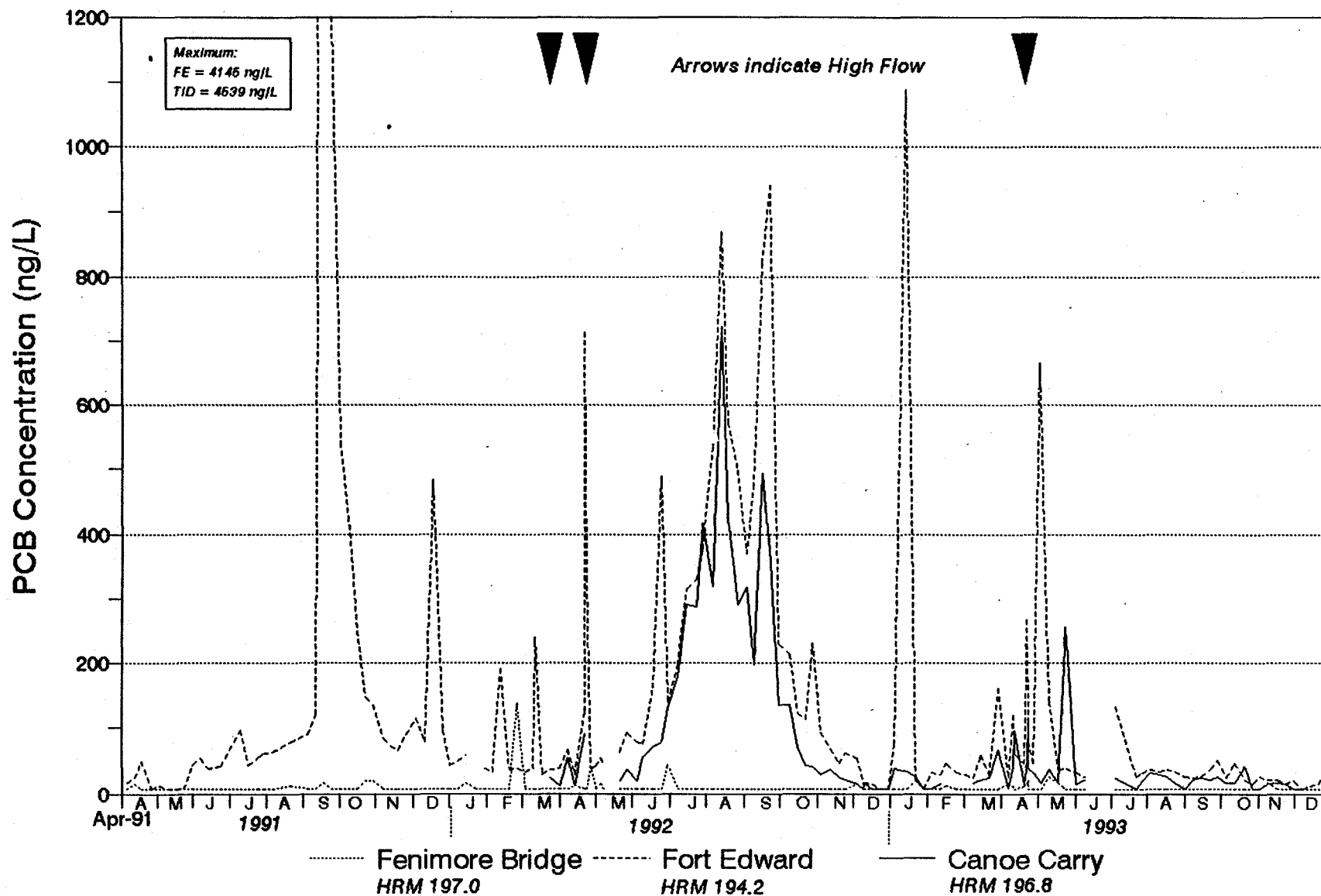
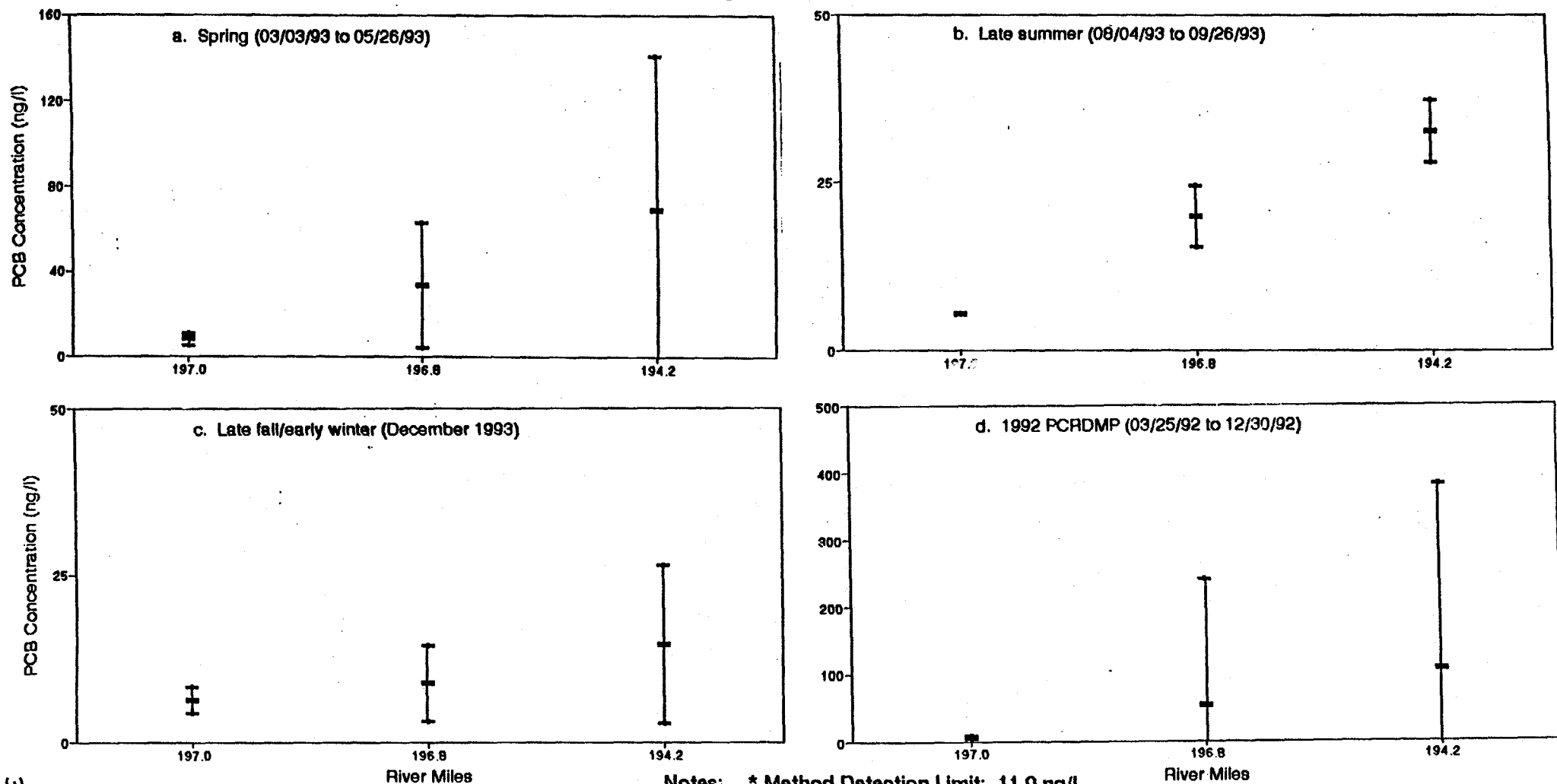


Figure 15

General Electric Company

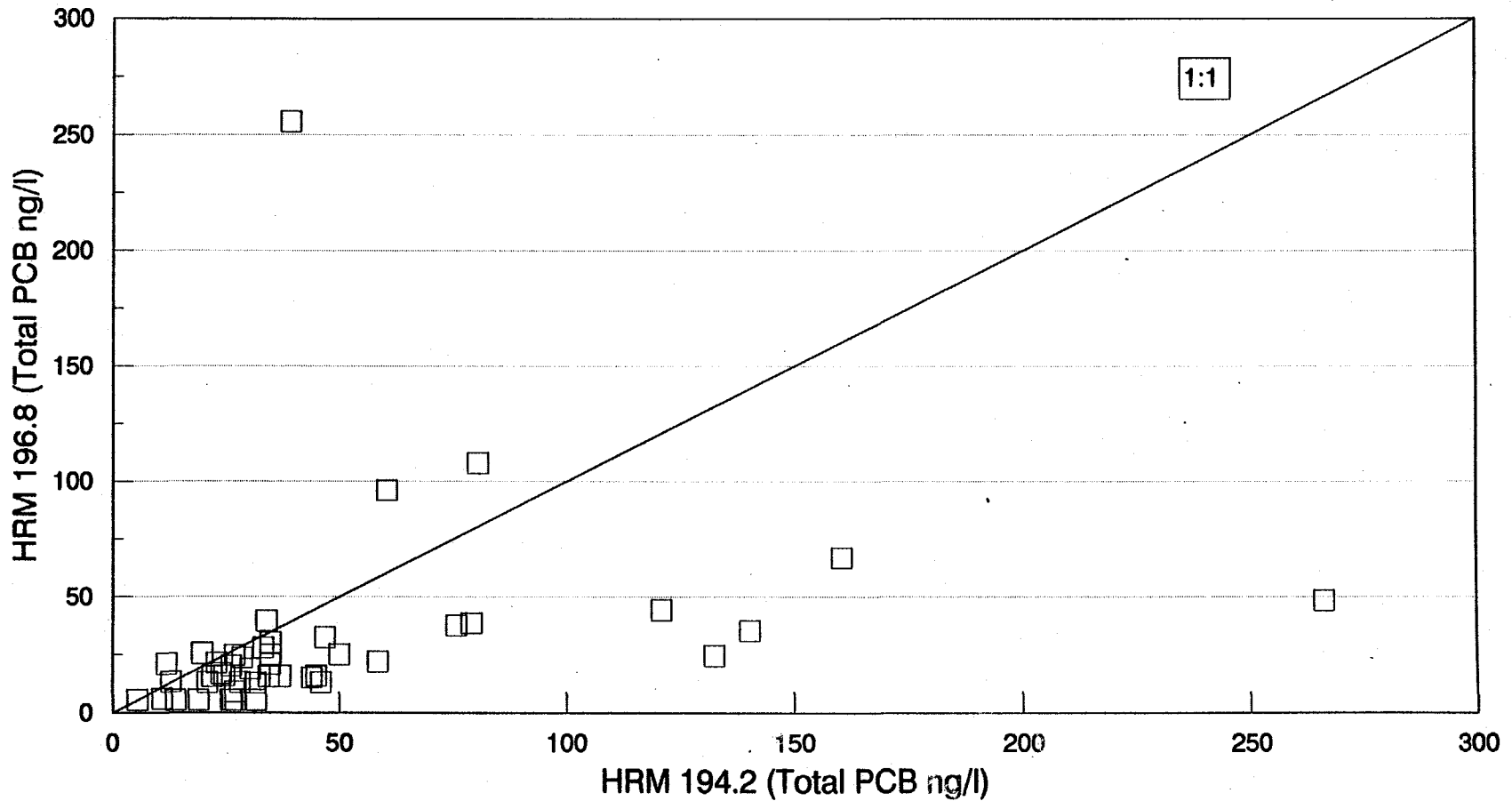
Post-Construction Remnant Deposit Monitoring

Statistical Summary of Selected Time Periods



- Notes:
- * Method Detection Limit: 11.0 ng/l
 - * Practical Quantitation Limit: 44.0 ng/l
 - * At HRM 197.0, mean less than MDL
 - * A value of 5.5 was used to calculate statistics of numbers less than 11 ng/l
 - * Geometric Mean +/- 95% Confidence Interval.

Figure 16
General Electric Company
Post-Construction Remnant Deposit Monitoring
Spatial Correlation in Total PCB Concentrations



O'Brien & Gere Engineers, Inc.
May 11, 1994
B7c:Fig17b.drw

Notes: Source - Weekly Water Column Monitoring Data;
excludes January 14 sample date which had no correlation between the two
sites: 1086 and 35 ng/l for locations HRM 194.2 and HRM 196.8, respectively.

Figure 17
General Electric Company
Post-Construction Remnant Deposit Monitoring
Box Plot Analysis of Total PCB Data

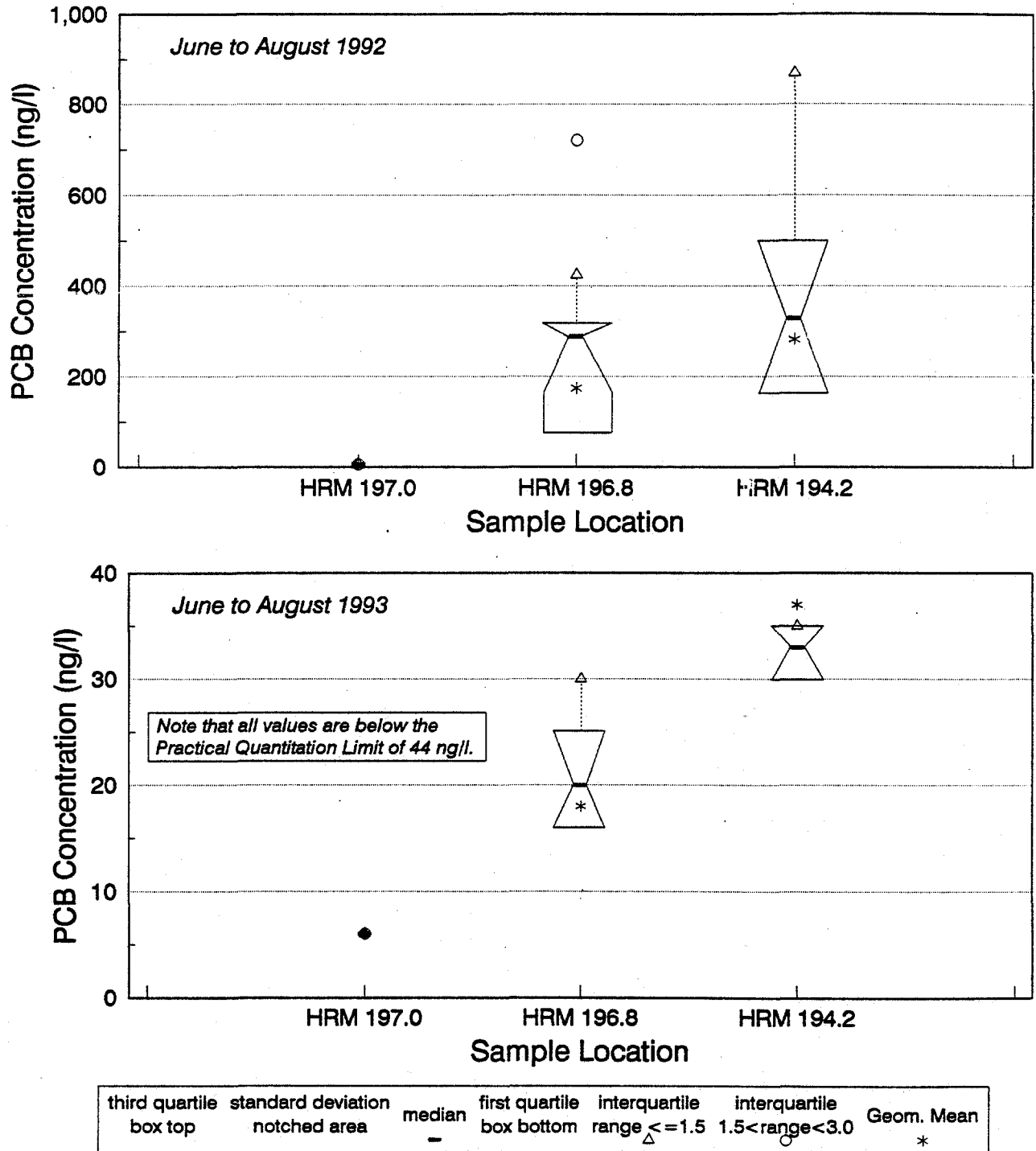
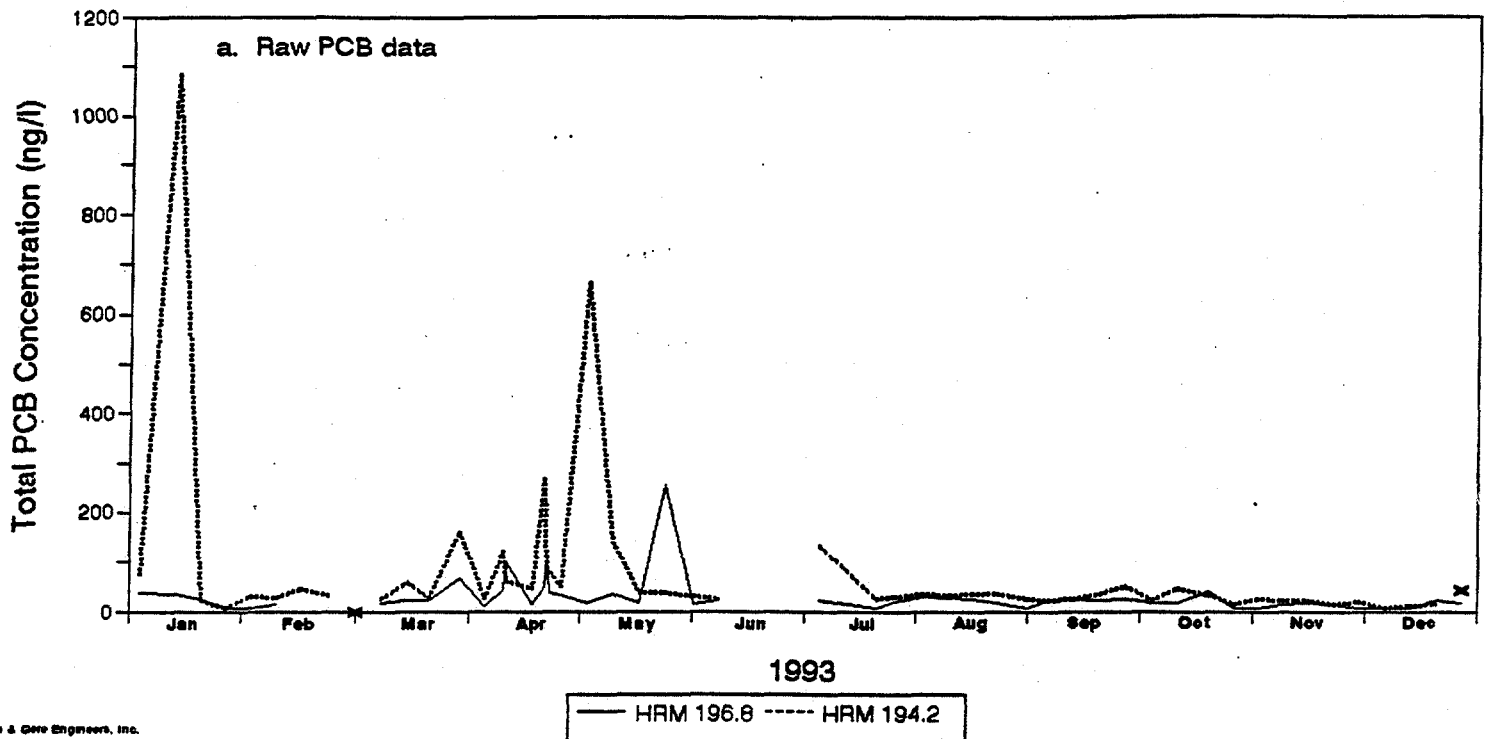
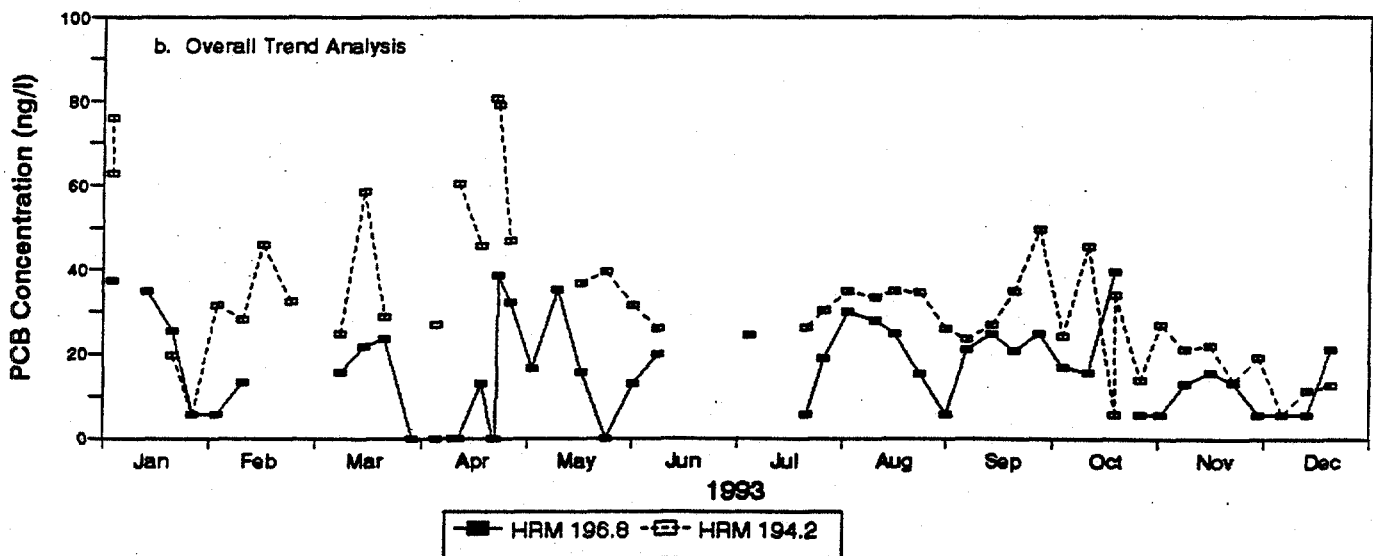


Figure 18
General Electric Company
Post-Construction Remnant Deposit Monitoring
Overall Trend Analysis



O'Brien & Gere Engineers, Inc.
 State 162, wq 1; pcb v022



- Notes:
- * Samples were not collected at HRM 196.8 from Feb 16 through Mar 3, 1993.
 - * Sampling on May 5 included a blind field duplicate sample collected at HRM 196.8. The PCB concentration of the two samples were 665 and 36 ng/l for the original and duplicate respectively. The difference was attributed to field conditions as there was no evidence of analytical or sampling difficulties.
 - * Data losses in June and July occurred due to laboratory errors.
 - * Method Detection Limit: 11.0 ng/l
 - * Practical Quantitation Limit: 44.0 ng/l
 - * Symbol (X) indicates sample collected from eastern shoreline at HRM 194.2, due to ice cover on the river.
 - * Results of statistical Q test applied to data are presented - not including December 29 - in (b)
 - * PCB data presented in (a) above also presented as Figure 3.

O'Brien & Gere Engineers, Inc.
 May 11, 1994
 07c-q10012, wq 1; q10012

317042

Figure 19

General Electric Company

Post-Construction Remnant Deposit Monitoring

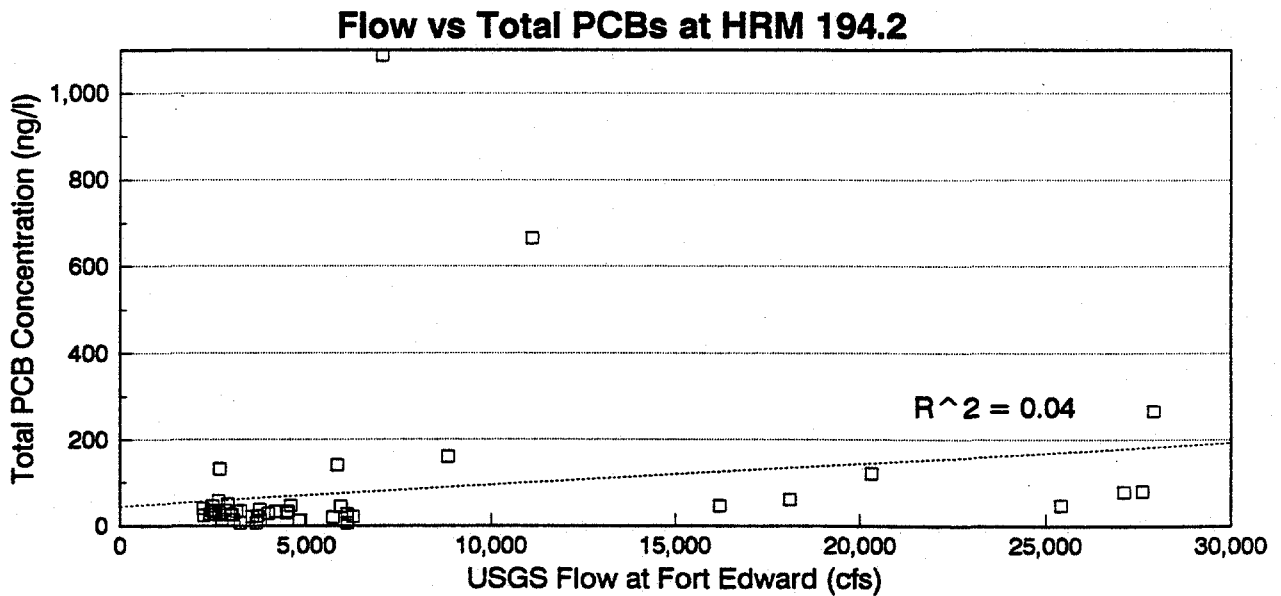
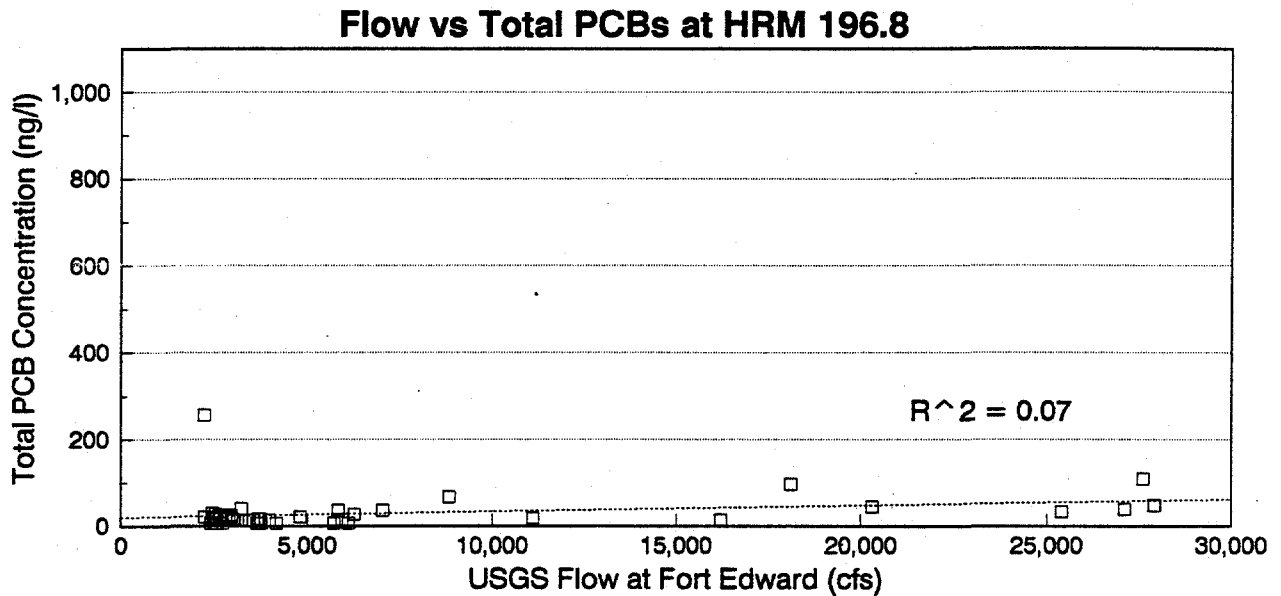
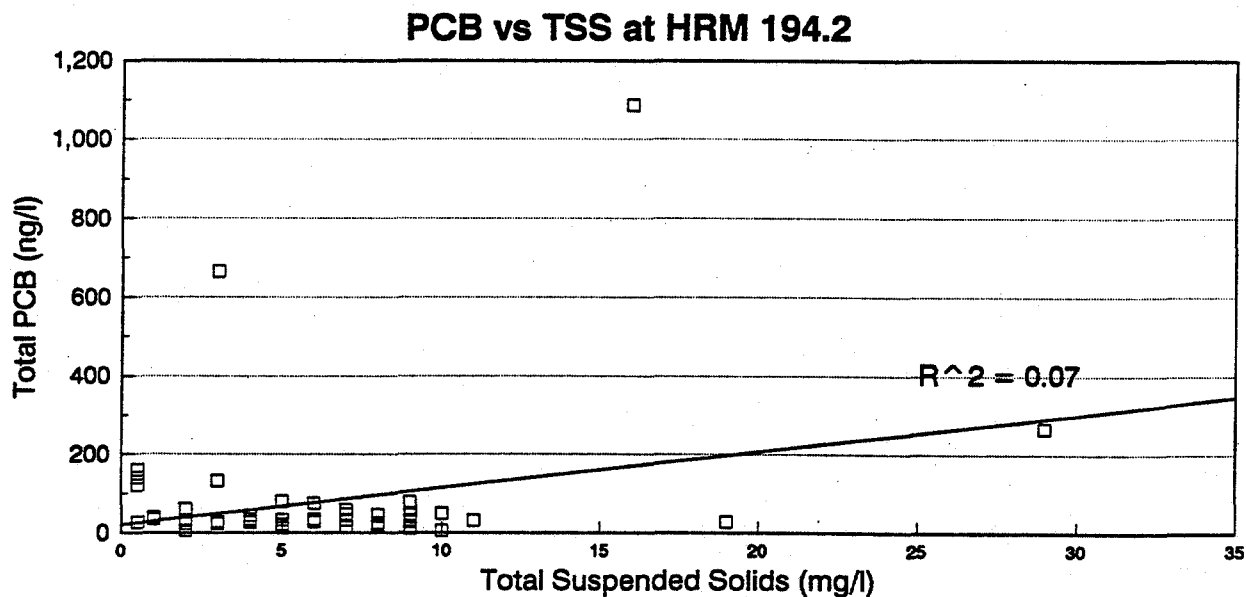
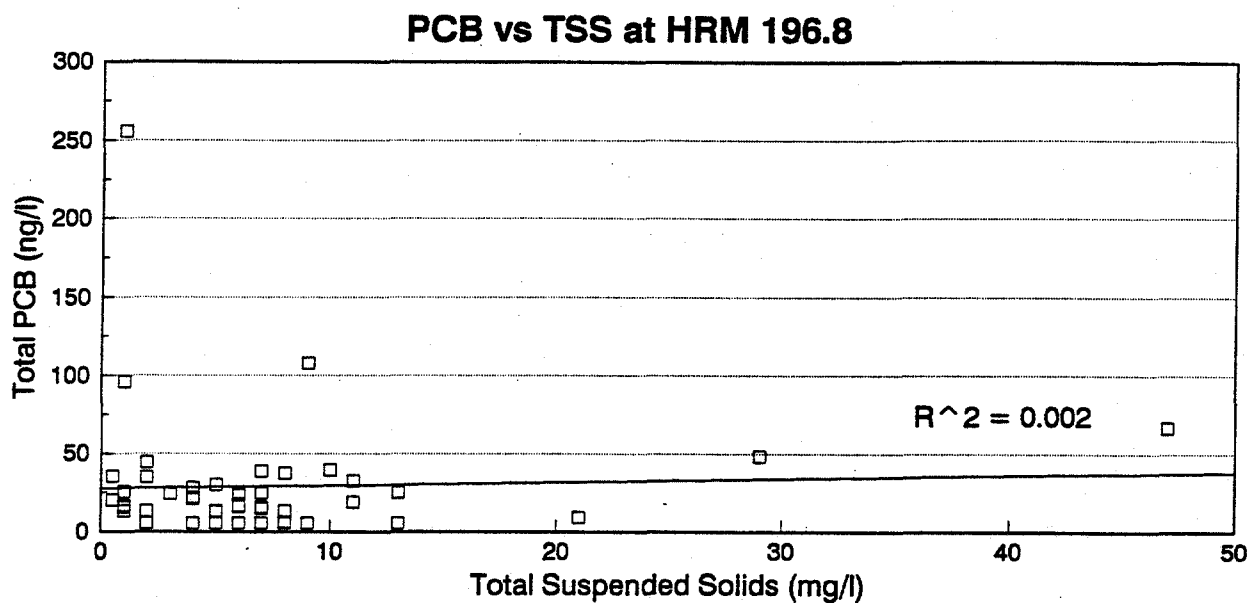


Figure 20

General Electric Company

Post-Construction Remnant Deposit Monitoring

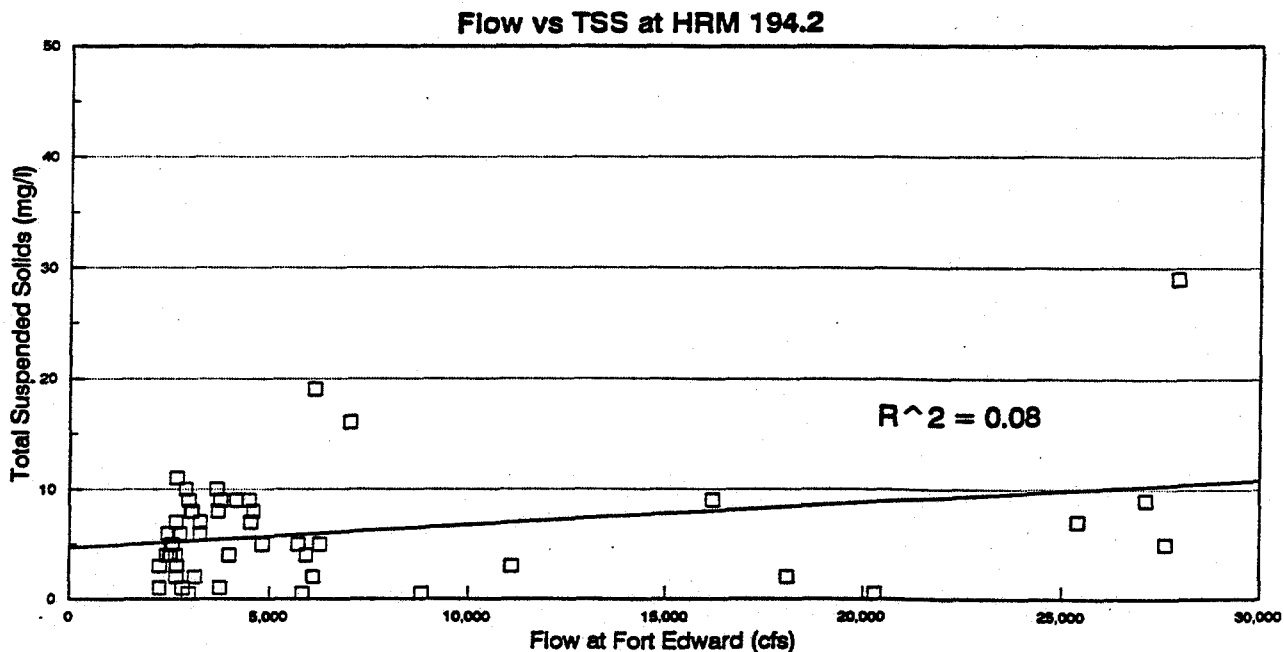
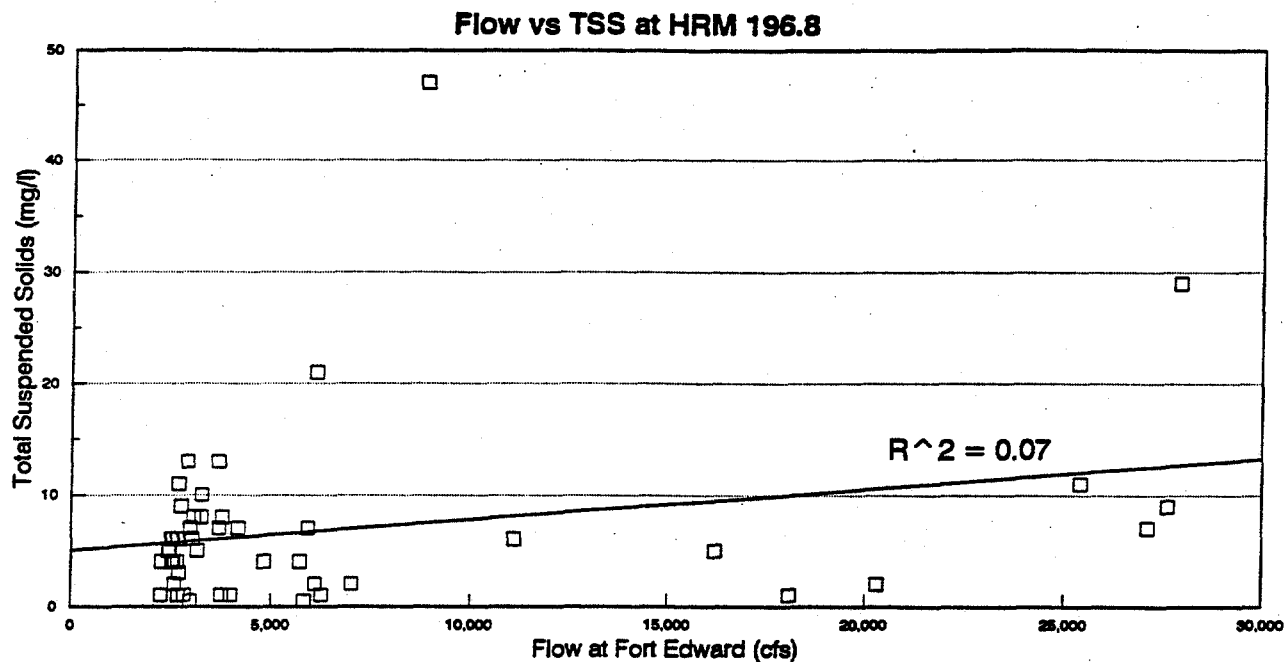


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May 11, 1994
b7c:93fig6.drw

Figure 21

General Electric Company

Post-Construction Remnant Deposit Monitoring

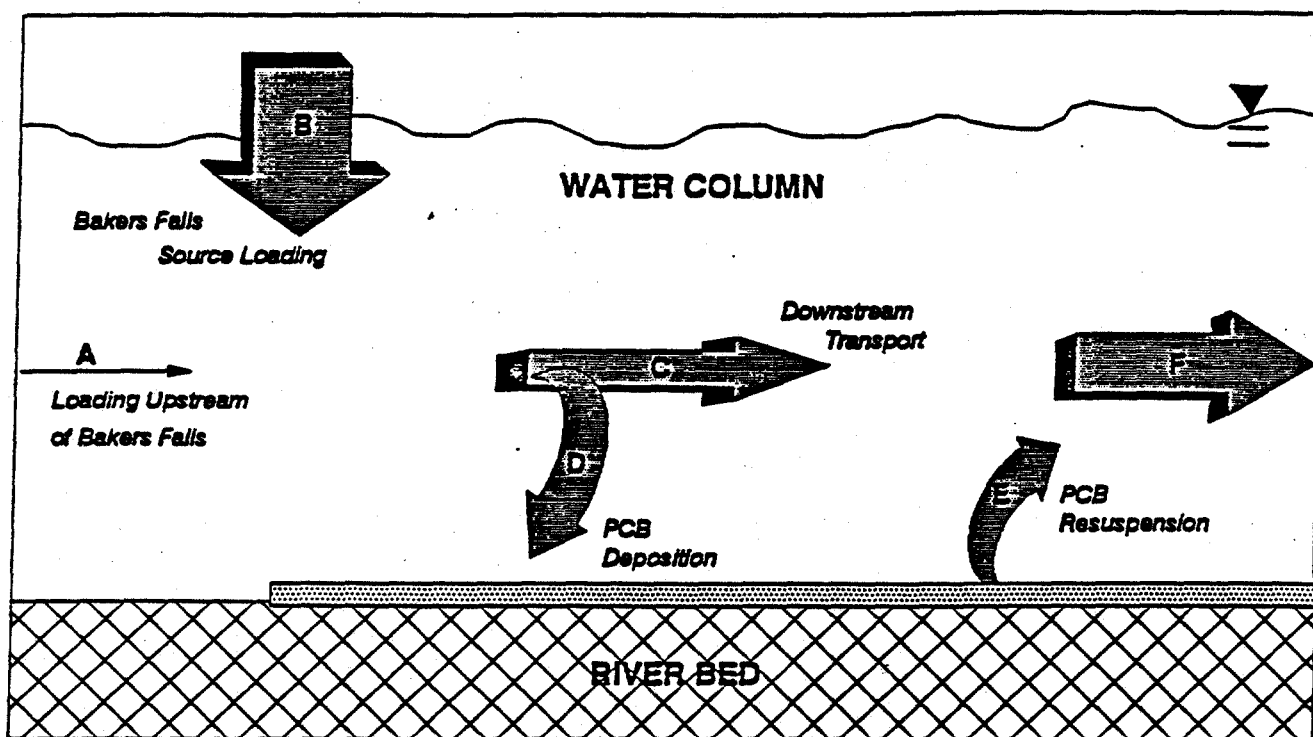


O'Brien & Gere Engineers, Inc.
May 11, 1994
b7c:93fig7.drw

Note: Source of flow data: United States Geologic Survey

FIGURE 22

Hypothesized PCB Dynamics in Remnant Deposit Pool



- A. Upstream of Bakers Falls, water column PCB concentrations are generally less than the detection limit (<11 ng/L).
- B. Recent investigations have identified a significant source of PCB loading to the Hudson River in the vicinity of Bakers Falls, upstream of the remnant deposits.
- C. Downstream transport of PCBs from the Bakers Falls source area occurs.
- D. PCB deposition to the river bed occurs under low flow and elevated Bakers Falls source loading conditions. A thin layer of PCB laden material accumulates in the river bed downstream of Bakers Falls.
- E. Resuspension of PCB laden materials increases concentrations within the water column downstream of the Bakers Falls source loading area. This is particularly evident during the initial periods of elevated river flows. During periods of low PCB loading from the Bakers Falls source, the relative contribution from the river bed increases (ie. resuspension of water column PCBs from the Bakers Falls source).
- F. Downstream transport of PCBs from the Bakers Falls source occurs below the remnant areas as a combination of the processes described above.

Reduction in PCB loading from the Bakers Falls source by implementation of source control measures should not only reduce A, but should also reduce E and F over time.

Source: O'Brien and Gere 1993

Appendices

317047



O'BRIEN & GERE
ENGINEERS, INC.

APPENDIX A

FIELD LOGS

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

1/04/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	1/4/93	13:00	comp.	8'	2.5°C	
HRM 196.8 - shore	"	13:15	GRAB	1'	"	
HRM 196.8 - center	-	-	-	-		
HRM 196.4 - center	-	-	-	-		
HRM 195.8 - center	-	-	-	-		
HRM 195.3 - center	-	-	-	-		
HRM 194.7 - center	-	-	-	-		
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)	1/4/93	12:30	comp.	MAIN - 7' E. CHANNEL - 13'	2.5°C	MS - EQ BL - BLIND DUPL
HRM 188.6 (Thompson Island Dam)	"	13:40	GRAB	1'	"	
Ft. Edward Staff Gage	1/4/93	12:00	-	-	-	20.10'
Lock 6 Staff Gage	"		-	-	-	21.00'

Weather Data:

Temperature 45° F

Wind CALM

Precipitation PARTLY SUNNY

Sampled by: GL, TT, MDL

O'Brien & Gere Engineers, Inc.

317049

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

1/14/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	1/14/93	11:30	Kimmerer composite	8'	1.0°C	MS-EQAL LAB DUPL
HRM 196.8 - shore	1/14/93	12:15	GRAB	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Fl. 197 Bridge Comp. - East and Main Channel)	1/14/93	12:45	composite	7'		WATER TEMP 1.0°C
HRM 188.8 (Thompson Island Dam)	1/14/93	13:30	GRAB	4'		
Fl. Edward Staff Gage						
Lock 6 Staff Gage	1/14/93	13:10		~20.5 ± 0.5		SNOW COVERS STAFF GAUGE

Weather Data: OVERCAST, FLURRIES
Temperature ~33°F
Wind 0-5
Precipitation _____

Sampled by: GL/SEM

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

1/21/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	1/21/93	10:40	hammer comp	8'		
HRM 196.8 - shore		11:15	GAAB	1		MS - EDBL - BLIND DUAL.
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:00		7	1°C	
HRM 188.6 (Thompson Island Dam)		12:45		4		
Ft. Edward Staff Gage						
Lock 6 Staff Gage		13:00				20.5 (ESTIMATED, ICE OBSTRUCTING GAGE)

Weather Data:

Temperature _____

Wind _____

Precipitation _____

Sampled by: _____

O'Brien & Gere Engineers, Inc.

317051

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG
1/27/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	1/27/93	14:35	HIMMERER COMD	8	1°C	
HRM 196.8 - shore		14:30	GRAB	1		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Fl. 197 Bridge Comp. - East and Main Channel)		12:30	HIMMERER COMD	7		MS-EDGL- LAB DUPL.
HRM 188.8 (Thompson Island Dam)		13:00	GRAB	4		
Fl. Edward Staff Gage						
Lock 6 Staff Gage		13:20				20.5 - SNOW & ICE ON STAFF GAUGE

Weather Data:
Temperature 35° F ±
Wind 5-10
Precipitation 0

Sampled by: Gary Loebe - MEX-TEE

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG
2/3/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	2/3/93	10:30	HIMMER COMP	8	1°C	MS - EQ BL - BLIND DUGL.
HRM 198.8 - shore		11:05	GRAB	1		
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:35	HIMMER COMP	7		
HRM 188.6 (Thompson Island Dam)		12:20	GRAB	4		
Ft. Edward Staff Gage						
Lock 6 Staff Gage		12:45				20.5 SNOW & ICE

Weather Data:
Temperature 20°F
Wind 0-5
Precipitation 0

Sampled by: Gary Tade - STEVE MOOREY

O'Brien & Gere Engineers, Inc.

317053

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

2/10/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	2/10/93	10:53	HIMMERER COMP	8	10°C	
HRM 196.8 - shore		11:30	GAAB	1		MS-EQAL-LAB DUPL.
HRM 196.8 - center		-				
HRM 196.4 - center		-				
HRM 195.8 - center		-				
HRM 195.3 - center		-				
HRM 194.7 - center		-				
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:30	HIMMERER COMP	7		
HRM 188.6 (Thompson Island Dam)		15:45	GAAB	4		
Fl. Edward Staff Gage						
Lock 6 Staff Gage		12:15				20.91 READING

Weather Data:

Temperature 40°F ±

Wind 5-10 MPH

Precipitation CLEAR

Sampled by: Gary Loda - BOB H.

O'Brien & Gere Engineers, Inc.

**GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM**

FIELD LOG

2/16/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	<i>2/16/93</i>	<i>10:00</i>	<i>HIMMERER Comp</i>	<i>8</i>		
HRM 198.8 - shore	<i>2/16</i>		<i>GAAB</i>	<i>1</i>		<i>No Sample - HEAVY SNOW</i>
HRM 198.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)	<i>2/16</i>	<i>10:45</i>	<i>HIMMERER Comp</i>	<i>7</i>	<i>10° C</i>	<i>MS - EQUAL, BLIND DURL.</i>
HRM 188.6 (Thompson Island Dam)	<i>2/16</i>	<i>NOON</i>	<i>GAAB</i>	<i>4</i>		
Fl. Edward Staff Gage						
Lock 6 Staff Gage	<i>2/16</i>	<i>11:15</i>				<i>21.6 - SNOW ON GAUGE</i>

Weather Data:

Temperature *35° F*

Wind *5-10*

Precipitation *HEAVY SNOW*

Sampled by: *Ray L. Lee*

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

2/24/93 FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	2/24/93	10:30	KIMMERER COMB	8	1°C	MS - EQAL, LAB. DUPL.
HRM 198.8 - shore		—	GAAB	1		NO SAMPLE - DEEP HEAVY SNOW
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)			COMB	7		
HRM 188.6 (Thompson Island Dam)			GAAB	4		
Ft. Edward Staff Gage						
Lock 6 Staff Gage		13:00				21.5' + SNOW ON STAFF GAGE

Weather Data:

Temperature 20° F

Wind 5-10

Precipitation CLEAR

Sampled by: Ray Lake

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

3/3/93 FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	3/3/93	4:15	HIMMERER COMP	8	1°C	
HRM 196.8 - shore			GAAB	1		NO SAMPLE (HEAVY DEEP SNOW)
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		10:20	HIMMERER COMP	7		MS - EQBL - BLIND DUEL.
HRM 188.8 (Thompson Island Dam)		11:35	GAAB	4		
Ft. Edward Staff Gage						
Lock 6 Staff Gage		11:00				21.50 - SNOW & ICE ON GAUGE

Weather Data:

Temperature CLEAR - 40°F ±
Wind 5-10 MPH
Precipitation 0

Sampled by: Gary Lade

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

3/10/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	3/10/93	9:35	HIMMEER Comp	8'	1°C	MS-LAB DUPL. - ERBL
HRM 196.8 - shore		10:45	GRAB	1		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:15	HIMMEER COMP	7		
HRM 188.8 (Thompson Island Dam)		11:30	GRAB	4		
Fl. Edward Staff Gage						
Lock 6 Staff Gage		12:45				STAFF GAUGE READING = 20.0'

Weather Data:

Temperature 35°F ±
Wind 5-10 MPH
Precipitation 0

Sampled by: Ray Lide - STEVE MOONY

O'Brien & Gere Engineers, Inc.

**GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM**

3/17/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	<i>3/17/93</i>	<i>10:05</i>	<i>HIMMERER Comp</i>	<i>8'</i>	<i>3°C</i>	
HRM 198.8 - shore		<i>11:30</i>	<i>GRAB</i>	<i>1</i>		
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		<i>10:30</i>	<i>HIMMERER Comp</i>	<i>7</i>		<i>MS - EDAL - BLIND DOOL.</i>
HRM 188.8 (Thompson Island Dam)		<i>12:15</i>	<i>GRAB</i>	<i>4</i>	<i>3°C</i>	
Fl. Edward Staff Gage						
Lock 6 Staff Gage		<i>12:00</i>				<i>READING = 20.4'</i>

Weather Data:
 Temperature *40°F ±*
 Wind *5-10 MPH*
 Precipitation *RAIN*

Sampled by: *Ray Lada - STEVE MOONY*

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

3/23/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	3/23/93	9:55	HIMMERER COMP	8'	3° C	MS- EQUAL, LAB DUPL.
HRM 198.8 - shore		11:30	GRAAB			
HRM 198.8 - center				1		
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Fl. 197 Bridge Comp. - East and Main Channel)		10:45	HIMMERER COMP	7		
HRM 188.8 (Thompson Island Dam)		12:45	GRAAB	4		
Fl. Edward Staff Gage						
Lock 6 Staff Gage		12:20	?			20.40

Weather Date:

Temperature

40° F

Wind

5-10 MPH

Precipitation

0 CLEAR

Sampled by: _____

O'Brien & Gere Engineers, Inc.

317060

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 3/31/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	3/31/93	10:00 AM	16 meter Composite	0-5'	-	PCB, TSS Gauge = 138.0
HRM 196.8 - shore	3/31/93	11:30 AM	GRAB	0-1'		PCB, TSS, PCB MS, EQ. BAK., Blind Duff
HRM 196.8 - center						
HRM 196.4 - center						PCB, TSS
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)	3/31/93	12:15 PM	16 meter Composite	0-4'		It appeared the EPA was sampling this site, PCB, TSS
HRM 188.6 (Thompson Island Dam)	3/31/93	12:45 PM	GRAB	0-3'		PCB, TSS
Ft. Edward Staff Gage	3/31/93	0945		22.82		
Lock 6 Staff Gage	3/31/93	0945		22.0		

Weather Data: Sunny
Temperature 45-50°F
Wind 0-5 MPH
Precipitation None

Lock 6 Staff Gauge = 22.0
Ft. Ed. " " = 22.82
Conoe Carry Gauge = 138

Sampled by: Steve McConsey
O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

4/7/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/7/93	9:45	HIMMERER COMP.	9.0'	20°C	
HRM 196.8 - shore		10:45	GRAB	1.5'		MS - EQAL, BLIND DUPL.
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:30	HIMMERER COMP.	7.8'		
HRM 188.8 (Thompson Island Dam)		9:00	GRAB	4.5'		
Ft. Edward Staff Gage						
Lock 6 Staff Gage		12:00				21.0'

Weather Data:

Temperature

60°F

Wind

5-10 MPH

Precipitation

0

Sampled by:

Ray Lusk

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

4/12/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/12/93	13:45	Kimmerer Comp	11'	30°C	MS - EQAL - LAB DUPL
HRM 196.8 - shore		14:35	GAAB	4'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		13:15	Kimmerer Comp	11'		
HRM 188.6 (Thompson Island Dam)			GAAB	~		
Ft. Edward Staff Gage						
Lock 6 Staff Gage		12:45				23 50

Weather Data:

Temperature

40° F ±

Wind

5-10 MPH

Precipitation

SHOWERS

Sampled by:

Gary Fode

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/13/93	9:30	KINMEYER Comp		3°C	MS-ED02 BLIND DUPL.
HRM 196.8 - shore		10:20	GRAV			
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:00	Comp			
HRM 188.6 (Thompson Island Dam)			~			
Ft. Edward Staff Gage						
Lock 6 Staff Gage		4:40				23.30

Weather Data:
Temperature 45°F
Wind 5-10 MPH
Precipitation OVERCAST

Sampled by: G.I. - B.H.

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

4/20/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/20/93	10:30	HIMMERER COMP	7.0		M5 - EDBL - BLIND DOOL
HRM 196.8 - shore	4/20/93	10:50	GAAB	15		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)	4/20/93	11:40	HIMMERER COMP	7.8		
HRM 188.6 (Thompson Island Dam)	4/20/93	12:30	GAAB	11.5		
Ft. Edward Staff Gage	4/20/93	11:19				23.90 USGS Automatic Reading
Lock 6 Staff Gage	4/20/93	12:45				22.9

Weather Data:

Temperature 65° Overcast

Wind _____

Precipitation _____

Sampled by: W. Ayling

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG
4/23/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/23/93	10:45	Himmerer Comp			
HRM 196.8 - shore		11:30	GAAB			
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:30 10:45	Himmerer Comp		5°C	MS-EQBL-LAB COP.
HRM 188.6 (Thompson Island Dam)		10:00	GAAB			
Ft. Edward Staff Gage						
Lock 6 Staff Gage		12:45				25.2'

Weather Data:

Temperature 40°+

Wind 5-10 MPH

Precipitation WET SNOW

Sampled by: Rory Todd

O'Brien & Gere Eng.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

4/24/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/24/93	17:00	KEMMERER COMP			
HRM 196.8 - shore	4/24/93	17:20	GRAB			
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 Rt. 197 Bridge Comp. - East and Main Channel)	4/24/93	18:00	KEMMERER COMP			MS, LAB DUP, EGBL
IRM 188.6 (Thompson Island Dam)	4/24/93	18:40	GRAB			
Edward Staff Gage	4/24/93	1725 EST	—			26.74 27830 cfs
Rock 6 Staff Gage	4/24/93	1855	—			24.5

Weather Data: overcast/partly sunny
 Temperature -65
 Wind Calm
 Precipitation none

Sampled by: W. Ayling
 O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

4/25/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/25/93	0900	KEMMERER Comp.			20.6L
HRM 196.8 - shore	4/25/93	0935	GRAB			
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)	4/25/93	1000	KEMMERER Comp			
HRM 188.6 (Thompson Island Dam)	4/25/93	1040	GRAB			
Ft. Edward Staff Gage	4/25/93	0910 EST	—			26.83
Lock 6 Staff Gage	4/25/93	11:06	—			27.5
						28,268 cfs

Weather Data:

Temperature 70° Sunny

Wind South

Precipitation light rain early, ~ 6am ended

Sampled by: HL Ayling

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

4/28/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	4/28/93	10:05	Himmerer Comp	10'		
HRM 196.8 - shore		10:50	GARB	8.5		MS - ERBL - BLIND DUPL.
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:55	Himmerer Comp	10-15		
HRM 188.6 (Thompson Island Dam)		9:30	GARB	5.5	7°C	
Ft. Edward Staff Gage						
Lock 6 Staff Gage		NOON				24.3

Weather Data:

Temperature 60°F

Wind 5-10 MPH

Precipitation 0

Sampled by: Rory Todd

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG
5/5/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	5/5/93	10:00	HIMMERER Comp.	10'		
HRM 196.8 - shore			GAAB	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)			HIMMERER Comp	9-15'		MS- EQLBL, LAB. DUPL
HRM 188.6 (Thompson Island Dam)		9.15	GAAB	5.5'	11°C	
Ft. Edward Staff Gage						
Lock 6 Staff Gage		12:05				22.2'

Weather Data:
Temperature 70° F
Wind 10 MPH
Precipitation LIGHT RAIN

FT EDWARD GAUGE
10 AM 23.510

Sampled by: Gary Ladd

O'Brien & Gere Engineers, Inc.

**GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM**

**FIELD LOG
5/12/93**

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	5/12/93	12:00	HIMMERER COMP	9.0'		MS - BLIND DUPL., EROL
HRM 196.8 - shore		12:45	GAAB			
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		13:20	HIMMERER COMP	7 - 15'		
HRM 188.6 (Thompson Island Dam)		13:50	GAAB	4.5'	17°C	NO TSS THIS DATE
Ft. Edward Staff Gage						
Lock 6 Staff Gage		13:35				20.90

Weather Data:
 Temperature 70° ± F
 Wind 10-20 MPH
 Precipitation 0

FT. EDWARD STAFF GAUGE
1 PM EST 22.325

Sampled by: Ray Loe
 O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

5/19/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	5/19/93	13:00	Kimmerer Comp	9'		
HRM 196.8 - shore		13:15	GRAB	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		13:45	Kimmerer Comp	7-12'		
HRM 188.6 (Thompson Island Dam)		14:20	GRAB	5'		MS - EDBL - LAB DURL.
Ft. Edward Staff Gage						
Lock 6 Staff Gage		14:00				20.50

Weather Data:

Temperature 62°F

Wind 5 MPH

Precipitation SHOWERS

FORT EDWARD - 12:00 NOON EST
STAFF GAUGE = 21.56

Sampled by:

Ray Fede
MARIL LARUE

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

5/26/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	5/26/93	11:50	Himmerer Comp.	8.5		MS - EQL, BLIND DUBL.
HRM 198.8 - shore		11:20	GAAB	1.0'		
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:45	Himmerer Comp.	7 - 12		
HRM 188.6 (Thompson Island Dam)		13:20	GAAB	4.0'	16°C	
Ed. Edward Staff Gage		15:45				21.5
Rock 6 Staff Gage		13:00				20.50

Weather Data:

Temperature

70°+

Wind

10-15

Precipitation

0

Sampled by:

Gary Tule

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

6/3/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	6/3/93	10:40	HIMMERER Comp	9'		M5-EQBL, BLIND DUPL.
HRM 196.8 - shore		11:15	GAAO	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:45	HIMMERER Comp	7-12'	17°C	
HRM 188.6 (Thompson Island Dam)		12:30	GAAIB	5'		
Ft. Edward Staff Gage		10:30				21.3
Lock 6 Staff Gage		09:15				20.45

Weather Data: 65°C E
Temperature
Wind 5-10
Precipitation 0

Sampled by: Doug Leach

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

6/10/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	6/10/93	9:45	COMP	9'		
HRM 196.8 - shore		10:30	GAAB	1'		MS-EQBL, LAB DUPL.
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:35	COMP	7-12'		
HRM 188.6 (Thompson Island Dam)		9:00	GAAB	5'	18°C	
Ft. Edward Staff Gage		10:05 EST				21.4
Lock 6 Staff Gage		11:00 EST				20.4

Weather Data:

Temperature

80°F ±

Wind

5-10 MPH

Precipitation

0

Sampled by:

Gary Lade

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

6/16/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	6/16/93	11:20	HIMMERER Comp.	4		BLIND DURL - TSS - 5' PCB
HRM 196.8 - shore		10:50	GRAO	1		
HRM 196.8 - center		10:40				
HRM 196.4 - center		10:45				
HRM 195.8 - center		10:54				
HRM 195.3 - center		11:11				
HRM 194.7 - center		11:45				
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		13:00	HIMMERER COMP	7 - 12'		
HRM 188.6 (Thompson Island Dam)		12:00	GRAO	4.5	19°C	MS - EQ BL
Ft. Edward Staff Gage		11:30 EST				21.3
Lock 6 Staff Gage		12:30 EST				20.3

Weather Data:

Temperature

70°

Wind

5-10 MPH

Precipitation

OVERCAST

Sampled by: Doug Todd

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG 6/23/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	6/23/93	12:45	HIMMERER COMP	8.5	18°C	
HRM 196.8 - shore		13:00	GAAB	1.0		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:30	HIMMERER COMP	7.0		MS - EQBL - LAB DUBL.
HRM 188.6 (Thompson Island Dam)		13:30	GAAB	4.5		
Fl. Edward Staff Gage						NO FLOW RECORDED THIS DATE (ELECTRONIC PROBLEMS)
Lock 6 Staff Gage		9:30				20.6

Weather Data:

temperature 75°F
Wind 10-15 MPH
precipitation 0

Sampled by: Ray Fike

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

7/1/93 FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	7/1/93	10:00	HIMMERER COMP	8.0'		
HRM 196.8 - shore		10:45	GRAB	1.0		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Fl. 197 Bridge Comp. - East and Main Channel)			HIMMERER COMP	7-12		
HRM 188.8 (Thompson Island Dam)			GRAB	4	19°C	MS-EDGE - BLIND DOVE
Fl. Edward Staff Gage				10:00 EST		20.7
Lock 6 Staff Gage				11:00 EST		20.2'

Weather Data:
Temperature 75°F
Wind 5-10 MPH
Precipitation 0

Sampled by: Gary Todd

O'Brien & Gere Engineers Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

7/7/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	7/7/93	12:10	HYDROMETER Comp	8.5		
HRM 196.8 - shore		12:30	GRAB	1.0		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:15	HYDROMETER Comp	7 - 12	22°C	
HRM 188.6 (Thompson Island Dam)			GRAB	4.5		MS - EQBL - LAB OURL
I. Edward Staff Gage		EST. 11:00				21.1
Rock 6 Staff Gage		EST. 8:15				20.0

Weather Data:

Temperature

94°F

Wind

5-10

precipitation

0

Sampled by:

Don Fode - MARK LAUE

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG

7/15/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	7/15/93		HIMMERER COMP	8		MS - EDBL, BLIND DUAL
HRM 196.8 - store		10:45	GRAB	1.0		
HRM 196.8 - center		10:40	GRAB			
HRM 196.4 - center		10:45	GRAB			
HRM 195.8 - center		10:53	GRAB			
HRM 195.3 - center		11:07	GRAB			
HRM 194.7 - center		11:25	GRAB			
HRM 194.2 (Rt. 197 Bridge Corp. - East and Main Channel)		12:30	HIMMERER COMP	7 - 12	20.2	BLIND DUAL
HRM 188.8 (Thompson Island Dam)		11:50	GRAB	4'		
Fl. Edward Staff Gage		12:58				21.2
Lock 6 Staff Gage	FST 09:00					20.3

Weather Data:

Temperature 78° ±

Wind 10-15

Precipitation 0

217000

Sampled by: Doug Todd
William Ayling
O'Brien & Gere Engineers Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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7/23/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	7/23/93	8:50	KEMMERER Comp	8.0'		BLIND Dup. , 20BL
HRM 196.8 - shore		9:50	GRAB	1'		ms.
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		10:00	KEMMERER Comp.	7-12'		
HRM 188.6 (Thompson Island Dam)		11:00	GRAB	4'		
Fl. Edward Staff Gage		10:25				21.125
Lock 6 Staff Gage		16:35				20

Weather Data:

Temperature ~75°F
Wind Calm
Precipitation NONE

Sunny w/ clouds

317081

Sampled by: W. B. King

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG 7/28/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	7/28/93	12:10	HIMMERED Comp	8'		
HRM 198.8 - shore		11:45	GRAAB	1		
HRM 198.8 - center		12:00	GRAB			
HRM 198.4 - center		12:10	GRAB			
HRM 195.8 - center		12:20	GRAB			
HRM 195.3 - center		12:45	GRAB			
HRM 194.7 - center		13:15	GRAB			
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:45	HIMMERED Comp.	7-12'	20°C	BLIND DURL - NOTE - BANKED HIMMERED OFF BOTTOM - MAY HAVE RILLED SED.
HRM 188.6 (Thompson Island Dam)		13:20	GAAB	4'		M5 - EQ BL
Ft. Edward Staff Gage		EST 12:00				21.32
Lock 6 Staff Gage		9:45				20.1

Weather Data:

Temperature 80°F

Wind 10-15 MPH

Precipitation 0

Sampled by: Gary Lade
William Ryping
O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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8/4/93

FIELD LOG 8/04/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	8/4/93	10:00	HIMMERER COMP	8.0	20° C	MS - EQBL
HRM 198.8 - shore		10:35	GAAB	1		
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:30	HIMMERER COMP	7-14		
HRM 188.6 (Thompson Island Dam)		09:00	GAAB	4'		LAB DUPL
Fl. Edward Staff Gage		EST 12:08				21.40 21.40
Lock 6 Staff Gage		EST 12:25				20.30

Weather Data:

Temperature

80° F

Wind

5-10

Precipitation

T-50MM3

Sampled by:

Harry Tuck

O'Brien & Gere Engineers Inc.

217002

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 8/12/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	8/12/93	11:15	Kimmerer Comp	8'		
HRM 196.8 - shore		10:20	GAAB	1		MS - EQ BL
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:00	Kimmerer Comp	7		BLIND DUAL
HRM 188.8 (Thompson Island Dam)		09:15	GAAB	4	20°C	
Ft. Edward Staff Gage		EST 10:30				26.15
Lock 6 Staff Gage		12:20				20.30

Weather Data: 80°F ±
Temperature
Wind 5-10 MPH
Precipitation SHOWERS

Sampled by: Gary Todd

O'Brien & Gere Engineers Inc.

317084

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 8/18/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	8/18/93	12:05 11:00	HIMMERER COMP	8.0		MS - LAB DUPL. EQAL PAINTING NEW BRIDGE. STAIN & PAINT DOOR
HRM 198.8 - shore		11:00	GRAB	1.0		
HRM 198.8 - center		11:35	GRAB			1 Zooplankton observed in TSS sample bottle
HRM 198.4 - center		11:42	GRAB			
HRM 195.8 - center		11:50	GRAB			
HRM 195.3 - center		12:06	GRAB			
HRM 194.7 - center		12:26	GRAB			
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:50	HIMMERER COMP	7 - 12		
HRM 188.8 (Thompson Island Dam)		14:40	GRAB	4		Rain Shower
Fl. Edward Staff Gage		8:40				21.45
Lock 6 Staff Gage	✓	09:00				20.40

Weather Data: 77°F @ 10:10
Temperature 64°F @ 14:23
Wind _____
Precipitation _____

PARTLY CLOUDY MOST OF DAY
BRIEF, HEAVY SHOWER @ TID DURING SAMPLING

Sampled by: Ingru Lode
William Ayling
O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
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FIELD LOG 8/25/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HFM 197.0 (Bakers Falls Bridge)	8/25/93	11:20	HIMMERET COM D	8'	20°C ±	
HFM 196.8 - shore		10:30	GAAB	1		BLIND DURL.
HFM 196.8 - center						
HFM 196.4 - center						
HFM 195.8 - center						
HFM 195.3 - center						
HFM 194.7 - center						
HFM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:35	HIMMERET COM D	7-12		
HFM 188.8 (Thompson Island Dam)		09:30	GAAB	4		EQAL - M.S.
Fl. Edward Stall Gage	ESP 9:50	EST 9:50				21.3
Lock 6 Stall Gage	12:05	12:05				20.2

Weather Data:
Temperature 85°F ±
Wind 5-10 MPH
Precipitation 0

Sampled by: Rory Lake

O'Brien & Gere Engineers Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

9/02/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	9/2/93	11:20	HMMERER COMP	8		Sample from New Bridge
HRM 196.8 - shore		11:50	GAAOB	1		
HRM 196.8 - center		11:20				
HRM 196.4 - center		11:28				
HRM 195.8 - center		11:37				
HRM 195.3 - center		11:59				
HRM 194.7 - center		12:26				
HRM 194.2 (Ft. 197 Bridge Comp. - East and Main Channel)		12:10	HMMERER COMP	7-12		MS - XXXX - XXXXXX (WV)
HRM 188.8 (Tompson Island Dam)		16:15	GAAOB	4		SOBL BLIND DUP
Ft. Edward Staff Gage		12:20				21.14
Lock 3 Staff Gage		16:00				20.0

Weather Data: Sunny, by end of day cloudy threaten rain @ TID
Temperature ~80°F
Wind
Precipitation none

TAILRACE TUNNEL OUTLET
POOL

11:10

11:14

Sampled by: William Appleby

O'Brien & Gere Engineers Inc.

**GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM**

FIELD LOG 9/8/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	9/8/93	10:45	HIMMERER Comp	5'		MS EQ BL 5' DEEP SAMPLE TAKEN AT CENTER NEW BRIDGE - FROM RAILING
HRM 198.8 - shore		10:00	GAAB	1		
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Fl. 197 Bridge Comp. - East and Main Channel)		11:35	HIMMERER Comp	7-12		BLIND DUPL.
HRM 188.8 (Thompson Island Dam)		9:20	GAAB	4	19°	
Fl. Edward Stall Gage		EST. 9:35				21.1
Lock 6 Stall Gage		EST. 11:00				20.0'

Weather Data:
 Temperature 65° F
 Wind 5-10 MPH
 Precipitation OVERCAST

317088

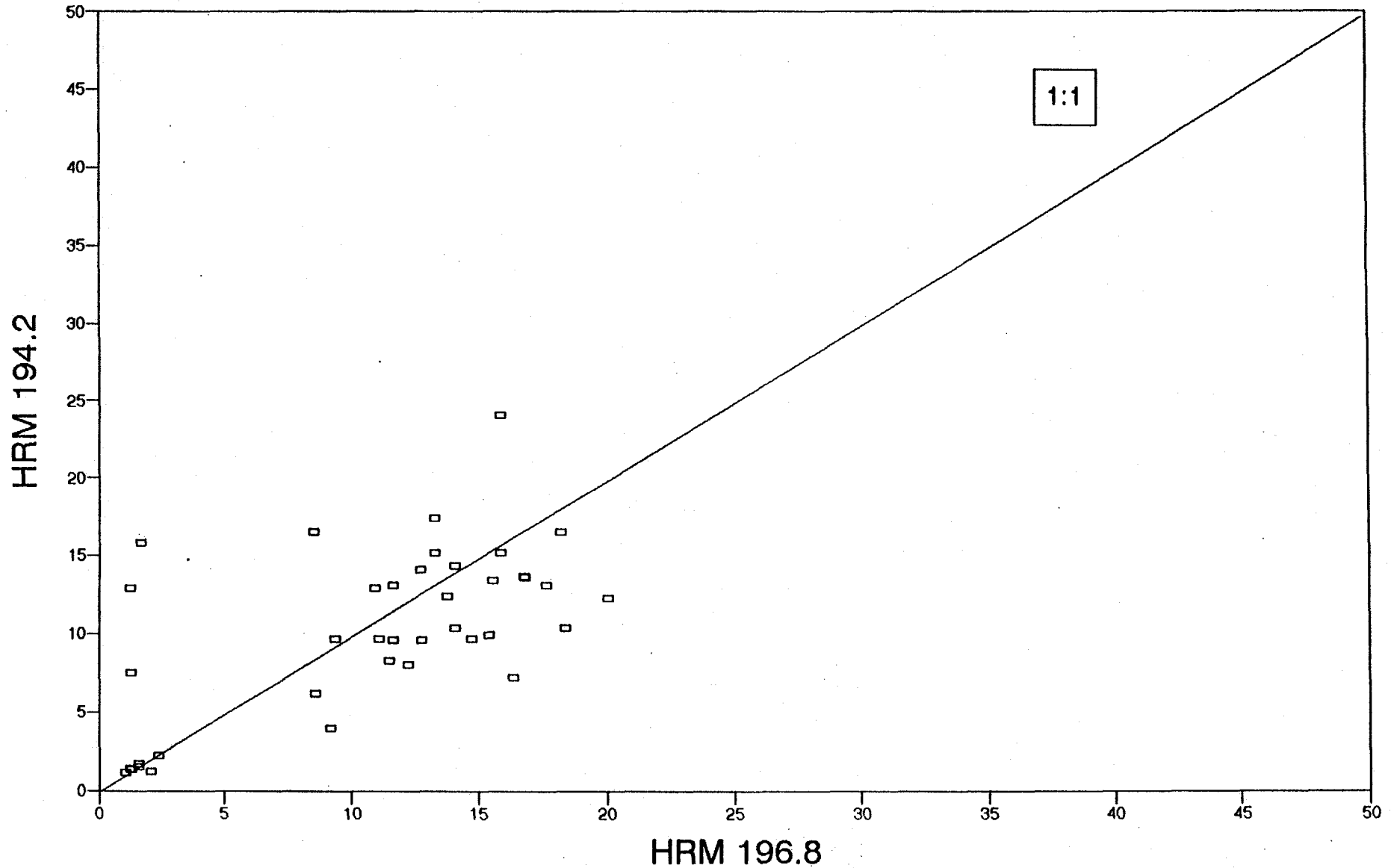
Sampled by: Andy Fick

APPENDIX E

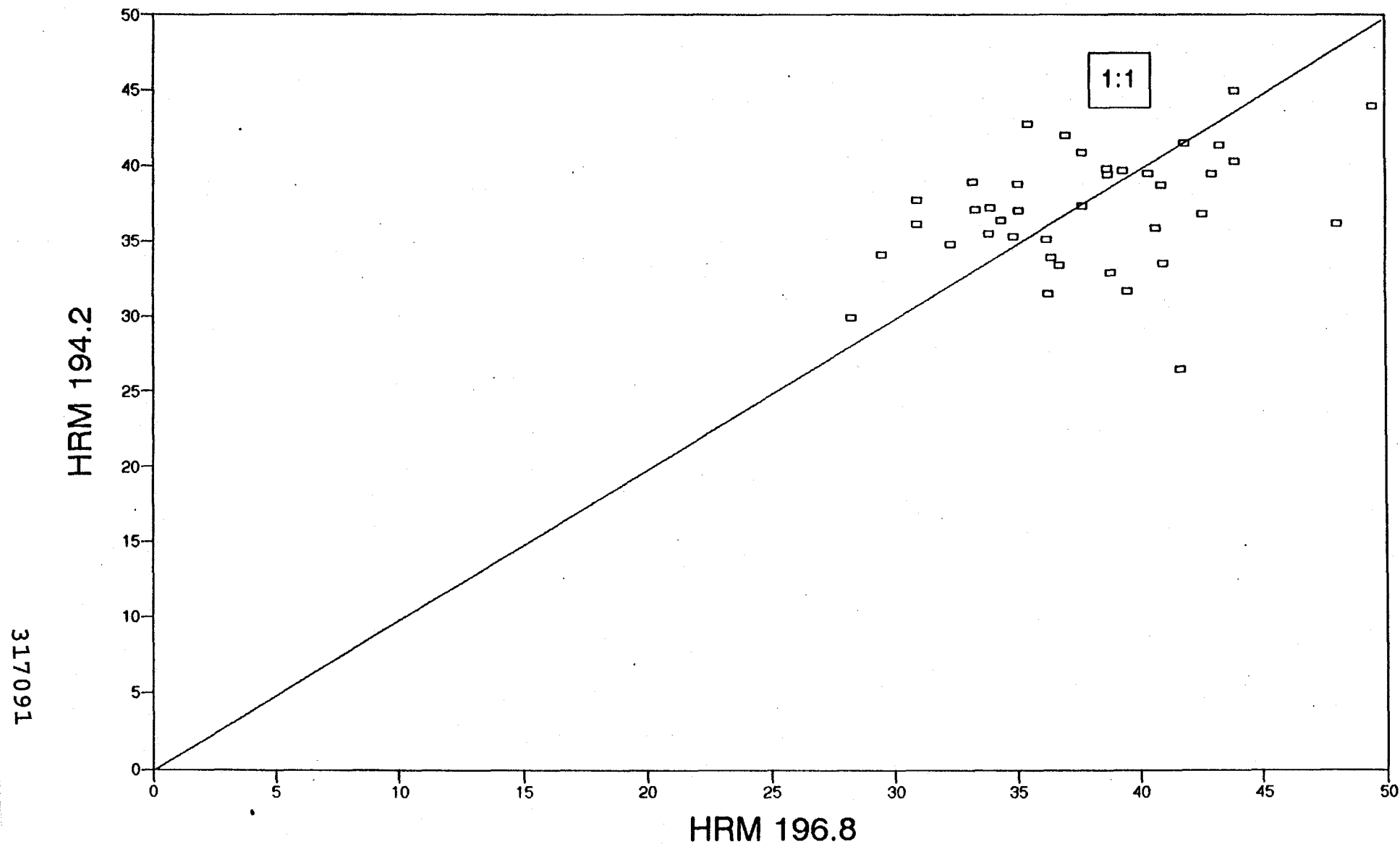
COMPARISON OF HRM 194.2 AND HRM 196.8 HOMOLOG DISTRIBUTIONS

General Electric Company
Hudson River Project

Weight Percent Di-chlorinated Biphenyls

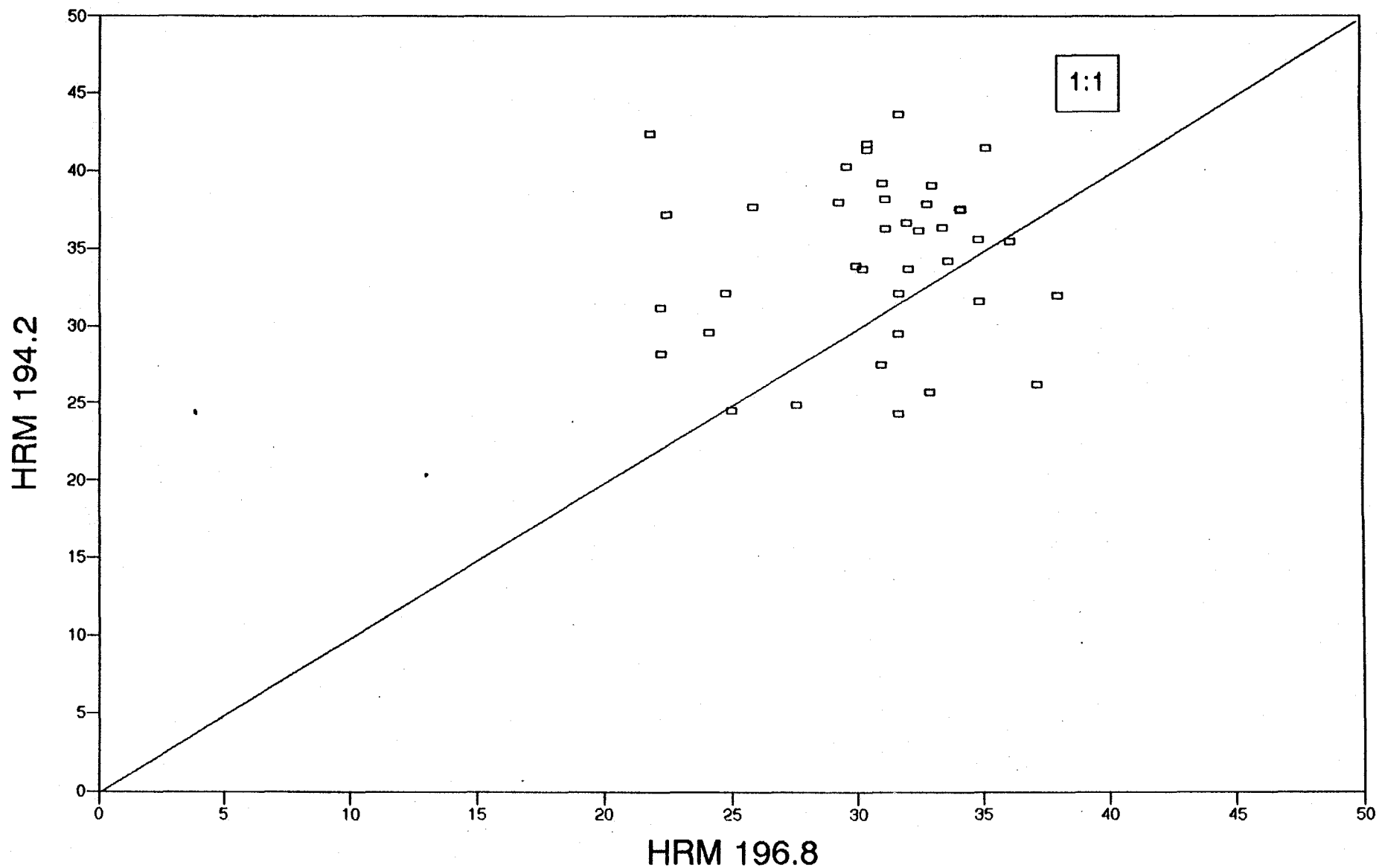


General Electric Company
Hudson River Project
Weight Percent Tri-chlorinated Biphenyls



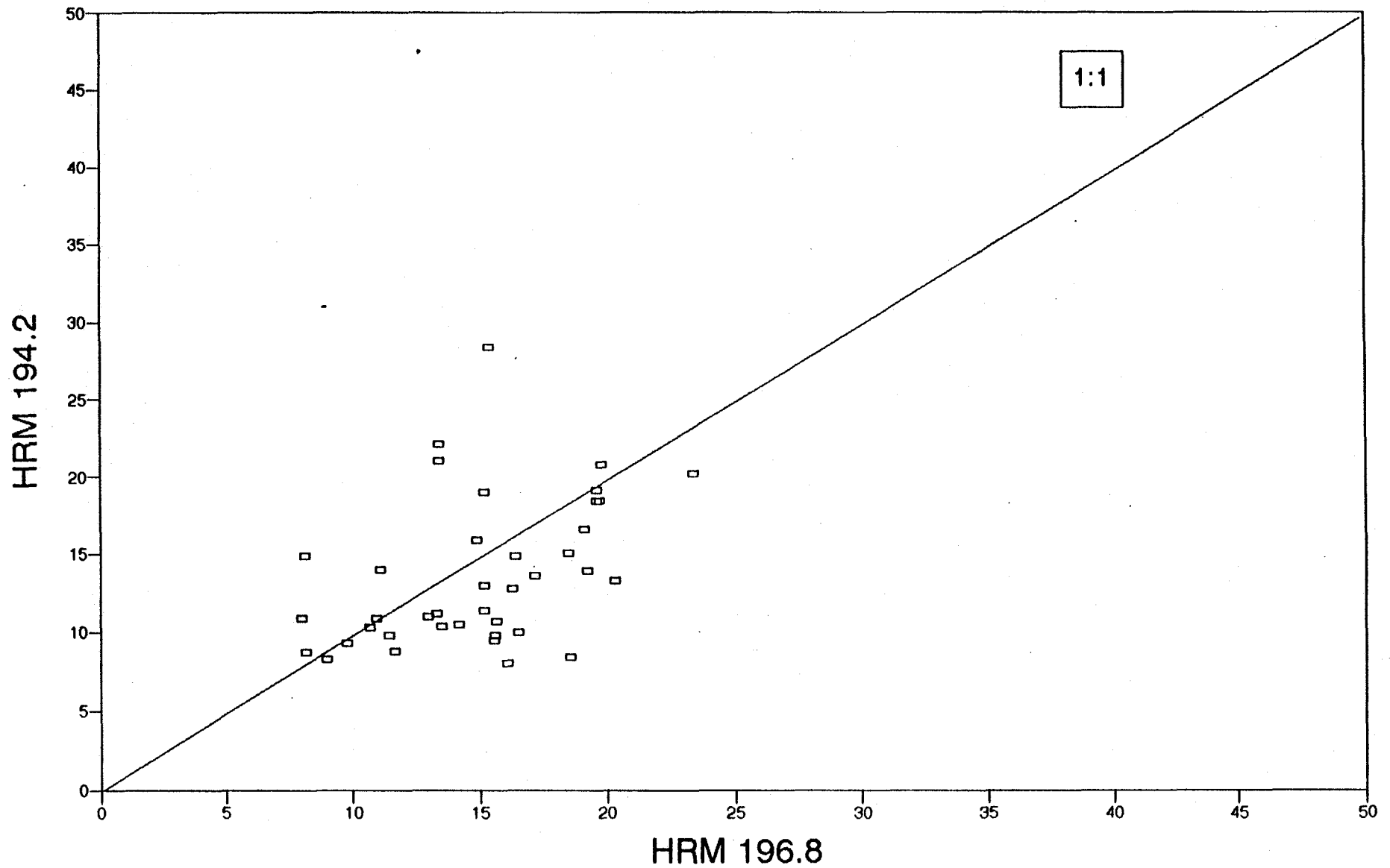
General Electric Company
Hudson River Project

Weight Percent Tetra-chlorinated Biphenyls



General Electric Company
Hudson River Project

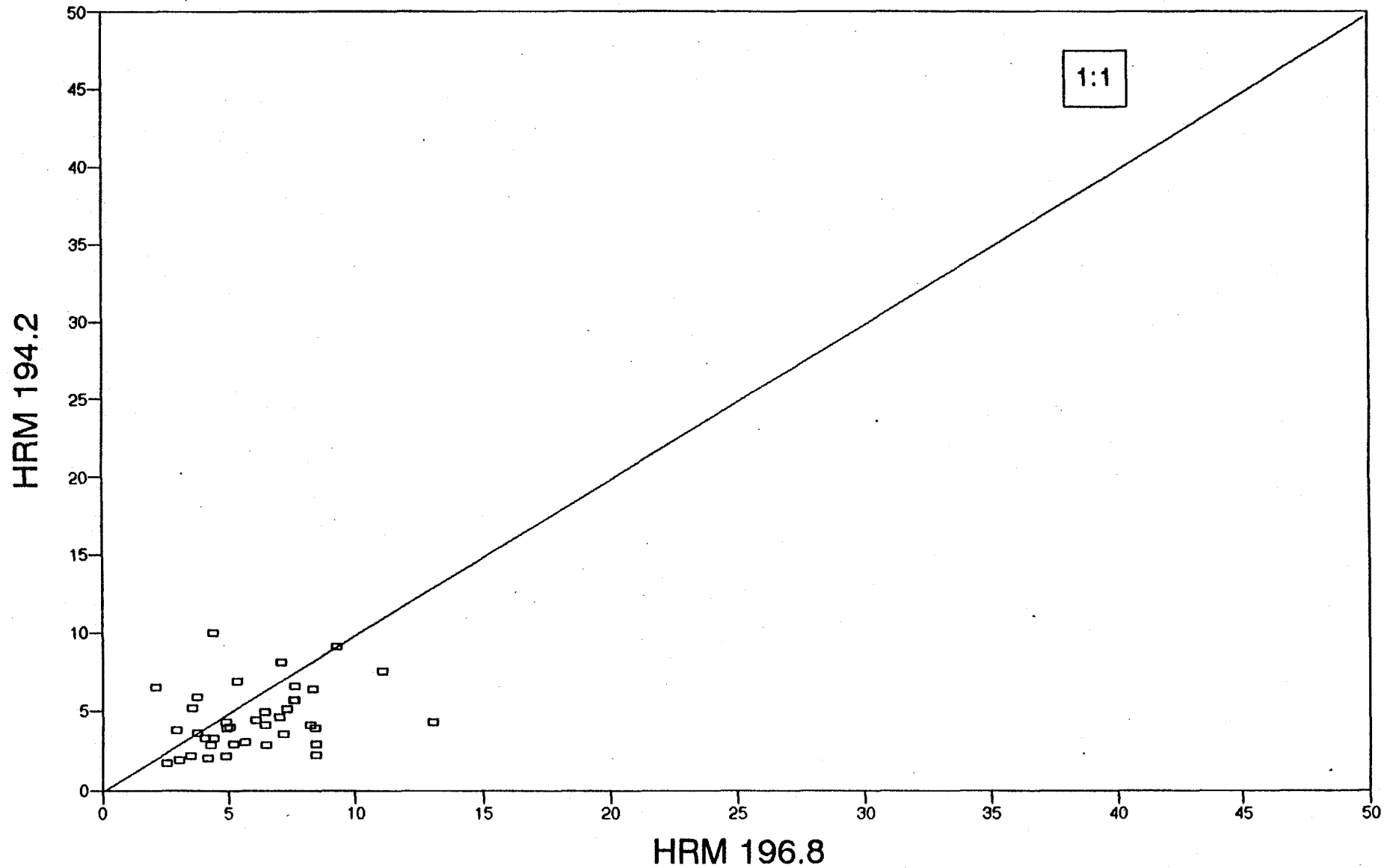
Weight Percent Penta-chlorinated Biphenyls



317093

General Electric Company
Hudson River Project

Weight Percent Hexa-chlorinated Biphenyls

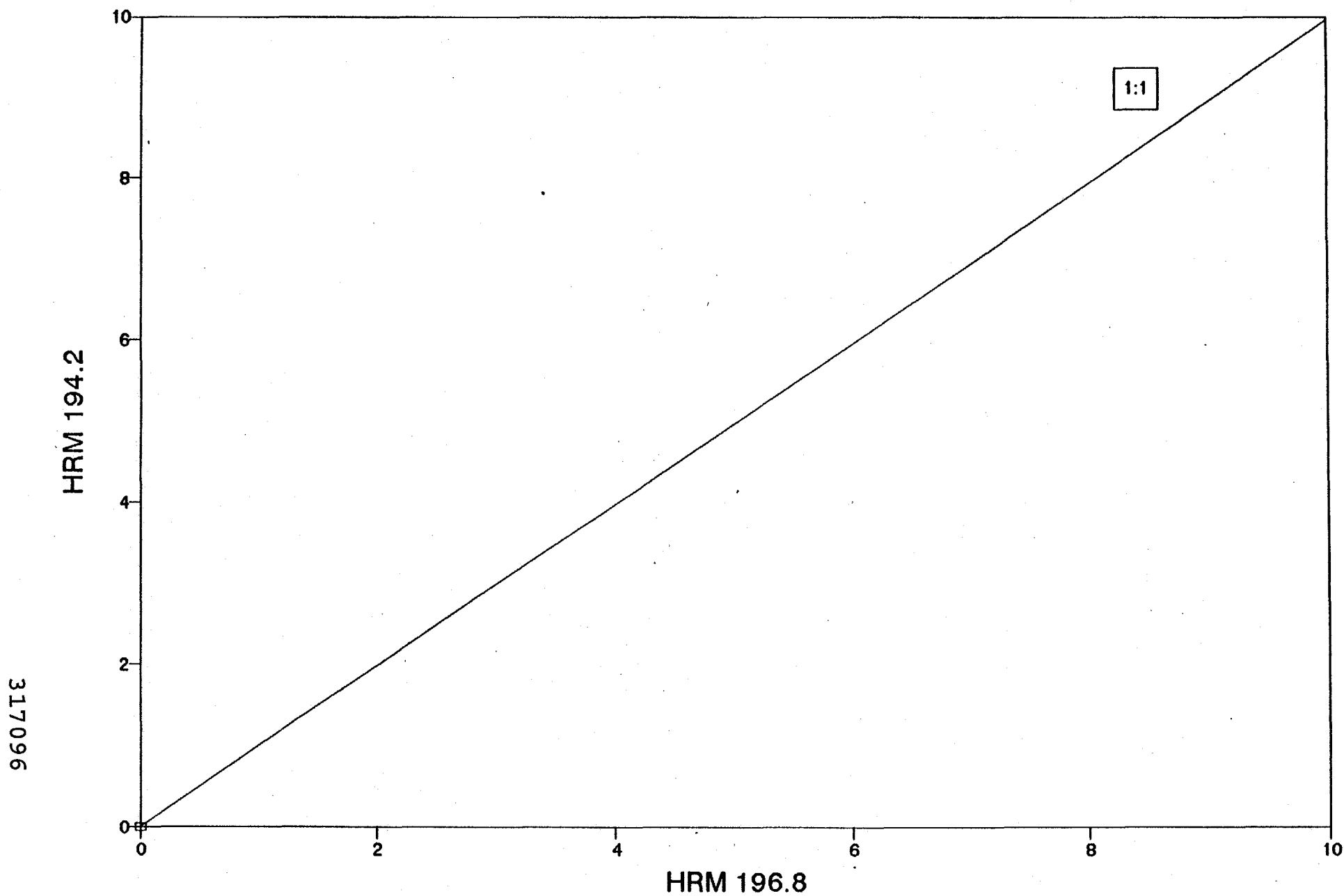


317094

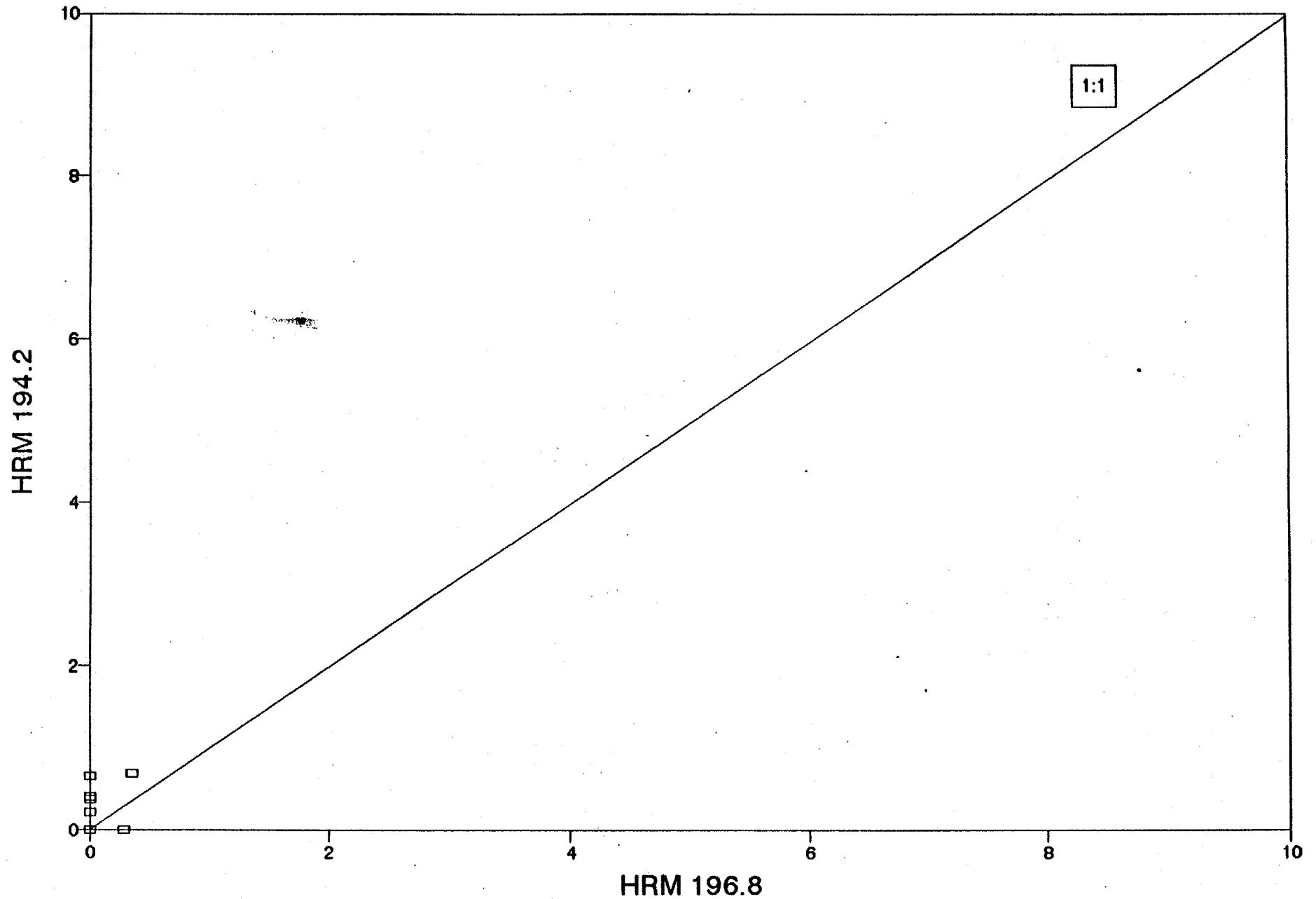
APPENDIX F

COMPARISON OF HRM 194.2 AND HRM 196.8 CONGENER DISTRIBUTIONS

General Electric Company
Hudson River Project
Weight Percent of Congener Peak 2

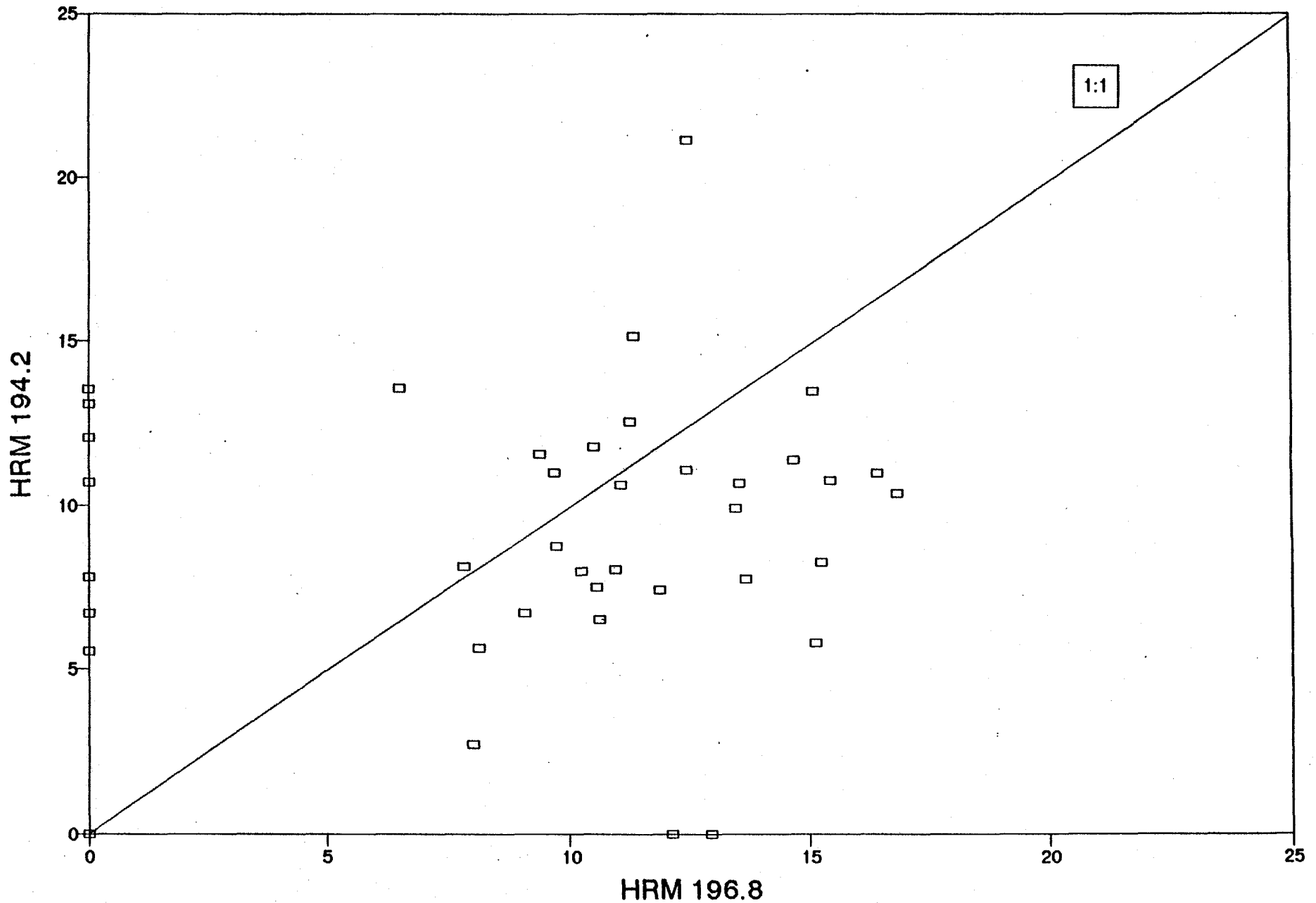


General Electric Company
Hudson River Project
Weight Percent of Congener Peak 5



317097

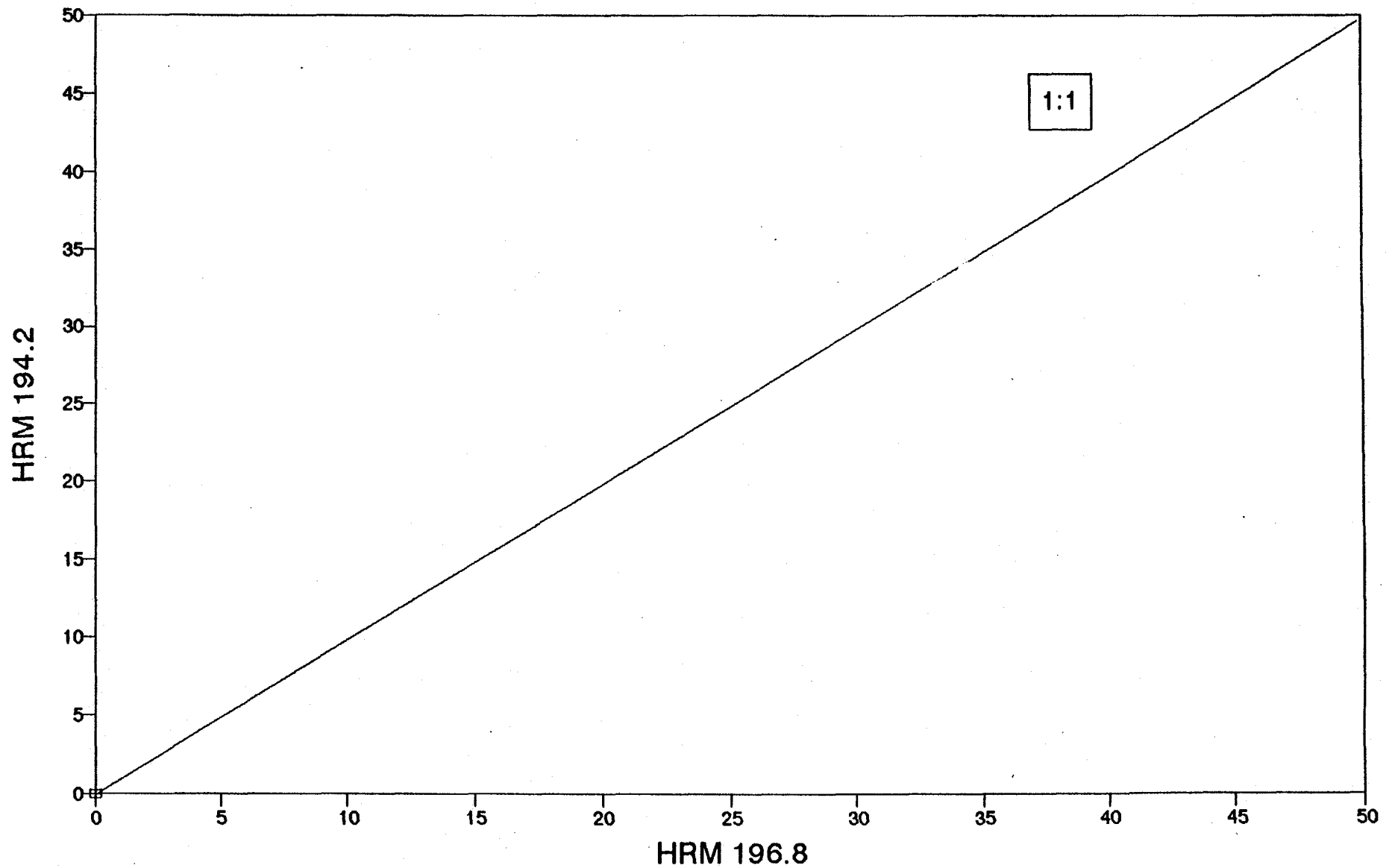
General Electric Company
Hudson River Project
Weight Percent of Congener Peak 8



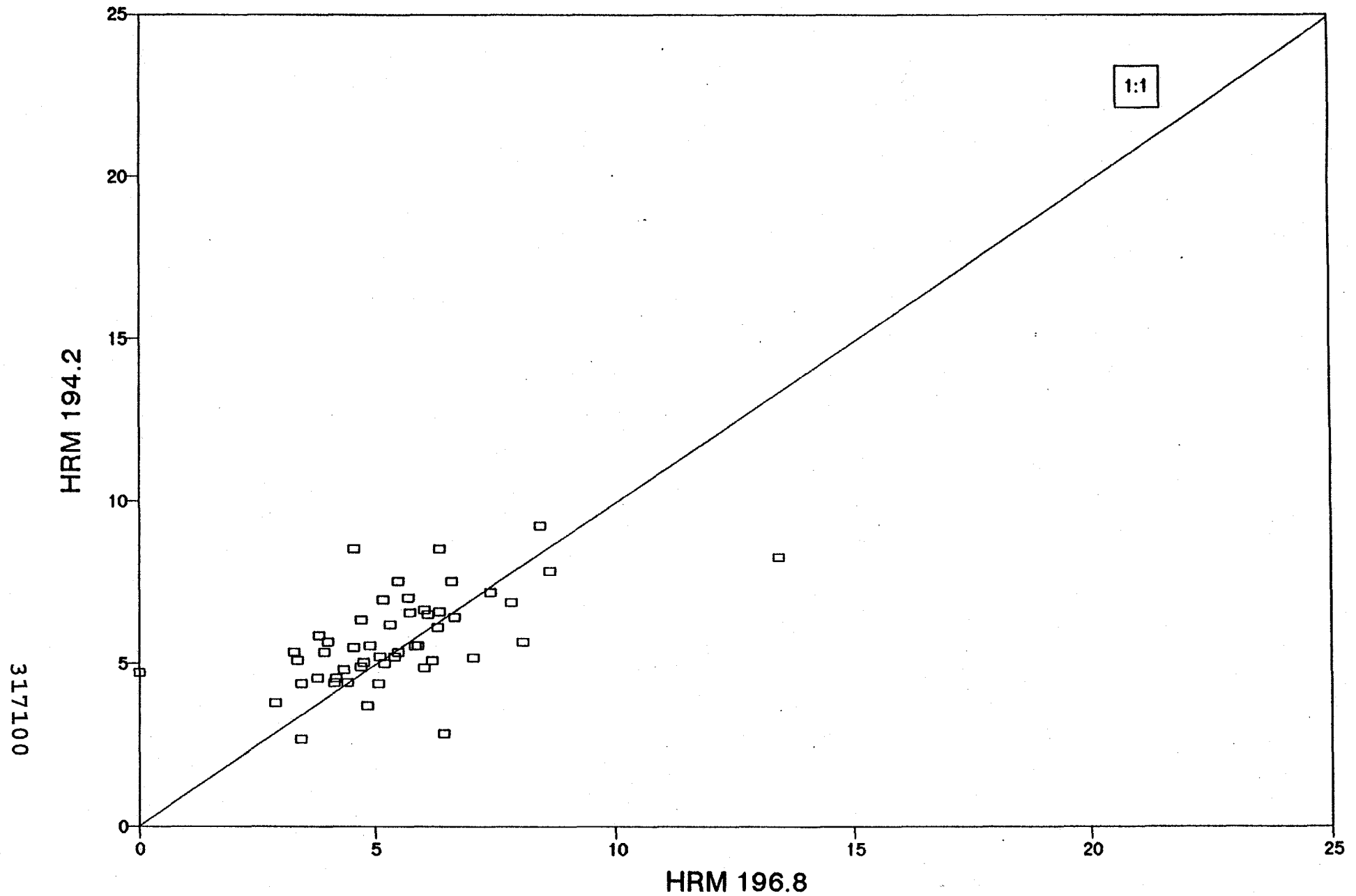
860713

General Electric Company
Hudson River Project

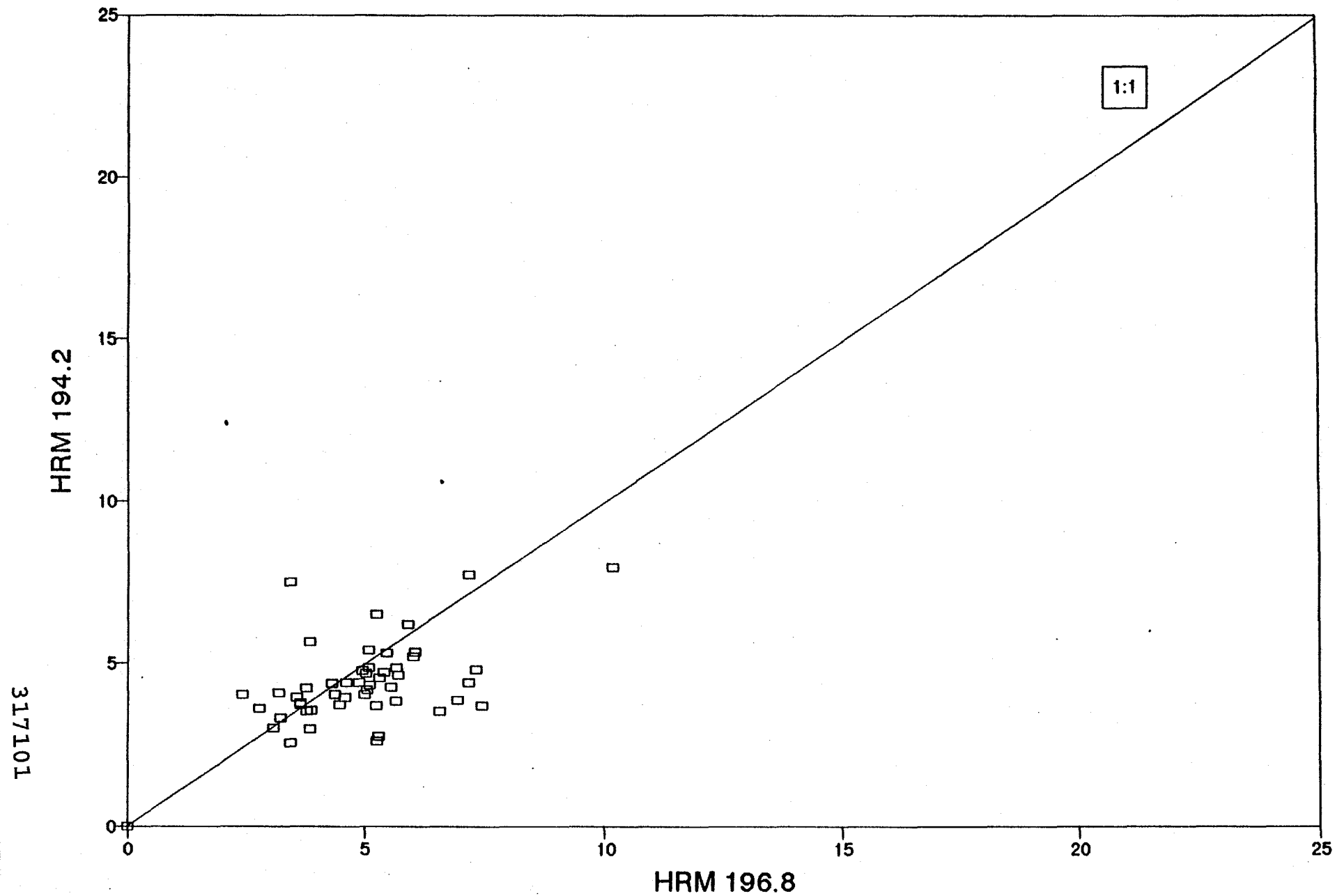
Weight Percent Mono-chlorinated Biphenyls



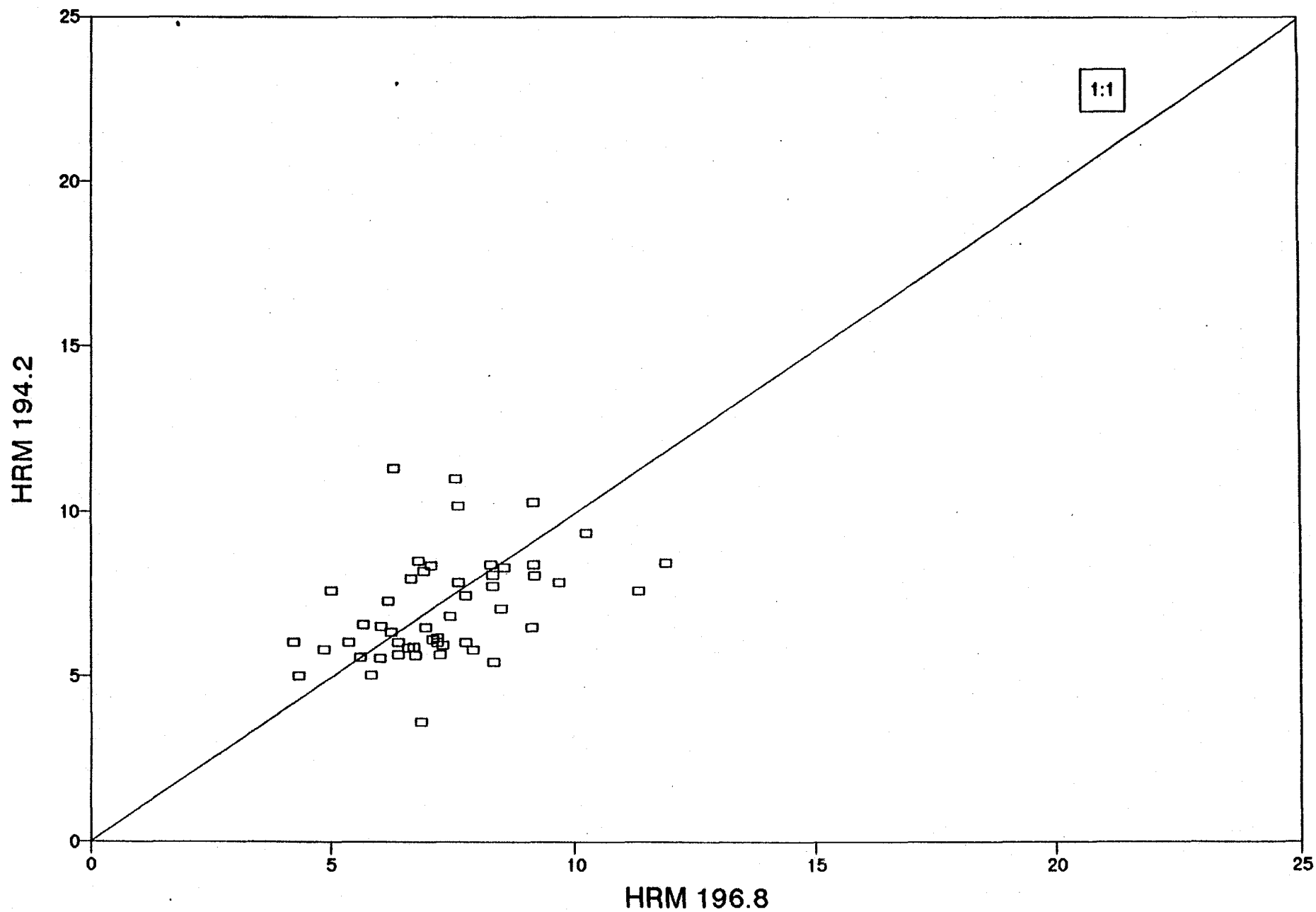
General Electric Company
Hudson River Project
Weight Percent of Congener Peak 24



General Electric Company
Hudson River Project
Weight Percent of Congener Peak 25



General Electric Company
Hudson River Project
Weight Percent of Congener Peak 48

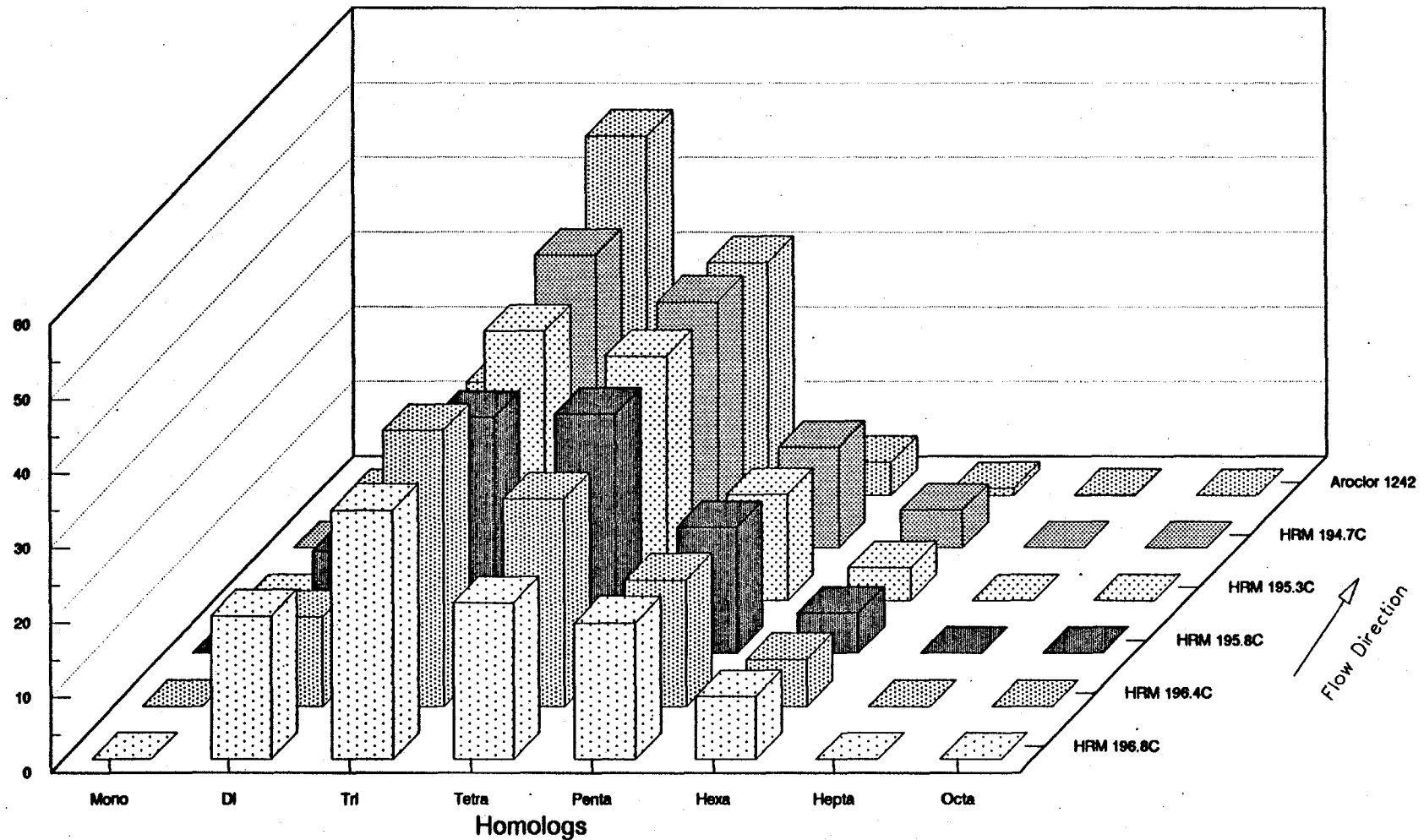


APPENDIX G

FLOAT SURVEY PCB HOMOLOG DISTRIBUTIONS

**General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 5/26/93**

Weight Percent



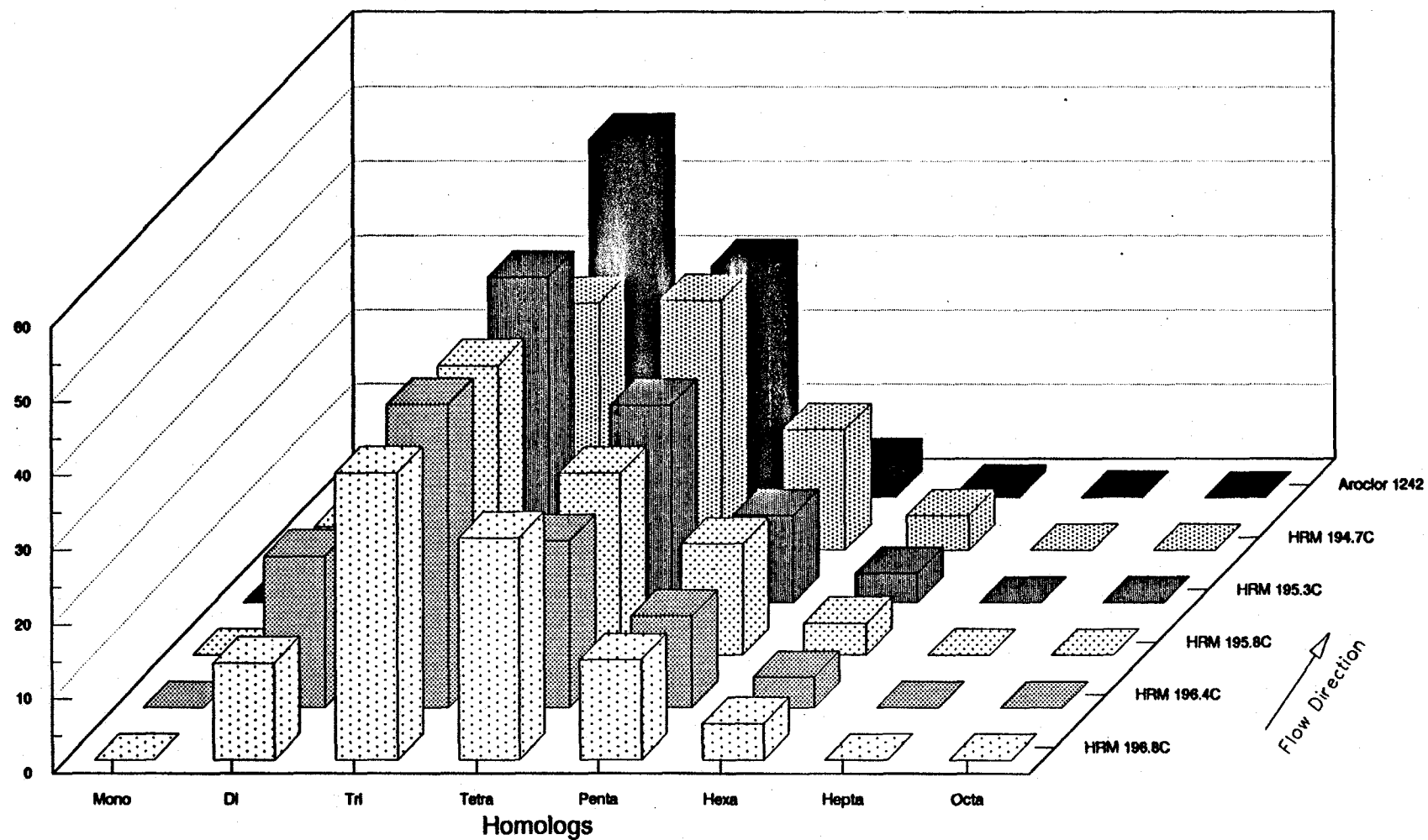
O'Brien & Gere Engineers, Inc.
February 4, 1994
fs2693.drw

Note: PCB concentrations at HRM 195.8, HRM 195.3, and HRM 194.7 are below detection limit.

317104

**General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 7/28/93**

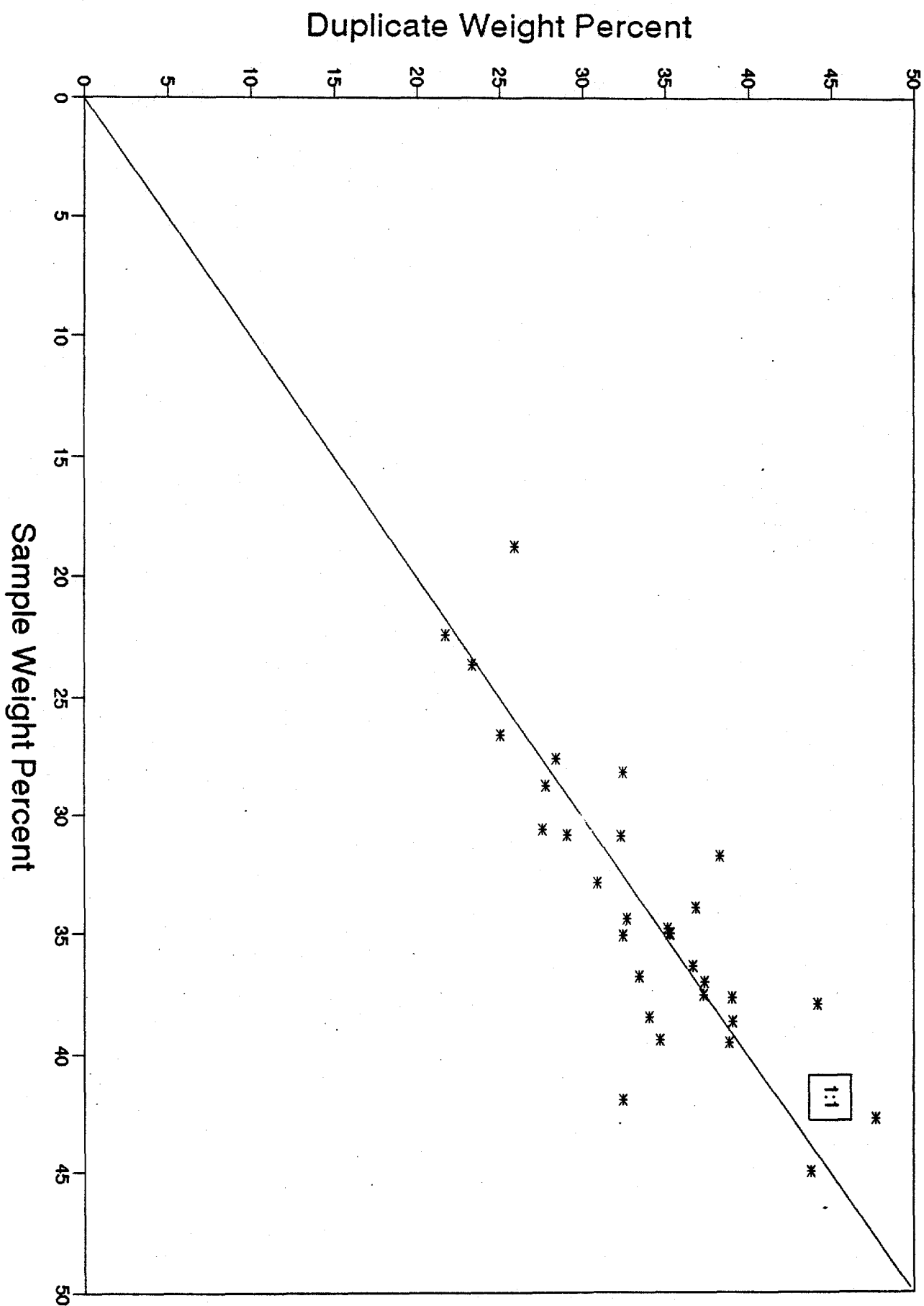
Weight Percent



O'Brien & Gere Engineers, Inc.
October 4, 1993
672993.drw

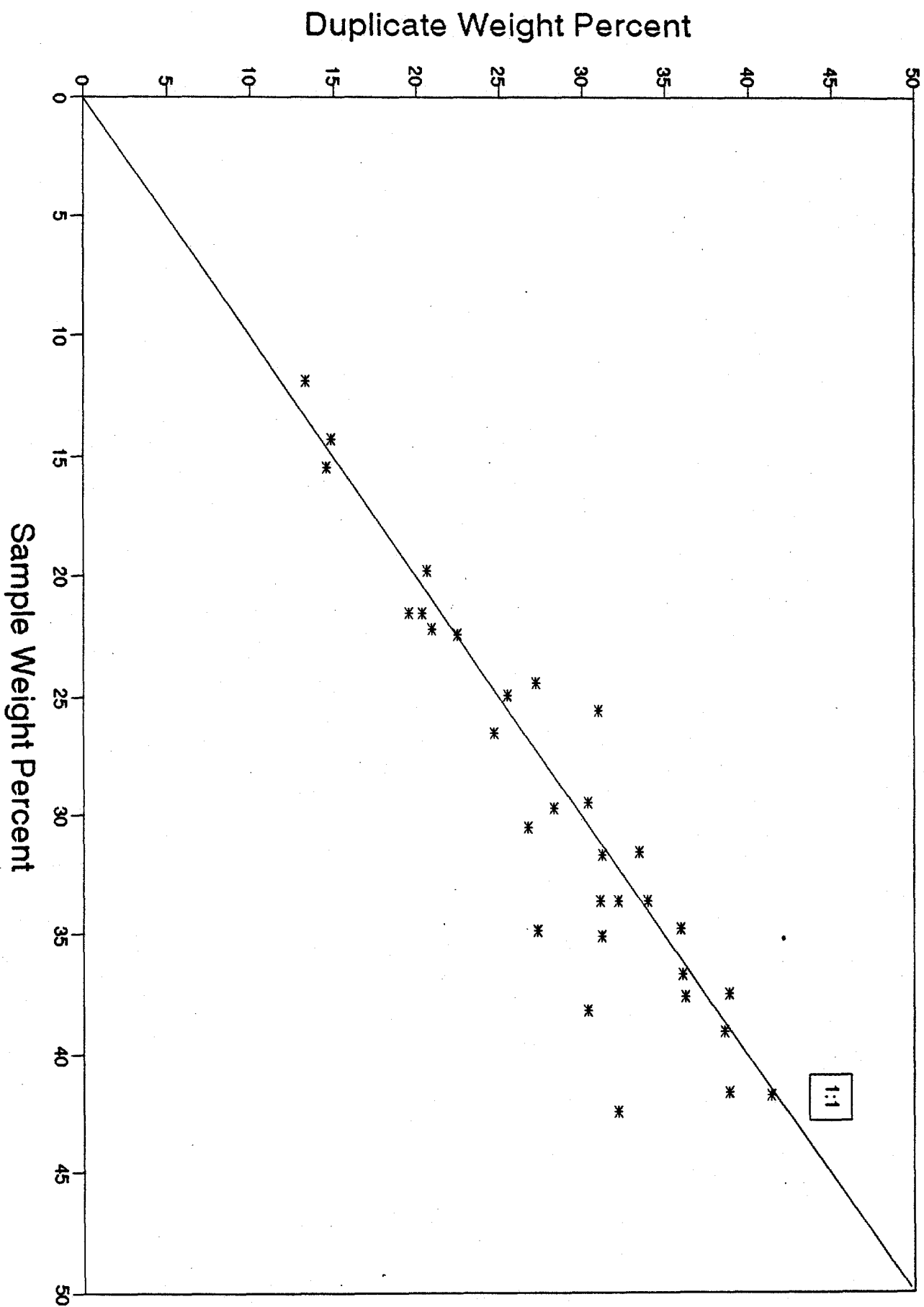
317105

General Electric Company
Hudson River Project
Variability Tri-chlorinated Duplicates



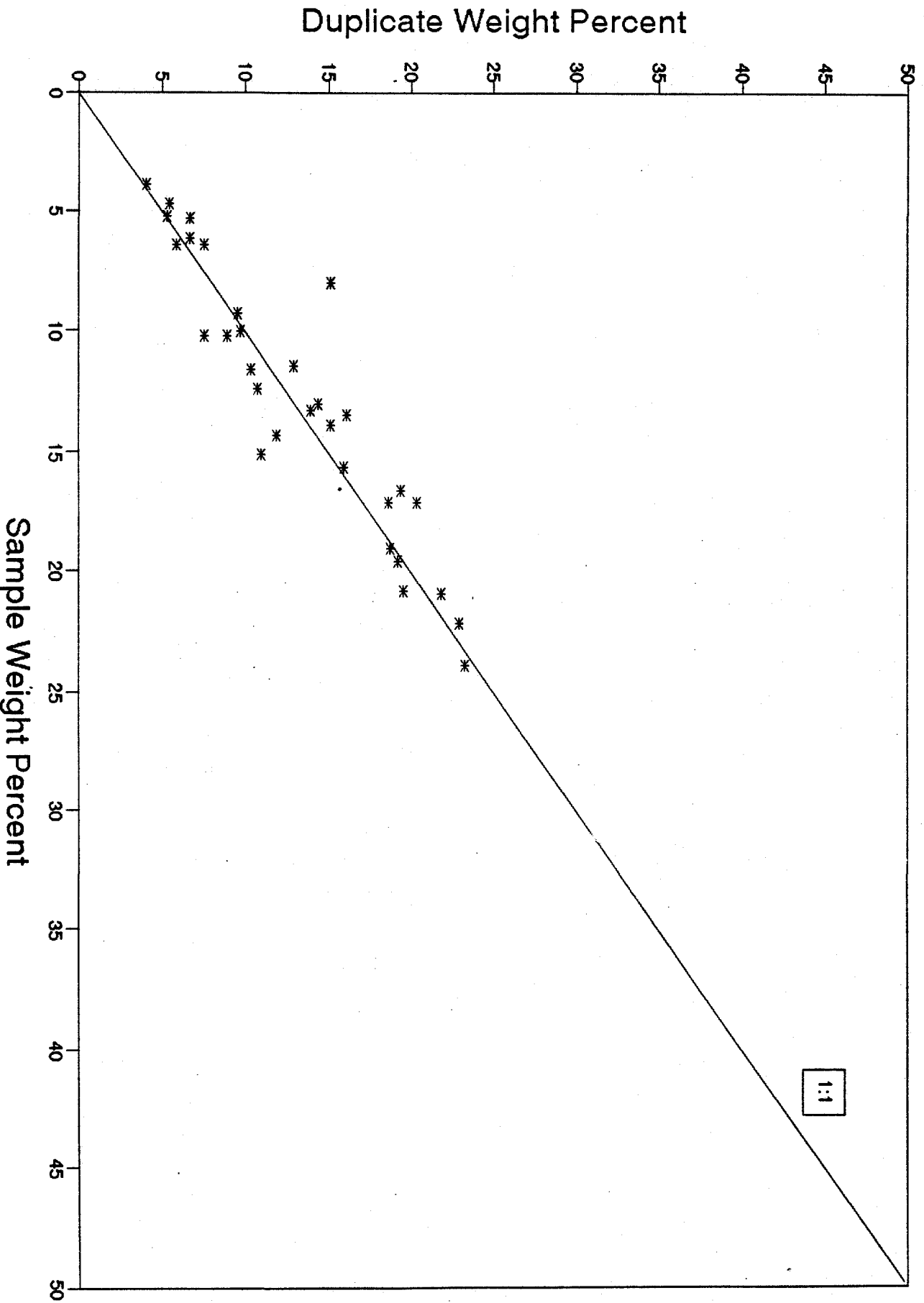
317106

General Electric Company
Hudson River Project
Variability Tetrachlorinated Duplicates



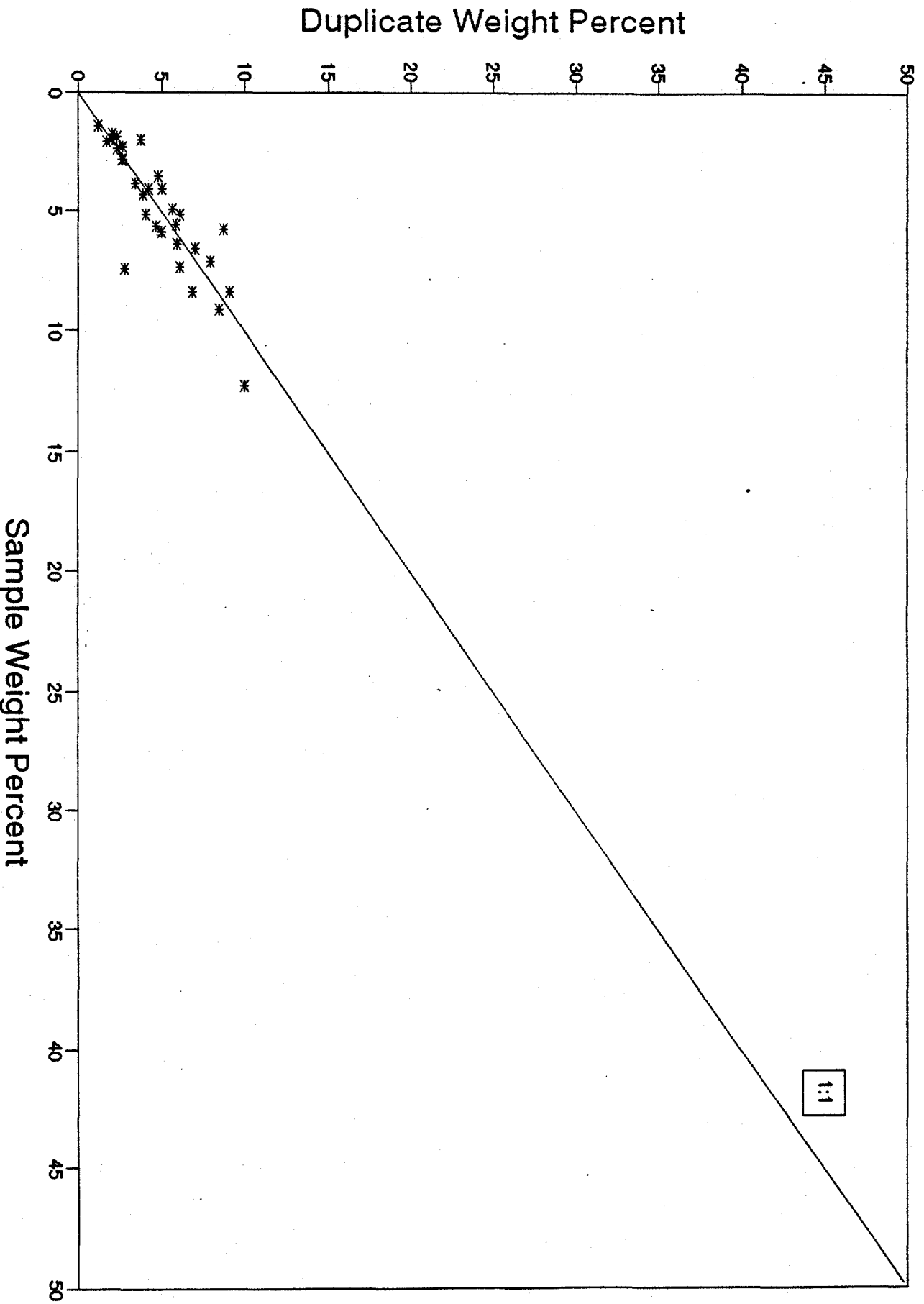
317107

General Electric Company
Hudson River Project
Variability Pentachlorinated Duplicates



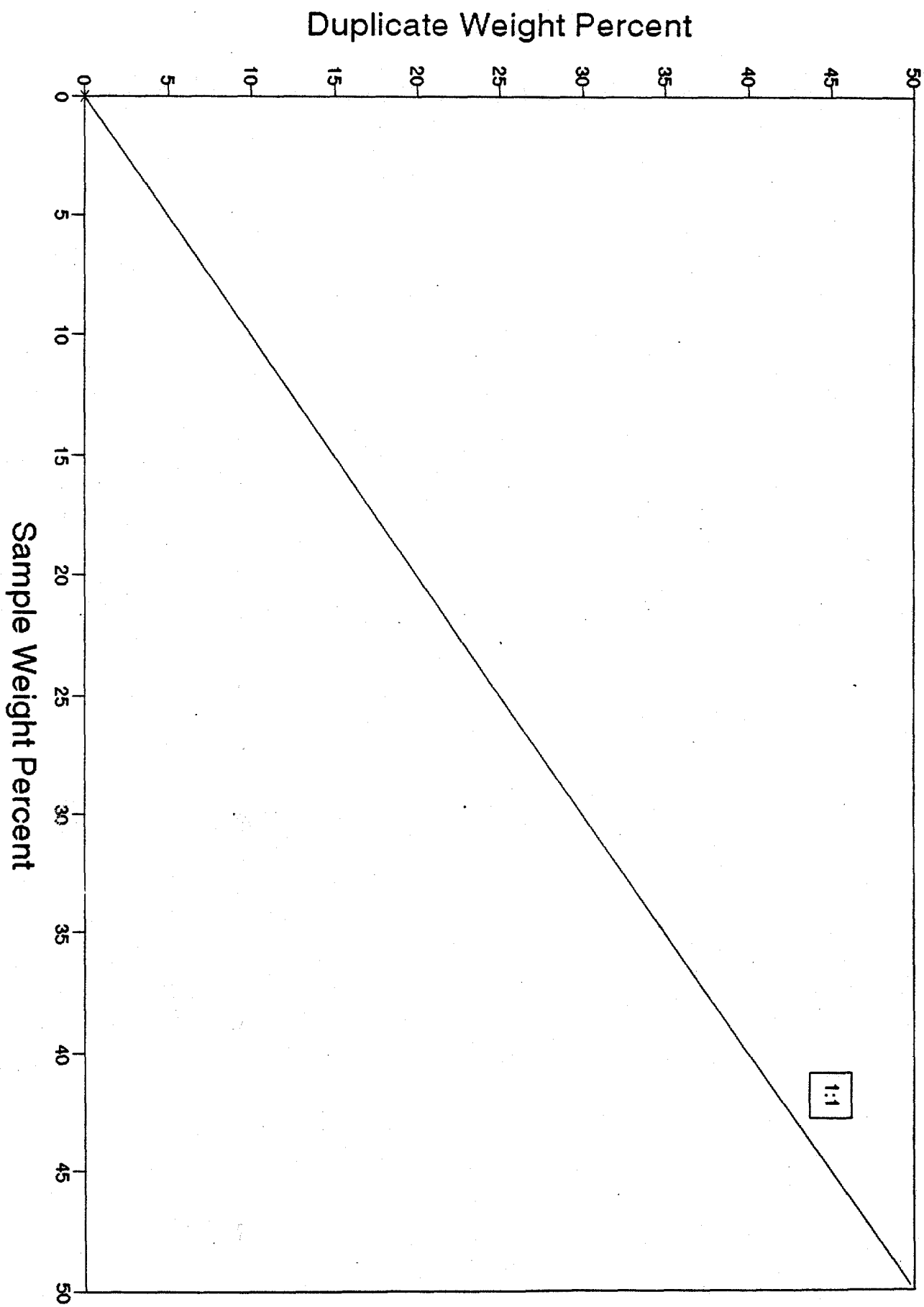
317108

General Electric Company
Hudson River Project
Variability Hexa-chlorinated Duplicates



317109

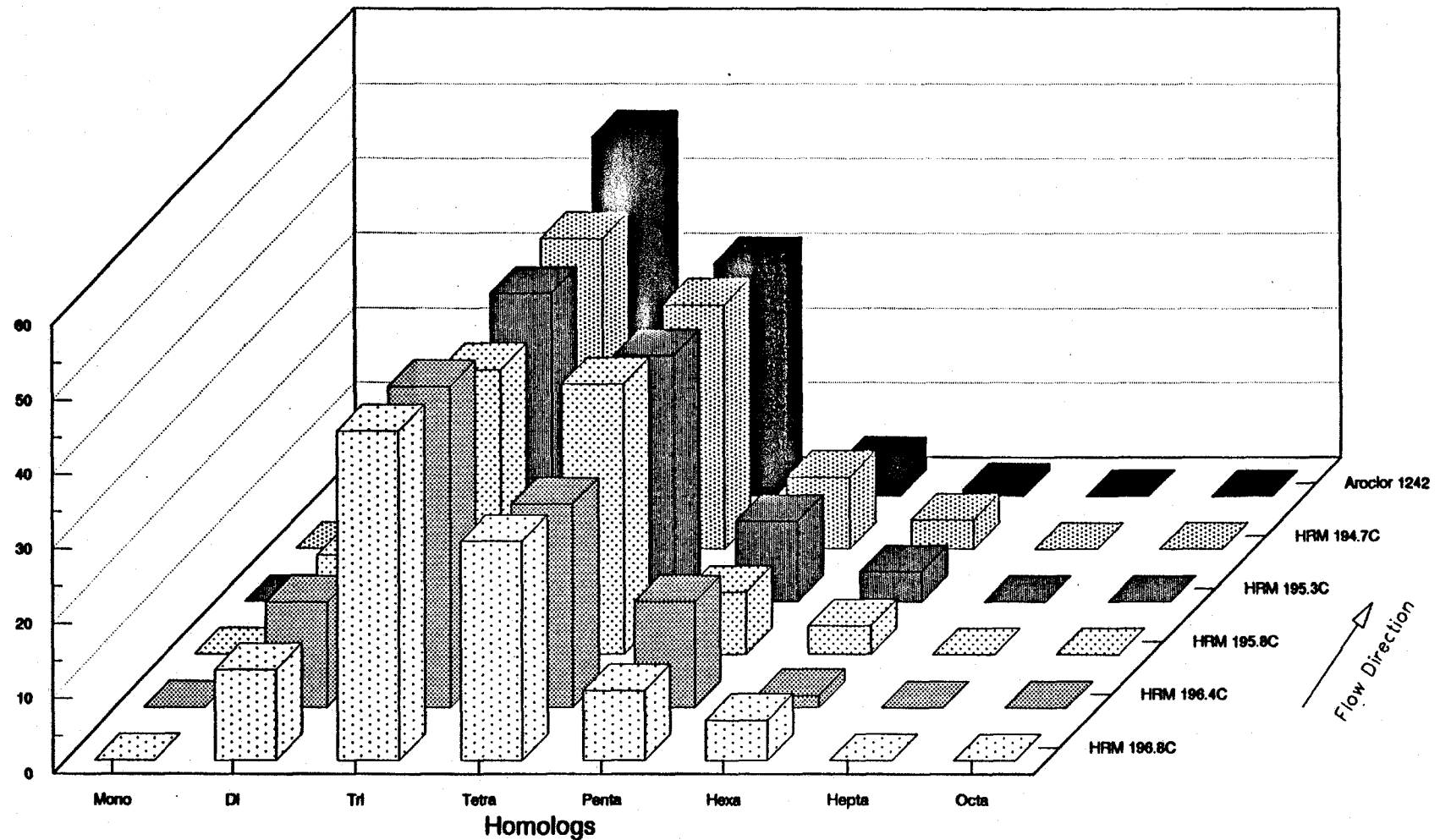
General Electric Company
Hudson River Project
Variability Heptachlorinated Duplicates



317110

General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 8/18/93

Weight Percent

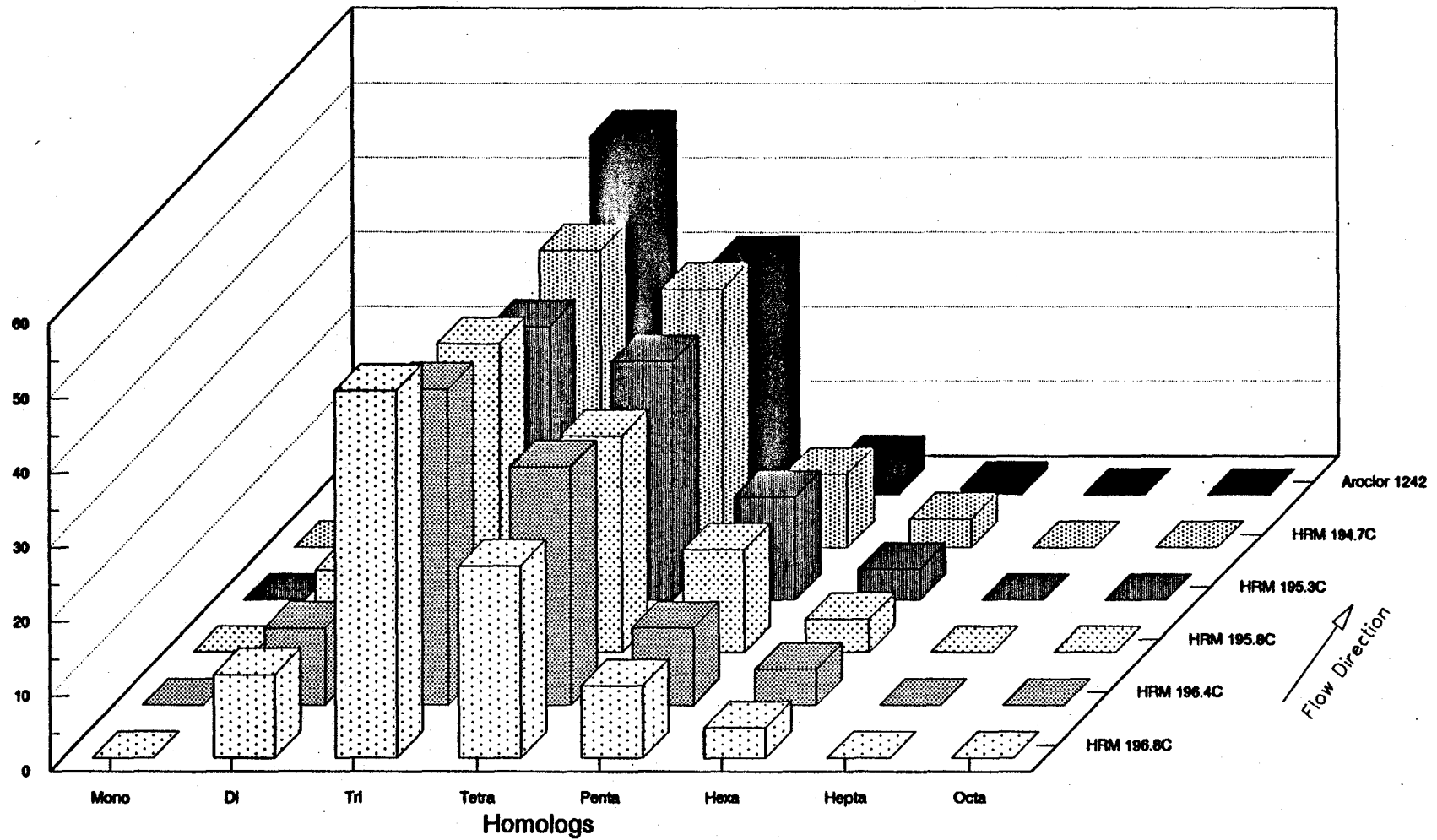


O'Brien & Gere Engineers, Inc.
 October 4, 1993
 fs81893.drw

317111

General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 9/02/93

Weight Percent

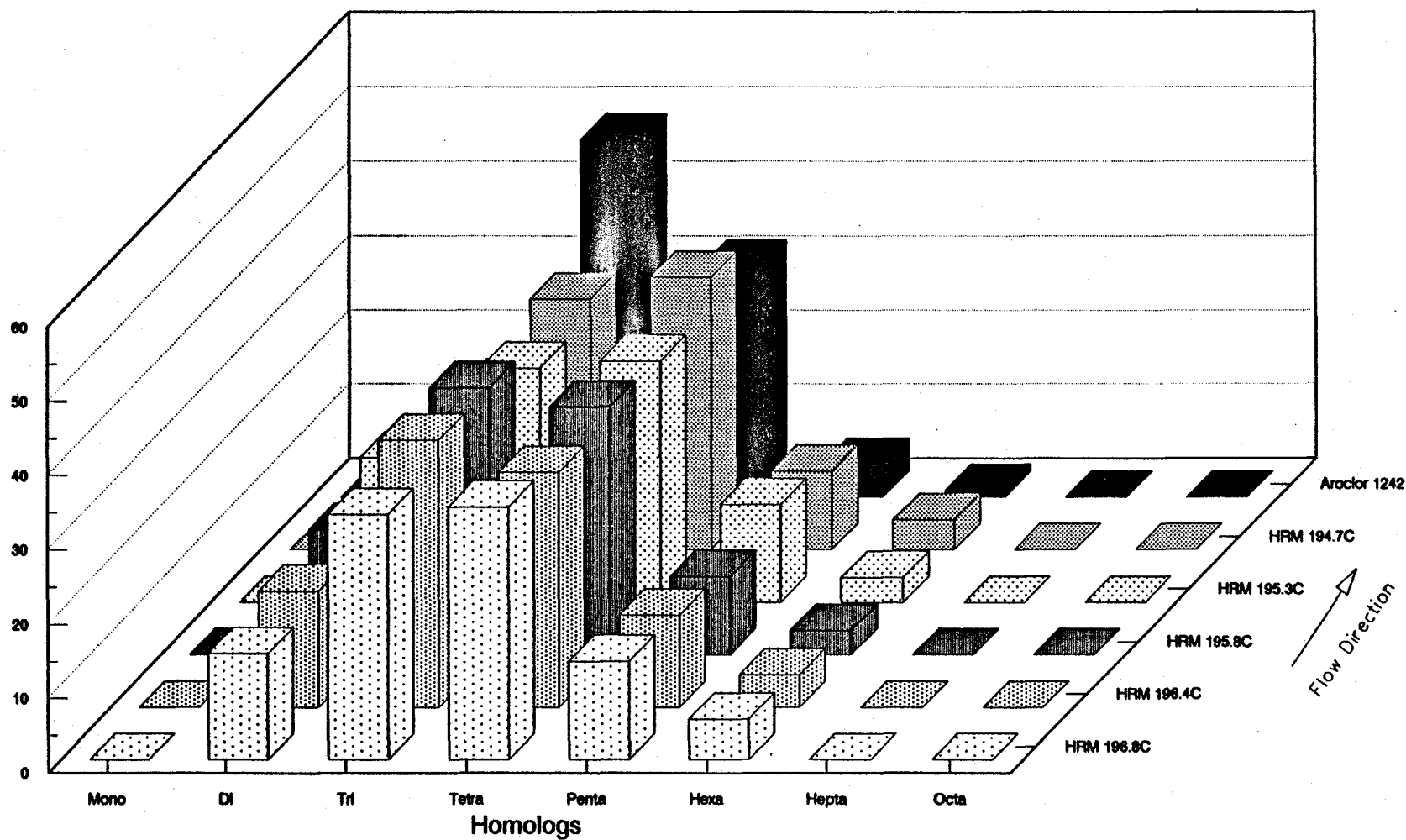


O'Brien & Gere Engineers, Inc.
 October 4, 1993
 fs90293.drw

317112

General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 9/15/93

Weight Percent

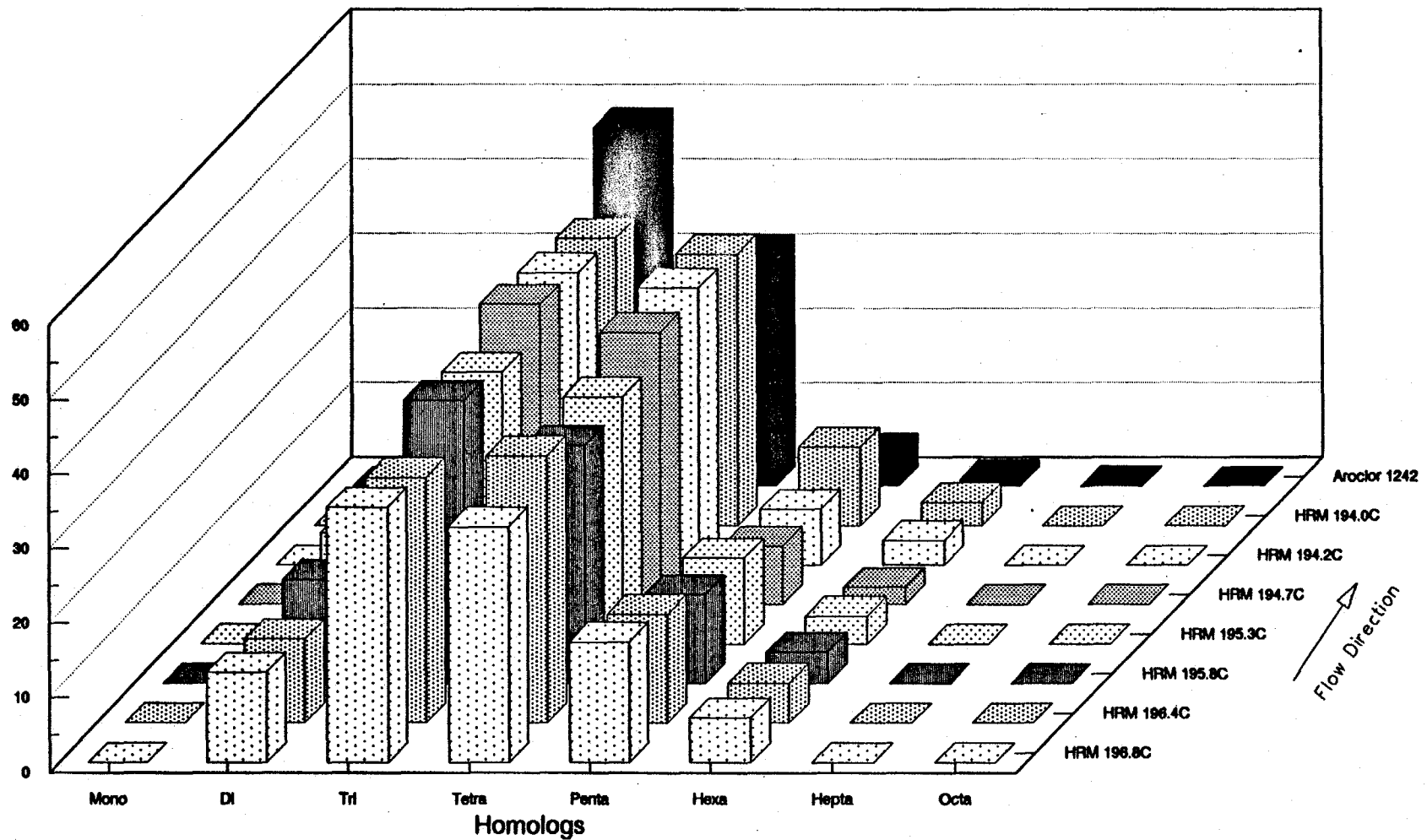


O'Brien & Gere Engineers, Inc.
 October 26, 1993
 101503.drw

317113

General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 9/29/93

Weight Percent

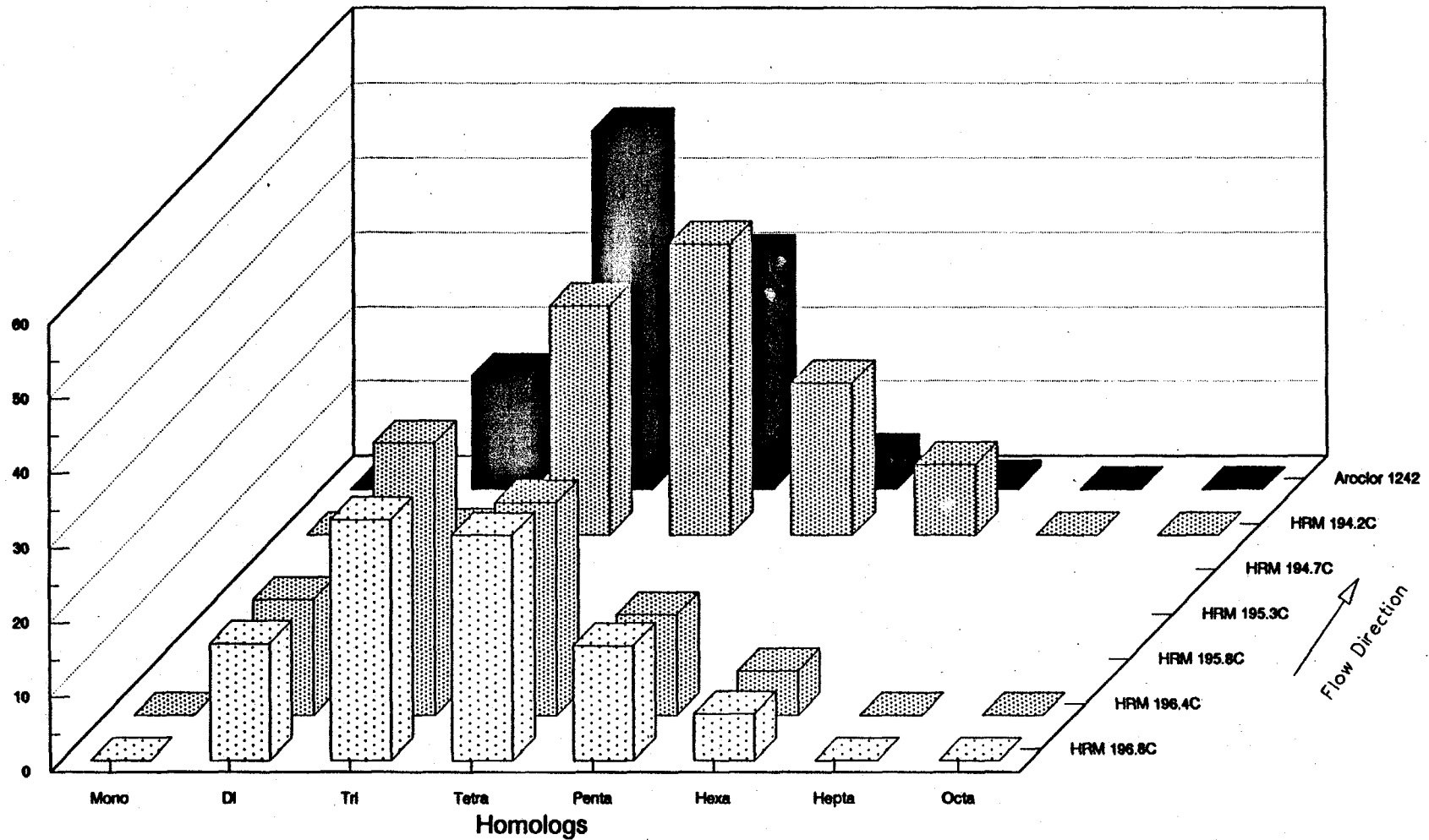


O'Brien & Gere Engineers, Inc.
 October 26, 1993
 ts92993.drw

317114

**General Electric Company
Post-Construction Remnant Deposit Monitoring
Float Survey Homolog Distribution: 10/21/93**

Weight Percent



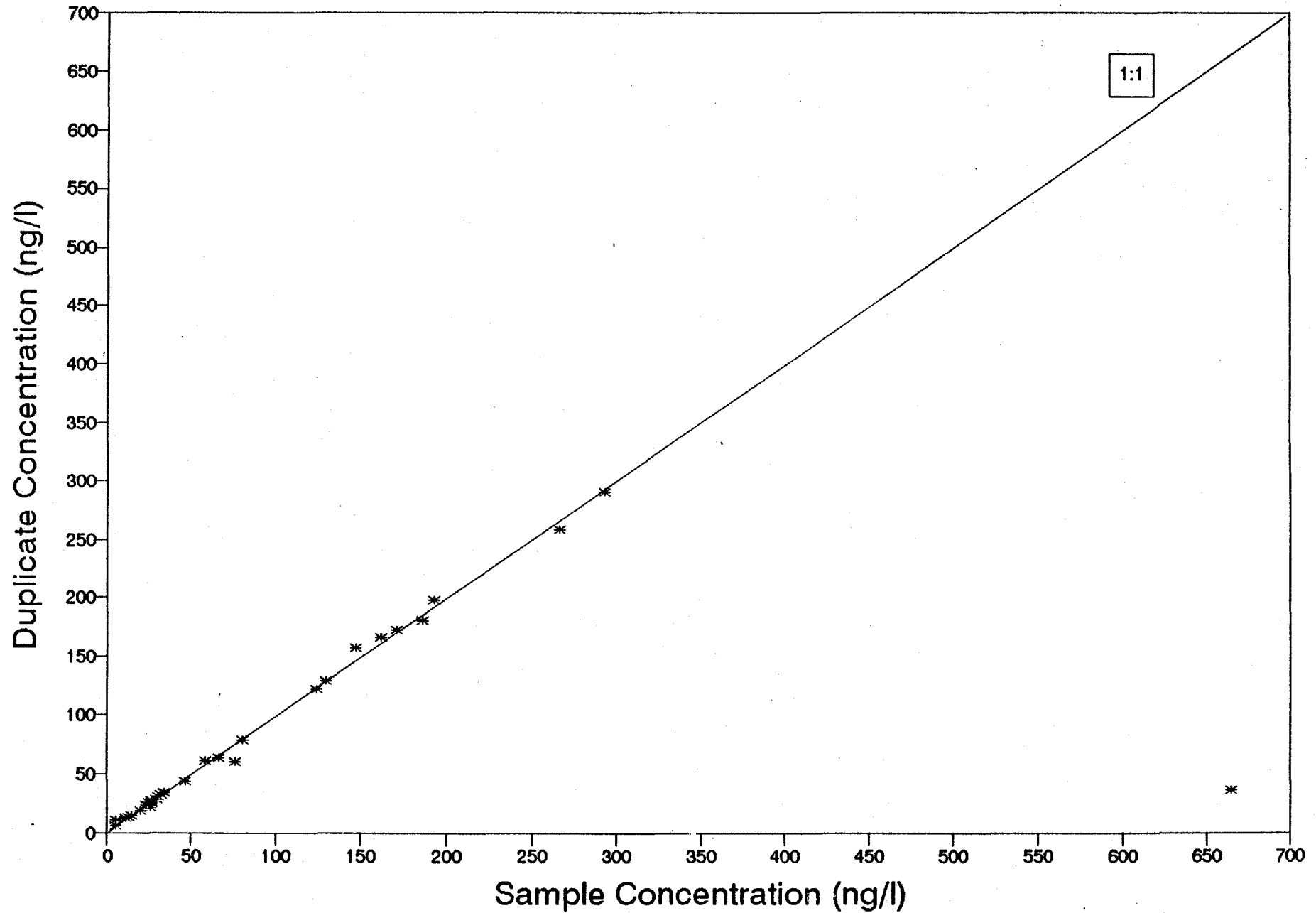
O'Brien & Gere Engineers, Inc.
December 2, 1993
ts102193.drw

Note: PCB concentrations at HRM 195.8, HRM 195.3, and HRM 194.7 are below detection limit.

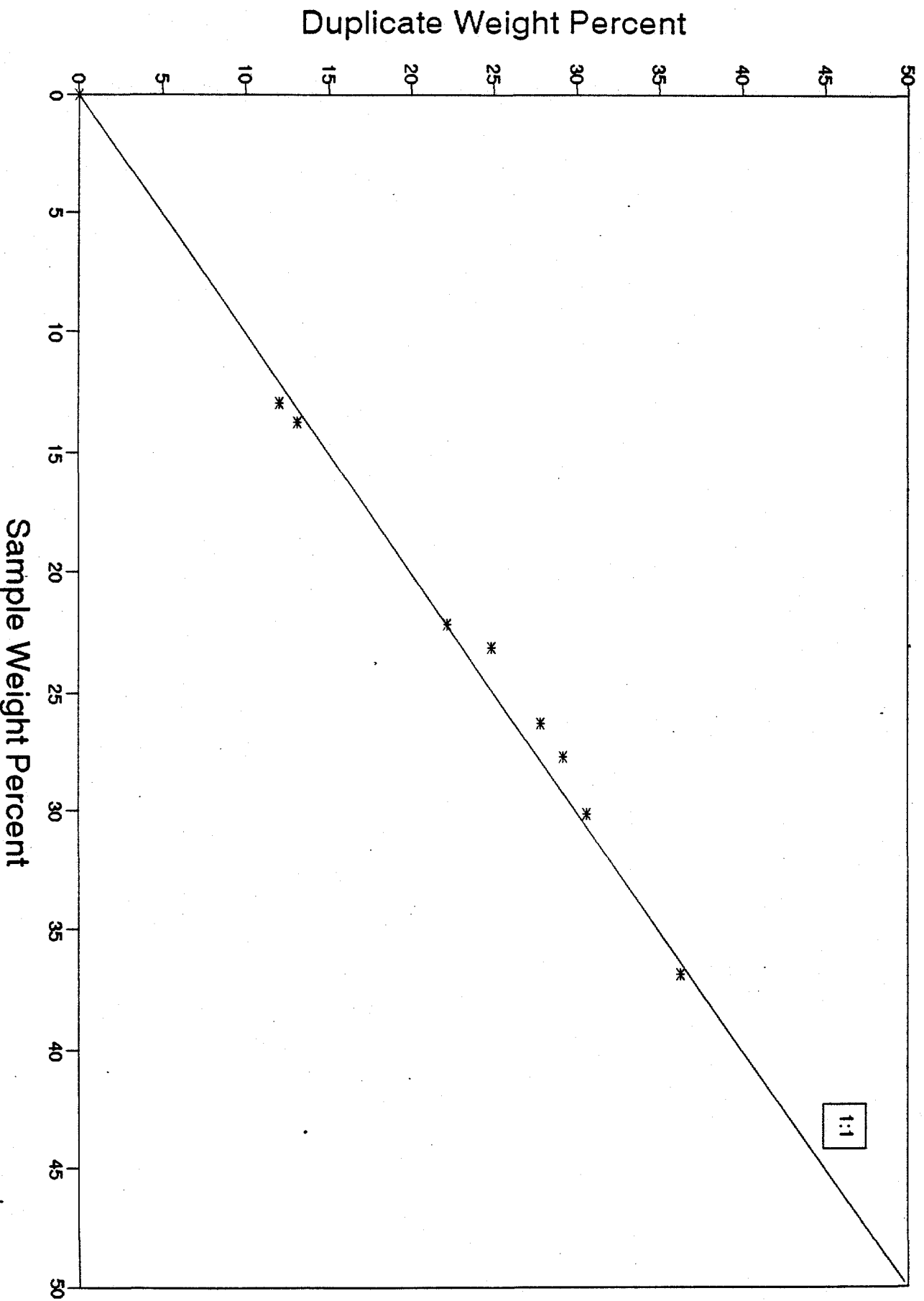
317115

APPENDIX H
DUPLICATE VARIABILITY

General Electric Company
Hudson River Project
Variability of PCB Duplicate Analysis

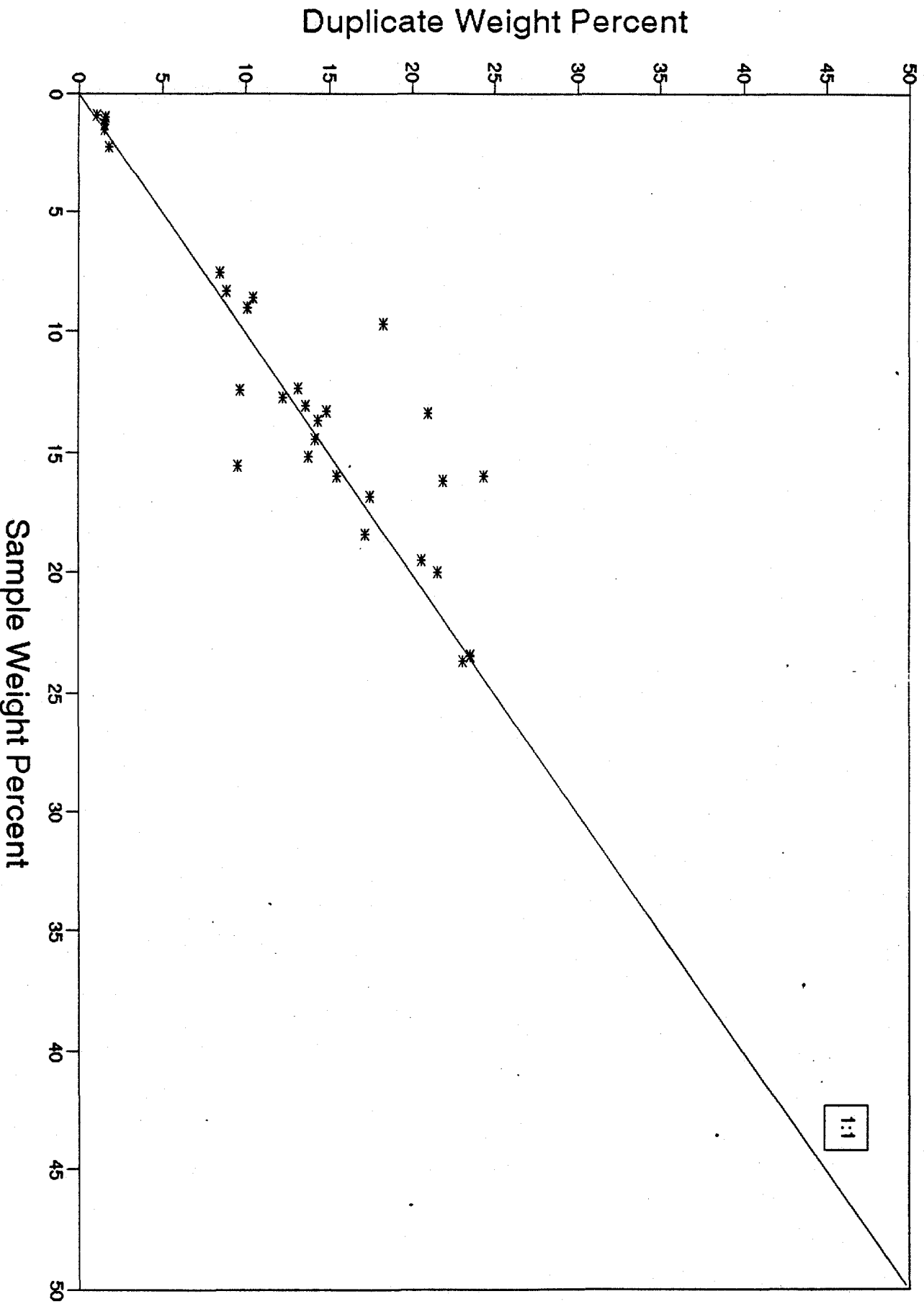


General Electric Company
Hudson River Project
Variability Mono-chlorinated Duplicates



317118

General Electric Company
Hudson River Project
Variability Di-chlorinated Duplicates



317119

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 9/15/93 PCB Chain of Custody error
wrong date (9/8/93) entered for
sample collection, correct date (9/15/93)
interfered upon sample transfer. WAT 10/1/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	9/15/93 9/8/93	11:15	HIMMERER COMP	5'		NEW BRIDGE AT CENTER OF RIVER MS-EDBL
HRM 196.8 - shore		12:15	GRAB	1		
HRM 196.8 - center		11:25	GRAB			
HRM 196.4 - center		11:32				
HRM 195.8 - center		11:47				
HRM 195.3 - center		12:15				
HRM 194.7 - center		12:50				
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:55	HIMMERER COMP	7-12	20°C	BLIND DUEL MS-EDBL
HRM 188.6 (Thompson Island Dam)		16:00	GRAB	4'		
Ft. Edward Staff Gage		11:00				21.3
Lock 6 Staff Gage		09:05				20.3

Weather Data:
Temperature 80° F
Wind 5-10
Precipitation 0

Strong South Wind
FLOAT SURVEY INCLUDED:
TT OUTLET 11:05

Sampled by: Sony Tode / William Ayling

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 9/22/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	9/22/93	10:20	HIMMERER Comp	5.0'		BLIND DUPL.
HRM 196.8 - shore		11:30	GRAB	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:15	HIMMERER Comp	6-12'		
HRM 188.6 (Thompson Island Dam)		9:20	GRAB	4'	18°C	MS - EQBL
Ft. Edward Staff Gage		10:00				20.85
Lock 6 Staff Gage		11:30				20.00

Weather Data:

Temperature 65°F ±

Wind 10-15

Precipitation OVERCAST

Sampled by: Doug Todd

O'Brien & Gere Engineers, Inc.

317122

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 9/29/93

Hrm 193C -
Sample collected ~ 100 ft
down stream of STP outfall,
~ 50 ft from shore.

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HFM 197.0 (Bakers Falls Bridge)	9/29/93	09:30	HIMMERER COMP	5'		MS - EQBL
HFM 198.8 - shore		10:00	GRAB	1	16°C	BLIND DUAL
HFM 198.8 - center		920	GRAB			
HFM 198.4 - center		925	GRAB			
HFM 195.8 - center		940	GRAB			
HFM 195.3 - center		1010	GRAB			
HFM 194.7 - center		1045	GRAB			
HFM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:20	HIMMERER COMP	6-12'		
HFM 188.8 (Thompson Island Dam)		12:00	GRAB	4'	16°C	
L. Edward Staff Gage		9:30 EST	9			21.1
Rock 6 Staff Gage		EST 10:00				20.4

Weather Data:

Temperature 60°FWind 10-15 MPHPrecipitation 0

ALSO INCLUDES ADDITIONAL SAMPLES:

FLAT SURVEY { TT Bay 910 GRAB
Eddy pool 915 GRAB
Hrm 193C 1150 COMP 0.3.6 ft depth

Sampled by:

Don Lede/William Ayling

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

10/06/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HFM 197.0 (Bakers Falls Bridge)	10/6/93	11:15	Himmerer Comp	5'		
HFM 196.8 - shore		10:35	GAAB	1'		
HFM 196.8 - center						
HFM 196.4 - center						
HFM 195.8 - center						
HFM 195.3 - center						
HFM 194.7 - center						
HFM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:15	Himmerer Comp	5-12		MS - EQBL
HFM 188.8 (Thompson Island Dam)		09:50	GAAB	4'	13.5 ^{OL}	BLIND DUAL.
Fl. Edward Staff Gage		EST 10:05				21.2
Lock 6 Staff Gage		12:40				20.15

Weather Data:

Temperature

60° F

Wind

10-15

Precipitation

0

Sampled by:

Rory Tak

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG
10/13/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HF1 197.0 (Bakers Falls Bridge)	10/13/93	10:25	HIMMERER COMP	5'		
HF1 196.8 - shore		9:30	GAAB	1		MS - ED BL
HF1 196.8 - center		9:30				
HF1 196.4 - center						
HF1 195.8 - center						
HF1 195.3 - center						
HF1 194.7 - center						
HF1 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:35	HIMMERER COMP	6 - 15'		
HF1 188.8 (Thompson Island Dam)		12:10 #	GAAB	4'		BLIND DUPL
Edward Staff Gage		EST 9:44				21.1
Rock 6 Staff Gage		19.00				20.1

Weather Data:
Temperature 50° F
Wind 10-15
Precipitation SHADERS

Sampled by: Gary Lude

O'Brien & Gere Engineers, Inc.

317124

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

10/21/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	10/21/93	12:05	HIMMERER Comp	5'		BLIND DUPL
HRM 196.8 - shore		14:30	GRAB	1'		
HRM 196.8 - center		1432	GRAB			
HRM 196.4 - center		1437	GRAB			
HRM 195.8 - center		1445	GRAB			
HRM 195.3 - center		1500	GRAB			
HRM 194.7 - center		1520	GRAB			
HRM 194.2 197 Bridge Comp. - East and Main Channel)		EAST 14:00 WEST 18:00	HIMMERER Comp	5 - 12'		M5 - E02L HRM 194.2 E HRM 194.2 W WC HRM 194.2 E - Float Survey Sample (GRAB)
HRM 188.6 (Thomson Island Dam)		10:20	GRAB	4'	12°C	
Fort Edward Staff Gage		13:42				21.44
Lock 6 Staff Gage		10:42				20.2

Weather Data:

Temperature 55°F

Wind 10-15

Precipitation RAIN - HEAVY AT TIMES

Sampled by: Rory Lode / W. Ayling

O'Brien & Gere Engineers

GENERAL ELECTRIC COMPANY
 FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
 1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

10/26/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HFM 197.0 (Baker's Falls Bridge)	10/26/93	09:45	Hummer Camp	5'	10°C	MS - EAGL
HFM 198.8 - shore		12:05	GAAO	1'		BLIND DUEL
HFM 198.8 - center						
HFM 198.4 - center						
HFM 195.8 - center						
HFM 195.3 - center						
HFM 194.7 - center						
HFM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		13:15	Hummer Camp.	5 - 12'		
HFM 188.6 (Thompson Island Dam)		14:00	GAAO	4'		
FL Edward Sluff Gage			MS MS 00			
Lock 8 Sluff Gage						

21.54

NO REMOVAL THIS DATE

Weather Data:
 Temperature 50°F
 Wind 10-15 MPH
 Precipitation 0

Sampled by: Ray Fick

317126

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

11/3/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HPM 197.0 (Bakers Falls Bridge)	11/3/93	11:00	HIMMERER COMP	5'		
HPM 198.8 - shore		10:00	GRAAB	1		MS - EOB
HPM 198.8 - center						
HPM 198.4 - center						
HPM 195.8 - center						
HPM 195.3 - center						
HPM 194.7 - center						
HPM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		11:55	HIMMERER COMP	5-12'	8 ⁰ L	BLIND - DUCK
HPM 188.8 (Thompson Island Dam)		09:20	GRAAB	4'		
Ft. Edward Staff Gage		EST 10:00 → EST 10:00				21.4
Lock 6 Staff Gage		12:30				20.4

Weather Data:

Temperature 45⁰ F

Wind 10-15 MPH

Precipitation 0

Sampled by: Nancy Lake

317127

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

11/10/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HFM 197.0 (Bakers Falls Bridge)	11/10/93	11:35	Kim MEAR Comp	5'		MS - EQBL
HFM 198.8 - shore		10:30	GAAB	1'		
HFM 198.8 - center						
HFM 198.4 - center						
HFM 195.8 - center						
HFM 195.3 - center						
HFM 194.7 - center						
HFM 194.2 (Fl. 197 Bridge Comp. - East and Main Channel)		12:00	Kim MEAR Comp	5 - 12'		
HFM 188.6 (Thompson Island Dam)		9:05	GAAB	4'	7°C	BLIND DOOL
Fl. Edward Stall Gage		EST 11:03				21.62
Lock 6 Stall Gage		EST 12:35				20.10

Weather Data:
Temperature 50° F
Wind 10-15 MPH
Precipitation 0

Sampled by: Gary Lede

11/17/93

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1992 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	11/17/93	11:50	HIMMERER COMP.	4.5		BLIND DUAL
HRM 196.8		10:40	GRAB	1		
HRM 196.8 - center						
HRM 196.4						
HRM 195.8						
HRM 195.3						
HRM 194.7						
HRM 194.2 (Fl. 197 Bridge)			HIMMERER COMP.	5' - 12'		COND OF EAST & WEST CHANNEL
HRM 194.2 (east channel)		12:30	12:30			
HRM 188.6 (Thompson Island Dam)		09:55	GRAB	4'	6°	M5 - EDBL → HIMMERER RINSE WATER
Fl. Edward Staff Gage		^{EST} 11:35				21.5
Lock 6 Staff Gage		13:00				20.4

Weather Data: 45° - F
Temperature
Wind 5-10
Precipitation OVERCAST

Sampled by: Rory Todd

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

11/24/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	11/24/93	11:00	HIMMERER COMP	5'		
HRM 196.8 - shore		10:30	GRAB	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:05	HIMMERER COMP	5-12'		BLIND GUL
HRM 188.6 (Thompson Island Dam)		09:45	GRAB	4'	50°C	MS- EQBL → HIMMER & S.S. PALE
Fl. Edward Staff Gage		11:00				21.2
Lock 6 Staff Gage		12:20				20.2

Weather Data: 450+
Temperature
Wind 5-10
Precipitation OVERCAST

Sampled by: Rmy Tala

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

12/1/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	12/1/93	10:40	HIMMERER COMP	5'		MS - EQBL - HIMMERER & SS PAUL AFTER RINSE
HRM 196.8 - shore		11:35	GRAB	1'		BLIND DUPL -
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:30	HIMMERER COMP	5 - 12'		
HRM 188.8 (Thompson Island Dam)		9:50	GRAB	4.5'	3.5°C	(3.5°C)
Fl. Edward Staff Gage		11:25				21.96
Lock 6 Staff Gage		12:30				20.7

Weather Data:

temperature

40°F ±

Wind

5-10

precipitation

0

Sampled by: Ray Lade

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

12/8/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	12/8/93	11:30	HIMMERER Comp.	5'		BLIND DUPL -
HRM 196.8 - shore		10:35	GAAB	1'		MS - EQBL → RINSE WATER FROM HIMMERER IN 5.5 GAIL
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:40	HIMMERER Comp.	5 - 12'		
HRM 188.6 (Thompson Island Dam)		09:50	GAAB	4.5'	3°C	
Ft. Edward Staff Gage		11:30				21.5
Lock 6 Staff Gage	13:05 →					20.3

Weather Data:
Temperature 38°F
Wind 5-10 MPH
Precipitation LIGHT SNOW SHOWERS

Sampled by: Rory Tate

O'Brien & Gere Engineers, Inc.

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG 12/15/93

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	12/15/94	11:30	HIMMERER Comp	5'		
HRM 198.8 - shore	7	10:20	GAAB	1'		
HRM 198.8 - center						
HRM 198.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp. - East and Main Channel)		12:20	HIMMERER Comp	5-12'		MS - EQAL → HAMMER E' S.S. FAIL AFTER RINSE
HRM 188.8 (Thompson Island Dam)		09:45	GAAB	4.5'	20°C	BLIND DUPL.
Ed. Edward Staff Gage		11:12				21.6
Rock 6 Staff Gage		12:45				20.5'

Weather Data:

Temperature 38° F ±
Wind 5-10
Precipitation OVERCAST

LIGHT SHOWERS

Sampled by: Rory Lede

O'Brien & Gere Engineers, Inc.

12/22/93

GENERAL ELECTRIC COMPANY
FORT EDWARD DAM PCB REMNANT DEPOSIT CONTAINMENT
1993 POST-CONSTRUCTION MONITORING PROGRAM

12/22/93

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)		11:20	HIMMERER COMP	5'	2°C	BLIND DUAL
HRM 196.8 - shore		10:35	GRAB	1'		
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp.- East and Main Channel)		12:05	HIMMERER COMP	5 - 12'		
HRM 188.6 (Thompson Island Dam)		09:50	GRAB	4.5'		MS - EQ06 - HIMMERER 5' S.S. PAIL AFTER RINSE
Ft. Edward Staff Gage		EST 11:05				21.8
Lock 6 Staff Gage		12:35				20.75

Weather Data:

Temperature 35°FWind 10 - 20 MPHPrecipitation 0

Sampled by:

Rory Tode

O'Brien & Gere Engineers, Inc.

317134

247-601

GENERAL ELECTRIC COMPANY

12/29/93

FORT EDWARD DAM PCB REMNANT DEPOSITE CONTAINMENT

1993 POST-CONSTRUCTION MONITORING PROGRAM

FIELD LOG

SITE	DATE	TIME	SAMPLE TYPE	APPROXIMATE WATER DEPTH	WATER TEMP.	COMMENTS
HRM 197.0 (Bakers Falls Bridge)	12/29/93	11:15	HIMMERER COMP	5'	1°C	
HRM 196.8 - shore		10:30	GAAB	1'		BLIND DUPL
HRM 196.8 - center						
HRM 196.4 - center						
HRM 195.8 - center						
HRM 195.3 - center						
HRM 194.7 - center						
HRM 194.2 (Rt. 197 Bridge Comp.- East and Main Channel)		12:30	HIMMERER COMP	5' - 12'		MAIN CHANNEL FLOE SOLID EAST CHANNEL 90% FLOE GAAB SAMPLE TAKEN UNDER EAST CHANNEL BRIDGE
HRM 188.6 (Thompson Island Dam)		09:50	GAAB	4.5'	1°C	MS - EQ BL → HIMMERER & SS PAUL AFTER RINSE
Ft. Edward Staff Gage		11:07			22.1	
Lock 6 Staff Gage		12:55			20.5	

Weather Data:

Temperature

0° F ±

BELOW 0 TEMP. IN AM

Wind

5 MPH

Precipitation

0

Sampled by:

Jerry Lede - J.L.

O'Brien & Gere Engineers, Inc.

317135

The following appendices are bound separately:

Appendix	Title	Number of Volumes
Appendix B	Data Validation Technical Memorandum	1
Appendix C	Northeast Analytical PCB Data Summary	13
Appendix D	OBG Laboratories TSS Data Summary	1